

**CGH RULES AND REGULATIONS**

**ALL CONTRACTORS, THEIR  
SUB-CONTRACTORS AND  
DIRECT SUB-CONTRACTORS  
ENGAGED FOR WORK IN**

**CHANGI GENERAL  
HOSPITAL**

You are advised to abide by the following  
rules and regulations

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## RULES AND REGULATIONS

It is the obligations of all Contractors, their sub contractors and direct sub contractors engaged for work in Changi General Hospital (CGH) to abide by the following rules and regulations:

### 1 Security Pass

- 1 The contractor is required to submit the list of workers including their I.C. Number or Work Permit Number to Maintenance Department at least two (2) days before the commencement date of this contract. The Contractor shall ensure that the workers report to the CGH General Services Department (GS) to register themselves before commencing work. Before leaving after work, the contractor shall de-register themselves out of the building. Workers including Foreman and Site Supervisors must wear the Security Pass prominently at all times while on duty in CGH.
- 2 While applying for security passes, original documentary proof, i.e., Identity Card for Singaporean, Passport or valid Work Permit with photograph for foreign workers must submit to CGH GS for checking and recording purposes.
- 3 If the work under maintenance care is to commence after office hours, the contractor must ensure their workers proceed to FRC room to register or de-register before going to General Services Department to change back their security pass.
- 4 The contractor must ensure their worker change the security pass before commence to the worksite and before they start their work.
- 5 Regular spot-checks will be conducted by Maintenance in order to ensure that all workers are in possession of their security passes.
- 6 If any workers are found without valid Security Pass while they are in duty in CGH, the Contractor is subjected to fine of S\$100 per worker per occasion.
- 7 No child under the age of sixteen (16) years shall be employed in any work to be performed in CGH's compound in compliance with relevant Government regulations.
- 8 If any illegal worker is found to be employed, CGH, shall, notwithstanding the provision of the Contract, be entitled to withhold any payment due to the Contractor for a period of two (2) calendar months and CGH shall not be liable for any loss or damage suffered by the Contractor as a result of any payment being so withheld
- 9 An administrative charge of \$30 will be imposed for loss of the security pass.

### 2 Uniforms for Contractor's Workers

All workers, foreman, and sub-contractors etc, must wear the security pass and the company's shirt at all time when carrying out any works in CGH.

### 3 Working Hours

- 1 Normal working hours in CGH are to be as follows unless otherwise specified:

Mon – Sun 8 am to 6 pm

The Contractor shall ensure that no work will be carried out after 6:00 pm. If work is required to be carried out beyond the normal working hours, permission is to be obtained and/ or approved by CGH. In the event that the tender call for works to be carried out after office hours, the Contractor must abide by all rules and regulations specified in this section.

- 2 CGH reserves the right to stop any works anytime if the works disturb CGH's operations unless otherwise specified.

### 4 Site Cleanliness

- 1 The windows and drains etc along the work boundaries are to be cleaned daily.
- 2 The carpeted areas surrounding the work boundaries are to be vacuumed daily to keep the dust around the area to its minimum.
- 3 Any staircase, corridor and wall at the access routes are to be kept clean at all times.
- 4 Any stains, scratches or markings shall be made good to CGH's satisfaction.
- 5 Proper safety signage to be displayed when cleaning is in progress especially wet mopping of the floor. The floor shall not be excessively wet and the contractor shall use a clean dry mop after wet mopping of the floor.
- 6 The Main Contractor shall ensure their worker follows CGH (infection control rules) where applicable.
- 7 The Contractor shall be responsible for clearing away the consumables, eg filters, rugs, covering sheets, etc, for proper disposal.
- 8 No food and drinks are permitted at the services and plant rooms. The Contractor shall ensure that the workers take their meal breaks at designated areas approved by CGH.
- 9 The Contractor shall provide adequate protective cover to CGH's equipment and furniture to prevent accidental soiling or damage. The Contractor shall replace and make good any equipment or furniture that had been soiled or damaged.
- 10 The Main Contractor shall be responsible for controlling and maintaining the work site cleanliness. Rubbish bins should be used and that the work site shall be cleaned with all rubbish removed daily.
- 11 CGH will clear on the Contractor's behalf should the Contractor fail to do so at the sum of SS300 per trip and the cost be deducted from the Contract Sum or bill to the Contractor.

5 Worker's Discipline within CGH

- 1 Smoking, gambling, littering, spitting, any unruly behaviour and creation of public nuisance are strictly prohibited. Any worker found not abiding to the rules shall be ordered to leave the site immediately.
- 2 The Main Contractor must ensure full compliance with all laws and by-laws of the Republic of Singapore.
- 3 CGH staff will withdraw with immediate effect the security pass of the concerned worker/workers whom is found not abiding by the above rule. It is the responsibility of the Contractor to ensure that their workers abide by the above.
- 4 All workers are not allowed to bath or wash equipment in the toilets. They are only allowed to use a designated toilet (to be approved by CGH).
- 5 All workers are to be properly attired at all times within CGH grounds.
- 6 The contractor is subjected to a fine of S\$300 per occasion of having their worker found violating the above rule.

6 Worker's Accommodation

The Contractor's workers are strictly not allowed to stay in CGH's compound overnight. Those who found squatting in CGH's compound will be referred to the Police for trespassing.

7 Access Route

- 1 Access to the work area is only via the **approved route** as directed by CGH.
- 2 There shall be no obstruction to any CGH operation along the access area / route.
- 3 All loading and unloading of materials shall be conducted at the Loading/Unloading Bay.
- 4 Closure of access route, if necessary, shall be subjected to CGH's approval.
- 5 Temporary lightings, if necessary, shall be provided for the duration of the contract.
- 6 All areas, finishes and installed M&E items along the access routes and other used areas must be well protected from any damages.
- 7 All access routes to be protected with 2m wide plain uniform coloured carpet over plywood taped to the floor with **3M** tape when necessary.
- 8 Protection works to the access routes must be regularly maintained to CGH's satisfaction.

- 9 All temporary protection on floor and wall must be removed after practical completion and thoroughly cleaned for handing over to CGH. Any damages to be made good to CGH's satisfaction.
- 10 Any vehicle found parking illegally or indiscriminately in the CGH premises shall be wheel-clamped and a de-clamping fee will be imposed.

#### 8 Use of Lift Cars and Landings

- 1 The period of use and location of lift/lift landings shall be subject to the CGH's approval.
- 2 Only the designated service lift shall be used for the transportation of both workers and materials.
- 3 All affected lift cars walls and floors, landings, architrave, shall be protected by carpet on plywood for floors with 3M tape and padded canvas sheet for vertical surfaces to CGH's satisfaction when necessary.
- 4 All temporary protective linings must be removed after practical completion, and must be cleaned thoroughly and polished for handing over to CGH.
- 5 CGH shall impose a cleaning fee of \$500 per occasion if any of the Contractor's workers are found using lifts other than the approved lift. In addition, the Contractor would be required to make good any damages found in the lifts used.
- 6 Any damages caused to the lift cars must be made good to CGH's satisfaction.

#### 9 Transportation of Material

- 1 The Contractor is only allowed to use the designated lift for transportation of materials at all times. The Contractor is strictly prohibited to use any other lift for transportation of building or other materials unless stated otherwise.
- 2 The Contractor shall be liable to a fine of S\$300 per occasion should any of their worker found using lifts other than soiled lift for transportation of such materials.
- 3 The Contractor is also to note that there should not be any loading or unloading of materials other than at designated area. A penalty of S\$100 per occasion will be imposed for any non-compliance.

#### 10 Dumping of Debris

- 1 Debris to be removed off site daily in an orderly manner and as per the legal requirement.
- 2 There will be no dumping on CGH premises. All debris shall be removed out of CGH building and disposed at ENV approved dumping sites.

- 3 CGH shall impose a penalty of \$1,000 on each occasion of illegal dumping by the Contractor, which includes dumping of building waste into CGH's bin centre unless approved by CGH.
- 4 No skid tank / container shall be allowed to be placed within CGH building compound unless approved.
- 5 Contractors are required to engage licensed toxic industrial waste collectors to collect their wastes for recycling or treatment for safe disposal. (Details of the list of toxic industrial wastes can be found in the code of practice on pollution control.)

#### 11 Smoking

Smoking within CGH compound is prohibited. CGH will withdraw with immediate effect the security pass which issued to the worker whom is found smoking in CGH premises. It is the responsibility of the Contractor to ensure that their workers do not smoke within CGH compound.

#### 12 Signage

- 1 All necessary signage should be allowed and provided at strategic locations to CGH's satisfaction, to inform the staff and visitors,
  - The nature of work
  - Safety precautions
  - Alternative route (if applicable)
- 2 The Contractor must provide sufficient number of standard warning signs and install them at locations designated by the S.O. for the protection of the public, staff and users of the premises. The Contractors shall maintain the signs regularly.

#### 13 Hoarding

- 1 Hoarding shall be erected at locations as directed by CGH.
- 2 Full height painted timber framed hoarding (complete with door and lock) to the underside of suspended ceiling or softer of concrete floor shall be erected at designated location to prevent dust spread into the public corridor and trespassing of the public to the work site.

#### 14 Nuisance and Noisy Work

- 1 The Contractor shall carry out works in such manner so as to cause as little inconvenience and nuisance to persons working in the existing properties and to the general public.
- 2 The Contractor shall take all precaution in minimizing noise from the works. He shall be liable for and shall indemnify CGH in respect of any claims or proceeding arising out of his neglect in taking care to ensure that noise from the works does not constitute a nuisance. CGH has the right to ask the Contractor to stop work if it causes disturbance to the surrounding areas.

15 Chemical used in Construction Site

- 1 Organophosphates or paraquat are not allowed to be used as weed-killer in CGH.
- 2 The Contractor has to inform CGH, the chemicals to be used for on work site before the start date.
- 3 The Contractor has to put up MSDS on site for chemicals used in the duration of the work.
- 4 The Contractor shall provide proper labeling, storage, and records of the chemical used during the duration of the work in CGH.
- 5 The Contractor has to provide appropriate spill kit on site for the chemical used.
- 6 Appropriate personal protective equipment should be used when working with the chemicals.
- 7 The Contractor must ensure proper disposal of the chemicals as per legal requirements.

16 Tapping from or Connection to Existing Water Supply Services

The tapping from or connection to existing water supply must comply with the following requirements:

- 1 All water pipes must be copper material in accordance with PUB requirements.
- 2 A minimum of one week notification to Maintenance Department prior to the connection of pipe line.
- 3 Isolation valve should be provided at:
  - (a) the connection where new and old pipes meet,
  - (b) the connection where it is fixed to the sanitary appliances.
- 4 All pipes must be properly supported with brackets and fastened to the wall or the underside of slab.
- 5 All concealed piping should be properly blazed. No compression joints are allowed for concealed piping.
- 6 Cost of repairing any damages or fault to the existing piping system due to the renovation work shall be borne by the Contractor.
- 7 The Contractor shall be liable to pay CGH **S\$500** for the first occasion of pipe burst and subsequent occasion at **S\$1,000** each.

17 Connection to Existing Waste/Soil Pipe Work

Connection to existing waste/soil pipe must be carried out by Licensed Plumber and the Contractor must comply strictly with the following requirements:

- 1 All waste and soil pipe must be complied with the required standard of Ministry of Environment.
- 2 Advance notice (at least 2 days) must be given to Maintenance Department before work commencement.
- 3 All pipes must be rigidly supported with brackets. All pipes should be supported with brackets and fasten rigidly to the wall or underside of slab.
- 4 All the pipe joints must be properly solvent glued and water-tight.

#### 18 Fire Protection System

If fire alarm system is to be installed in the premise under renovation and the fire alarm is linked to CGH main alarm system; the Contractor must comply with the following procedures:

- 1 Submission of the requisition form (Form A) to Maintenance Department personnel for the isolation of the zones affected by hot work or renovation works shall be done at least two days in advance prior to work start.
- 2 All smoke detector should be covered properly with plastic sheet to avoid cumulative dust on detectors during the course of work.
- 3 The Contractor must inform BAS personnel to re-activate the zones each day after work stopped.
- 4 Cost of repairing any damages or fault to the existing system due to the renovation work shall be borne by the Contractor.
- 5 The Contractor shall be liable to pay CGH S\$500 for the first occasion of false alarm activation and subsequent occasion at S\$1,000 each.

#### 19 Temporary Tapping from Existing Electrical Services

All temporary electrical works must be carried out by Licensed Electrical Worker (LEW) and the installation shall comply fully to CP5:1988. The Contractor must also follow the procedures specified below:

- 1 The Contractor shall submit the Application of Temporary Supply Installation (**Form B**) to CGH for approval prior to commencement of the temporary tapping works. The detail of the submission of Form B is as follows:
  - a) Tapping supply from DB  
Submission of Form B – at least 2 weeks prior to commencement of work.
  - b) Tapping supply from main switchboard requires shut down  
Submission of Form B – at least 1 month prior to commencement of work.

Where the need arise, CGH reserves the right to change the proposed date.

- 2 The Contractor shall submit a detail work programme to CGH for approval. Once approved, the programme should be strictly adhered by the Contractor.
- 3 2 sets of test reports which are endorsed by the LEW shall be submitted to CGH prior to the turn-on of temporary supply.
- 4 All turn-on shall be witnessed and approved by CGH.
- 5 The Contractor shall install a DB at CGH Switch Room or any designated location for the temporary tapping work. The DB should complete with the following:
  - MCCB (Sub-Circuit) and MCB (Final Sub-Circuit)
  - KWH meter to monitor the temporary electrical consumption when necessary, and
  - Earth Leakage Circuit Breaker (ELCB) of appropriate rating.
- 6 A penalty of \$500 and \$1000 will be imposed for the first and subsequent tripping of main LT switchboard respectively.

## 20 Hot Works

In the event that hot work is to be carried out at the work site within CGH, the Contractor has to follow the Hot Work Procedures listed below:

- 1 The Contractor is to raise hot work requisition form (**Form C** and submit it to FRC at least twenty-four (24) hours in advance for CGH's Officer's approval.
- 2 The Contractor has to arrange a joint site inspection with maintenance officer to check the safety measure and complete the On-Site Certification for Hot Works. Approval shall be obtained from maintenance officer prior to any hot work is being carried out.
- 3 The Contractor has to bring a certified filled fire extinguisher to stand by at the location where hot welding is to be carried out.
- 4 Every day after work completed, the Contractor is to report to BAS and fill in the same Form C to indicate whether there are any fire hazard arose during the course of works.
- 5 If the hot work is to be carried out at area where fire alarm system is being installed then all procedures specified in paragraph 19 (Fire Alarm Isolation) shall be followed strictly.
- 6 No hot works is allowed after office hours (8:30 am to 5:30 pm on weekday and 8:30 am to 12:30 pm on weekend) unless special arrangement is made.
- 7 If the Contractor is caught to carry out hot work without complying with the proper procedures specified in the context, CGH will stop their work immediately and

impose a penalty of S\$1,000 for the 1<sup>st</sup> occasion and S\$2,000 for subsequent occasion. Moreover, the Contractor is responsible for any delay of project caused by such wrongful act.

21 Handphones

The Contractor, his Sub Contractors and workers are strictly prohibited to use the handphone within the vicinity of Intensive Care Units (ICU), Operating Theatres (OTs), Dialysis Centre, A&E, wards area and other affected area.

22 Correspondences

All correspondence shall be addressed to Maintenance Department and copy to the respective users/departments unless otherwise stated.

23 Conservation of Energy

Train workers and create awareness on energy conservation

- 1 Report all faucet / pipe leaks to Maintenance
- 2 Turn off water taps when not in use
- 3 Encourage workers to practice water conservation
- 4 Switch of fans / lights when not in use
- 5 Use energy efficient bulbs and electrical appliances whenever possible
- 6 Close doors and windows of air-con rooms
- 7 Inform Maintenance Department when the area becomes too cold.

24 Defect Inspection / Hand Over

The Contractor has to inform Maintenance Department the date of inspection / hand over one week in advance via facsimile.

25 Liquidated Damages

CGH shall impose the following amounts being liquidated damages (LDs) for attending to disruption of services caused by the Contractor or his workmen:

<b>Type of Disruption</b>	<b>Liquidated Damages</b>
False fire alarm activation	\$500 : for the first occasion \$1,000 : for each subsequent occasion
Pipe burst	As above
Tripping or shutdown without prior approval from CGH or causing breakdown of any M&E services in the building.	As above
Lift Breakdown (Due to mishandling during the course of work).	As above

CGH shall impose the following amounts being liquidated damages (LDs) for safety violations committed by the Contractor or his workmen:

Type of Violation	Liquidated Damages
Unsafe Acts / Unsafe Conditions	\$2,000 : for the first occasion \$5,000 : for each subsequent occasion
Using unauthorised / non-approved equipment / devices & tools	As above

In addition to the above, the Contractor could be debarred from working within CGH building or be issued with a Stop Work order. The Contractor shall not be entitled to any claims or extension if a Stop Work order is being issued.

The Contractor shall provide all the labour, plants, equipment, consumable materials, spares and everything necessary for carrying out the works, and perform any work which is necessary for the efficient functioning of the system/equipment which is generally provided or performed in accordance with good accepted practice, even though such work may not be explicitly mentioned.

The Contractor's attention is drawn to the fact that the description contained herein and as described above and hereinafter is only for his guidance and any omission or error shall not constitute a ground for any claim. The onus for investigating and ensuring the extent, figures, dimensions, quantities and nature of the works lies solely with the Contractor. Any doubts as to the actual extent of the safety and housekeeping violations should be clarified with the Safety coordinator during the safety briefing, as no claims arising out of lack of clarity or availability of information will be entertained.

## 26 Color Scheme For M&E Services

The Contractor is to strictly conform to the following color scheme for services and all the new services to be painted accordingly.

S/No	Services	Color
1	Cold / Hot Water Service Pipe	Green with white arrow & wordings (ICI Gem GL23185)
2	Cold / Hot Water Rising Main	Green with white arrow & wordings (ICI Gem GL23185)
3	Soil, Waste & Vent Pipe	Black with white arrow & wordings
4	Fire Services and Associated Equipment and Pipe Work.	Red with white wordings (ICI Signal Red GL437)
5	Chilled Water Pipe a. Supply b. Return	Blue with white arrow & wordings (ICI Neptune GL 2031)
6	Medical Gas (Compressed gas)	White
7	BAS Services	White
8	Duct Work a. Supply/Fresh Air Duct b. Return Air Duct c. Exhaust Air Duct	Cream (ICI Magnolia GL633)
9	Electrical	Orange (ICI Simply Orange GL 26351)
10	Communications	White

Note : All services to come with labeling, identification and direction signage (where appropriate) at every 5m interval. All pipework and duct work are painted white in the basement car parks, with accompanying labeling and directional flow indicators.

## **Safety Rules and Regulations**

### **1 General Safety Rules**

- a. Comply with all rules and regulation and all warning signs.
- b. The Main Contractor has to report all incident, accident and near misses to the relevant department in-charge of the project immediately.
- c. Personnel, equipment and materials shall enter and exit the site only through designated access.
- d. Identification badges must be worn in full view at all times while working at site.
- e. Operators of vehicles and equipment shall observe all site traffic regulations.
- f. Horseplay, fighting, gambling, and the possession or use of firearms, ammunition, alcoholic beverages, and illegal drugs are prohibited.
- g. All necessary tools and equipment, including personal protective equipment, shall be properly maintained.
- h. Defective tools and equipment shall be repaired or replaced immediately. Lock-out and tag-out procedures shall be followed.
- i. Only employees who have been properly trained and are otherwise qualified to use the tools and equipment safely shall use the tools and equipment.
- j. Only authorized personnel shall operate heavy-duty equipment or machinery.
- k. Safety guards and other safety features provided for all tools and equipment must not be removed for convenience. They shall be properly installed and maintained.
- l. Equipment and machine are designed for a specific purpose. Do not abuse or misuse them, other than for their intended use.
- m. The Management reserves the right to refuse or restrict the use of tools, equipment or chemicals on site.
- n. Floor openings shall be covered or guarded.
- o. Inspect all lifting equipment and machinery, ladders, etc, for safety defects before use.
- p. Do not leave a load hanging unsecured or unattended.
- q. Scrap, trash and other waste shall be deposited in designated areas and not to be left unattended. They must also be disposed of daily.
- r. Work areas shall be kept clean as the work progresses. Maintaining and ensuring proper housekeeping is your responsibility.
- s. Cords and hoses shall be routed in a manner that will present no tripping hazard - preferably overhead.
- t. All materials, tools and equipment shall be placed and stored in a stable position to prevent rolling or falling.
- u. A safe access way and emergency exits shall be maintained.
- v. All work areas shall be checked before work commencement and at the end of each shift to ensure safe conditions are properly maintained.
- w. Know the location of the nearest fire extinguisher and use it only to extinguish fires.

- x. Cables and hoses shall be removed out of confined spaces during lunch breaks or any long work stoppage. Alternatively, cables and hoses shall be disconnected or switched off at the respective supply source to minimise explosion hazards.
- y. Work in void space, manholes and etc, shall not be carried out alone and shall be accompanied by any fellow worker.
- z. The usage of radio headphones or earphones while working is prohibited.
- aa. All drivers shall hold valid and relevant driving license. Foreign worker not holding a driver permit shall not drive any vehicle.
- bb. Report all accidents or near miss incidents immediately
- cc. Do not hesitate to ask about Safety and Health matters. Consult the Supervisor or Safety coordinator for advice.

### Responsibility

- (a) All personnel shall be responsible for the safety of himself, his co-workers working nearby and the general public.
- (b) They shall comply with the requirements of the Factories Act and any other relevant acts and regulations of Singapore including any amendments or re-enactment thereto.
- (c) Relevant acts and regulation shall include but not be limited to the following:
  - The Factories Act;
  - The Factories (Building Operation and Works of Engineering Construction) Regulations;
  - The Fire Safety Act;
  - The Road Traffic Act;
  - The LTA Manual on Temporary Signage;
  - The others relevant Acts and Regulations

## 2 Personal Protection (PPE)

- 1. Suitable personal protection equipment (PPE) issued shall be worn while working, such as:
  - i. Clothing,
  - ii. Eye protection,
  - iii. Gloves,
  - iv. Respiratory protection equipment,
  - v. Hard hats,
  - vi. Hearing protection, and
  - vii. Safety harness.
- 2. All personnel shall avoid costly delays in proceeding with the work by ensuring that they are equipped with all the required PPE.
- 3. All personnel must be trained on proper way of wearing and maintenance of appropriate PPE.
- 4. Rings, bracelets, dangling pierced earrings, long neck chains and continuous wrist straps shall not be worn during the operation of moving machinery and electrical switchboards.
- 5. During working hours, all employees must be properly attired and shall not be bare-bodied or bare-footed, or not wearing shoes and uniform.
- 6. Work clothes shall be washed regularly so as to prevent skin infections and irritations.

a Head Protection

1. Safety helmets shall be properly maintained.
2. Replace the safety helmet if damaged.
3. Safety helmets shall be worn in the following conditions:
  - In any area posted with Head Protection signage.
  - Beneath any overhead work.
  - While working in vessels or manholes.
  - In any other area where a head bumping hazard is present.

b Eye and Ear Protection

1. Safety glasses with side shields shall be worn by anyone who is:
  - Doing mechanical/electrical work
  - In an area where mechanical work is being carried out
  - Doing scaling, buffing, chipping, chiselling, reaming, drilling, welding, burning and grinding.
  - Exposed to excessive dust, acid mist, sparks or flashes
  - In an area where chemicals are stored or handled
2. Cover-all goggles or full-face shields (worn over approved safety goggle) shall be worn for power chipping, removing or installing ceiling panels and drilling above shoulder height (chips or particles might enter the eye).
3. Special protection shall be worn for handling acids or caustics, or grit blasting.
4. Burning goggles shall be worn for all gas welding and burning. They shall have a No. 3 density minimum filter with safety lens.
5. Hearing protectors shall be worn in high noise level areas, e.g. where noise levels exceeds 85dB(A) for 8 hours exposure.
6. Hearing protectors shall be issued to employees and ensure that they wear them while carrying out noisy operations such as grinding, chiseling, hammering and blasting.
7. Eyes and hearing protectors shall be properly maintained. They shall be replaced immediately when they are damaged.

c Hands

1. Gloves suitable for the job being performed shall be worn unless the job cannot be done with gloves or unless wearing gloves increases the hazard.

d Toes, Feet And Legs

1. Safety shoes shall be worn at all times by persons doing mechanical/electrical/construction work or in an area where such work is being performed. Safety shoes shall also be worn in all areas so posted.
2. Rubber boots with safety toe protection shall be used on jobs with the potential for chemically hazardous conditions.

e Respirators

1. Only approved respirators shall be worn in contaminated atmosphere. Facial hair in the area of the respirator-sealing surface is prohibited.

f Skin

1. If the possibility exist of exposure to irritants, proper PPE, as specified on the material's MSDS, shall be worn.

g Back

1. Never try to lift more than you can handle safely. Consider size and weight of load. Get help when needed.
2. Adopt proper manual handling techniques.

3 Housekeeping & Storing Materials

1. Any dry papers or oily rags should be cleared away from the work site daily.
2. Scraps and rubbish shall be placed separately into designated areas for disposal out of the work area.
3. Burning of rubbish is strictly prohibited at the work area.
4. Containers for oily waste and rags should have automatic or self-closing covers and should be emptied at least once a day and more often it necessary.
5. Safety passageways, aisle, stairways and workshops must be kept free from obstructions.
6. Return tools and other equipment to proper storage place after use.
7. Nails and broken glass are particularly dangerous. Do not leave bottles on benches or scattered around work areas. Always remove or bend exposed nails.
8. In storing materials ensure a safe base, ie flat, firm and level surface. Barrels and other materials that may roll or slide should be secured at the base.
9. Always pile to a safe height. A safe height means not too high that the pile will be unsteady and so that the floor load limit is not exceeded. The safe height varies with various types of items, depending on its weight, shape and mobility.
10. Always lock in materials. Cross-tie between layers to keep stocks within the pile. Piles should also be strapped back to insure stability.
11. All ends of materials, especially for stock and sharp materials should not protrude beyond the face of the pile.

4 Working in CGH

Prior to working in an area not previously discussed or approved during a pre-work review or where process-related hazards may be present, Consult the Safety coordinator for the following information:

1. Special instructions.
2. Restrictions.
3. Permits required.
4. Location of lockout.
5. Potential changes in work environment, including unexpected liquids or vapors.
6. Special training.
7. Location of emergency alarms, emergency equipment, evacuation routes, and assembly points for work areas.

8. Type of emergency escape equipment available and how to use it.

5 Fall Protection

1. Roof pitch equals or where any person is liable to fall a distance of more than 3 meters, a secure foothold and handhold shall be provided. Where it's not practicable, other suitable means such as a safety harness and fencing shall be provided.
2. Generally, fall protection shall be utilised by every personnel and tied off to independent life lines for work from elevated areas under the following conditions:
  - Exceeds 4 in 12.
  - Work requiring personnel closer than 6 feet from roof edge without parapets from floor openings.
  - Two-point-suspension scaffolds or stages are being used.
  - Ladders are placed near the edge of a roof or a floor opening.
  - Work from elevated areas where no protection is available to prevent falling.
3. Every personnel issued fall protection shall be instructed in the proper method of wearing, using, and securing it prior to using it.
4. All fall protection equipment shall be inspected by the user prior to each use.

**How to wear a Safety Harness:**

- Arranged so the "D" ring is in the rear.
- Tied off to immovable objects overhead using as short a line as possible, or secure to a lifeline.
- The harness is not to be used for support or as a lineman's belt.

**Consult the Safety Coordinator for a demonstration if in doubt.**

6 Operation of Machinery, Equipment & Switches

1. All machinery and equipment shall only be operated by authorized and qualified personnel.
2. Make sure the guards and safety devices are in working condition and properly adjusted before you operate a machine.
3. No unsafe acts, i.e. horseplay.
4. Never grease, oil or repair machinery that are still running.
5. Do not remove the protective guards.
6. Lock-out or tag-out procedures are for your protection. Do not leave running machinery unattended.
7. Never wear loose sleeves, dangling neckties or finger rings while working around machinery.
8. Keep the floor around the machine clean, dry and free of tripping hazards.
9. All machine operations require the wearing of safety goggles.
10. Material handling equipment has the Right-Of-Way.

11. Do not talk to other employees while operating fast moving machines, such as planers, table saws, band saws, shapers, grinders, etc.
12. Keep fingers out of the area of cutting edges and other exposed moving parts.
13. All cutting tools shall be maintained sharp at all times.
14. Check tools for good condition before usage. Replace defective tools.
15. Carry tools in proper tool bags, belt or box, and not in pockets or pants belt.
16. Do not leave tools scattered on floors or lying on bench or table where machines are running.
17. Keep tools clean. Grease and dirt cause slips and mashed fingers.
18. Use the right size and type of tools for the job.
19. Do not use excessive pressure or force on hand tools. If the tool requires too much exertion, it is not the right tool for the job.
20. Always use safe equipment. If the equipment becomes defective in any way, place a "DEFECTIVE - DO NOT USE" tag on it and take it out of service. Inform the officer in charge immediately.
21. Do not work on equipment, belts, drives, conveyors or vehicles while they are in operation, without special approval. Equipment to be shutdown shall be locked, tagged, cleared and tried before work is begun.

## 7 Permits / Authorizations

1. Written, properly authorized, current permits are required before you may begin work.
2. Permits shall be posted at the work site when required.
3. The following table lists the permits and authorizations commonly required for work on a site.

TABLE A - Commonly Required Work Permits/ Authorizations

Type Of Permit	When Required
Permit To Work	Any activities relating to M & E services, ACMV, fire protection facility.
Hot Work	For flame & spark producing activities.

## 8 Lock-out & Tag-out Procedures

1. The Main Contractor must ensure all work must comply to CP 91: 2000 Code of Practice for Lock-Out.
2. The lock-out and tag-out procedures shall be followed to protect persons from injury due to inadvertent operation of power-driven equipment, opening of pipeline valves, or energizing of electrical circuits.
3. Main Contractor must apply for the works that requires LOTO through application of FORM E (Lockout-Tagout Permit) and submit to Maintenance Dept.
4. The person in charge / Supervisor shall explain the lock-out and tag-out procedure to all the person involved in the work.
5. Tags shall not be altered or used for other than the intended purpose.
6. Locks and tags used by the personnel shall include the personnel's name, telephone number, and date.
7. The supervisor shall put on and remove lock and tag where required, and inform his staff accordingly.

8. Do not allow contract personnel to operate or manipulate any valve, switch, or equipment.
9. Equipment that has lockout tags attached shall not be removed.

## 9 Welding & Burning

1. A Hot Work Permit shall be obtained from the Site Management/Safety coordinator before any welding or open flame work is done.
2. The Main Contractor must ensure all work must comply to CP 50: Safety in welding and cutting.
3. All exposed combustible materials around and below welding and burning areas shall be removed to a safe location, covered with fire-retarding material, or protected by containing all sparks and slag in a spark catcher approved by the Site Management / Safety Coordinator.
4. Each welder and burner is responsible for containing sparks and slag. A fire watch is necessary for all the hot work.
5. Adequate fully charged fire extinguisher should be provided with for any welding, burning, or open flame work.
6. Personnel shall know how to operate the fire extinguisher.
7. Hoses and welding leads should not pass through doorways. If there is no alternative, the door shall be braced open and the hoses and leads protected from damage.
8. Care must be taken to protect hoses conveying the gases from cylinders against damage or crumpling.
9. Inspect gas hoses and welding cables for proper maintenance and keep at the beginning of each work shift.
10. No welding or burning shall be done on a confined space, unless it has been tested, inspected and approval is given by the Site Management / Safety Coordinator.
11. Welding leads, burning hose and compressed air hose shall be bridged over, or shall be supported above passageways. They shall not be hung from conduit, process lines, sprinkler lines, etc.
12. All leads, grounds, clamps, welding machines, hoses, gauges, torches, and cylinders shall be inspected before use.
13. All fittings, couplings, and connections shall be "leak-free".
14. Ventilation shall be adequate for the material being welded or burned.
15. Personnel should avoid breathing fumes. An exhaust system, blower, or suitable respirator should be used as required.
16. Use proper torch lighters to ignite cutting torches.
17. No smoking or hot work shall be permitted while painting is in progress in any confined area.
18. Welding machine should be switched off and gas hoses should be disconnected from the header during rest periods for tea, lunch, dinner and whenever it is not in use.
19. Return all empty gas cylinders promptly to the stores to save cost.
20. Keep gas cylinder upright and well secured on trolley stands.
21. Under no circumstances should oil or grease be introduces to the spindles of valves or regulators of oxygen bottles.
22. Before commencing burning or welding, always check what is on the other side of the plating are equally important, check again on completion of the work.

a Welding – Electric

1. Ensure that all work has a separate and adequate ground, pulled from the machine to the work location. Attach the ground connection as close to the work piece as possible.
2. Remove the rod from the electrode holder when laying it down. Discard the stub ends properly.
3. Shield all arcs and post warning signs in operator areas.
4. Turn off machine at the end of each usage or when not using for extended periods.
5. Wear an approved welding hood. Use no less than a No.10 filter with a safety lens.
6. Electric welding is prohibited from a metal ladder.
7. Welding leads shall be adequately insulated from the machine to the electrode holder.

b Burning And Welding – Gas

1. Before connecting regulators to cylinders, carefully 'crack open' the cylinder valves to blow out any foreign particles. Close the valve. After the regulator is connected, ensure that the second stage of the regulator is closed. Stand to one side and open the cylinder valve slowly.
2. Open valves on fuel gas cylinders (propane, acetylene or natural gas) one-quarter turn only. Turn on oxygen cylinder valves wide open. Valve wrench must be kept in place during use.
3. Do not exceed 15 psi on the torch side of the gauge when using acetylene.
4. When lighting a torch,
  - a. Open the fuel gas valve
  - b. Light the torch
  - c. Then open the oxygen valve
  - d. Use approved spark lighterReverse the order to shutdown the torch.
5. Break down all burning rigs at the end of the shift, or when the work is completed, removing the regulators and screwing the protective caps down hand-tight.
6. Secure all compressed gas cylinders upright to an adequate support while they are in storage, transit or use.
7. Keep oil and grease away from oxygen regulators, hoses and fittings. Do not store wrenches, dies, cutters or other grease-covered tools in the same compartment with oxygen equipment.
8. Do not use compressed gas to clean your clothing or clean your work area.
9. Inspect all hoses, gauges and torches before each usage.
10. Wear approved welding goggles. Use at least a No.3 filter with a safety lens.
11. Never leave a torch inside a confined space because of the potential hazard of leakage.
12. Never use oxygen in pneumatic tools, to pressurise a container, to blow out lines, or as a substitute for compressed air or other gases.
13. Place cylinders and hoses where they are not exposed to spark or slag from a burning operation.

14. Handle cylinders with care:
  - a. Lift cylinders to upper levels with approved methods only. Do not use slings or lift a cylinder by the protective cap.
  - b. Do not strike an arc on cylinders.
  - c. Do not use cylinders as rollers.
15. Flashback arrestors shall be an integral part of the oxy-fuel rig.
16. Store burning outfits outside when not using them.

#### 10 Painting Work Precautions

1. Proper planning and co-ordination shall be carried out before commence of any painting works.
2. Ensure adequate ventilation is provided in enclosed areas by installation of sufficient ventilators.
3. Explosion proof lighting shall be used to illuminate the work area to be painted in the enclosed space.
4. Area or section to be painted shall be cordon off and sign board of 'No Hot Work'. 'Painting in Progress' displayed prominently. 'Wet Paint' signage shall also be used.
5. Even when painting work had completed, the mentioned sign board shall remain as they are until confirmation of gas-free conditions prevail.

#### 11 Safe Work in Confined Spaces

1. The Main Contractor must ensure entry into any confined spaces such as vessels, manholes, and ductwork must comply with Workplace Safety and Health (Confined Spaces) Regulation '09, CP 84.
2. The intent of an entry permit for confined space is to protect entering personnel against such hazards as oxygen deficiency, hazardous gases, contamination, high temperatures, fire, and difficulty in escaping.
3. Main contractor's confined space safety assessor to evaluate the premises for approval of entry and should ensure that FORM F (Confined Space Permit) is submitted before proceeding with works.
4. The FORM F is not valid unless all concerned signed where indicated.
5. Confined Space Safety Assessor, Manhole Watcher (Confined Space Attendant), worker (SOC-Manhole) and Confined Space Supervisor must be trained and certified.
6. Upon approval of FORM F, a copy is do be displayed at the location where the work is carried out and another to be filed at Maintenance Dept.
7. Main Contractor must equip themselves with the rescue equipment/reviving equipment and ensure that it is readily available and properly maintained.

#### 12 Staging & Scaffolding

1. Scaffolding is to be built, used and maintained as per Sub-part X of the Factories Act (BOWEC) Regulations and CP 14: Scaffolding.
2. Every metal scaffold exceeding 45 m in height shall be constructed in accordance with the design and drawings of a PE.
3. Before work on a scaffold is begun, it shall be inspected visually to ascertain that:

- Handrails, mid-rails, toe boards, and decking are in place.
  - All wheels are locked, if it is a movable scaffold.
  - Locking pins are in place at each joint.
  - The scaffolding is certified safe to use.
4. No one shall ride on a rolling scaffold when it is being moved.
  5. All tools and material shall be removed from or secured on the deck before moving.
  6. When working on a stage, personnel shall use a suitable container to hold tools, etc, so that they do not endanger others working below.
  7. Personnel shall use safety belts whenever they are working at heights more than 3m above the ground.
  8. No scaffolding or staging shall be partly dismantled and left so that it is capable of being used unless it continues to be safe for use.
  9. Any access way to the staging must have handrails.
  10. Every working platform shall be closely boarded, planked or constructed of metal decking.
  11. Every working platform shall: -
    - Be at least 635 mm wide if it is used to provide footing for not more than two persons and to support tools and materials not exceeding 25 kgf per bay.
    - Not be used to support more than two persons per bay if it is less than 860 mm.
    - Be at least 860 mm in width if the weight of tools and materials exceeds 25 kgf but not more than 100 kgf per bay.
  12. Every working platform shall: -
    - Not be used to support more than 4 persons and the total weight of tools and material exceeding 100 kgf per bay.
    - Be at least 1.1 m wide if the platform is used for the support of any higher working platform.
    - The maximum average loading on any working platform in any bay of a scaffold shall not exceed 220 kgf per square meter for men and materials.
  13. As far as possible, clear headroom of at least 180 cm (6') should be maintain on working platforms.
  14. No board or plank which forms part of a working platform should project beyond its end support to a distance less than 50 mm or more than 4 times the thickness of the board or plank.
  15. Damaged or inadequate scaffolds should be reported immediately.
  16. Personnel shall not climb on, or work from, any scaffold handrail, midrail, or brace member, but shall use ladders to get on to the scaffold.
  17. All scaffolds shall be erected level and plumb, on a firm base.
  18. Where space permits, all scaffold platforms shall be equipped with standard 1.1m - high handrails rigidly secured (not wired), and standard 53cm - high midrails, completely decked with safety plank or manufactured scaffold decking, and equipped with rigidly secured toe boards on all four sides. Decking planks shall be secured in place.
  19. The safe working loads on all scaffolds shall not be exceeded.
  20. Rolling scaffolds shall be used only on stable, level, smooth surfaces, or the wheels shall be contained in wooden or channel iron runners. Personnel shall watch for overhead clearance when moving a scaffold.
  21. Personnel shall not alter any scaffold member by welding, burning, cutting, drilling, or bending.

22. No rigging shall be done from scaffold handrails, midrails, or braces.
23. Patented Metal Scaffolding - Parts and sections of scaffolding made by one manufacturer shall not be used with parts and sections made by another manufacturer.

### 13 Stability Control

1. Ensure that personnel, material, and equipment are safe from unexpected movement - falling, slipping, rolling, tripping, or any other uncontrolled motion.
2. Use fall protection. Protect the area below you.
3. Immediately clean up all spills and report them to the site Supervisor.
4. Chock (secure) all material and equipment as necessary to prevent rolling - pipe, drums, tanks, reels, trailers, and wagons.
5. Tie down all light, large-surface-area materials that might be moved by the wind.
6. When working at heights, secure tools and equipment against falling.
7. Do not store materials or tools on grits, ducts, lighting fixtures, beam flanges, suspended ceilings or similar elevated locations.

### 14 Access

1. Keep access routes to and from work sites and safety aisles free and clear of obstructions.
2. Adequately lighted.
3. Do not block emergency equipment, electrical disconnect switches or breaker panels.
4. Do not attach cables, ropes, barricade tape, hoses, or leads to such equipment.

### 15 Ladders

1. Inspect every ladder before using it. Remove any ladder found defective.
2. If it is necessary to place the ladder in or behind a doorway, then barricade the work area and post adequate and appropriate warning signage, on both sides of the door and/or corridor area.
3. When ascending and descending from the ladder, hold on to a straight ladder with both hands, and hold on to a stepladder with at least one hand.
4. Keep both feet on the ladder rungs. Do not reach out too far. Do not place one foot on a line or piece of equipment and the other on a ladder rung.
5. Always face the body towards the ladder when working from it. Use fall protection if it is required to stand backwards on a ladder.
6. Do not allow more than one person on a ladder.
7. Do not use metal ladders for electric welding or near energize electric lines or services.
8. If it is necessary to use a ladder on top of a scaffold, or close to the edge of an elevated platform, roof or floor opening, tie off the ladder and utilize fall protection.
9. Under no circumstances use chairs or other furniture as ladders.

#### a Straight Or Extension Ladders

1. Every ladder shall be equipped with tie-off rope and non-skid safety feet.

2. Every ladder shall be adequately tied off or held.
3. The top of a straight or extension ladder shall extend at least 1m beyond the supporting object when such a ladder is used as access to an elevated work area.
4. After an extension section has been raised to desired height, check to see that safety latches are engaged and that the extension rope is secured to a rung on the base section of the ladder.
5. Extension ladders shall be overlapped a minimum of three (3) rungs.
6. Do not take apart extension ladders to use the section separately.
7. Do not work from the top three (3) rungs of any straight or extension ladder.

b Stepladders

1. Set a stepladder level on all four feet, with spreaders locked in place. Do not use a stepladder as a straight ladder.
2. Never stand or sit on the top of a stepladder.
3. Do not stand on the top step of any stepladder.
4. Remove tools and equipment from the ladder before moving it.
5. Tie off a stepladder when using it close to the edge of an elevated platform, roof, or floor opening and utilize fall protection.
6. Every tall stepladder shall have a tie-off rope attached.

16 Barricades

1. Anyone who makes a hole or opening is responsible for having it barricaded.
2. Types of barricades:
  - Warning barricades - call your attention to a hazard but offer no physical protection. Examples: yellow and black synthetic tape on stands on posts.
  - Protective barricades - warn as well as provide physical protection and shall be able to withstand 50 kg of force in any direction with minimal deflection. Examples: wooden post and rail, cable, wooden post and chain.
3. Guidelines:
  - They are required around work areas, including areas beneath concrete slab floors that are being drilled or hammered, excavations, holes and openings in floors, roofs and elevated platforms, around overhead work, and whenever necessary to warn people of falling or tripping hazard.
  - They shall be of minimum 1.1m high and maintained square and level.
  - A warning barricade shall be kept 610mm back from the edge of any excavation, hole, platform or roof. A protective barricade maybe placed closer.
  - Barricades shall be erected before a hole is cut and extended as the excavation progresses.
  - Barricades shall be removed when no longer needed.
4. Numerous excavations and work areas in one general area may be barricaded effectively by erecting a barricade around the general area. However, a barricade shall not encompass more area than is needed to safely perform the task.

5. Warning beacon lights shall be used on road closures after dark. Other requirements as stated under LTA's temporary signage manual shall be fully complied with.
6. An access opening or gate shall be provided where practical.
7. Barricade signs shall be fully informative, legible and visibly displayed.

#### 17 Hole Covers

1. All holes or openings through floors or decking at all elevations shall be provided with hole covers or barricades immediately.
2. Material and equipment shall not be stored on a hole cover.
3. Every hole cover shall have a sign reading:  
"WARNING – TEMPORARY COVER – DO NOT REMOVE UNLESS AUTHORISED", or shall be otherwise identified.
4. A hole cover shall be properly secured so it cannot slip sideways or horizontally beyond the hole.
5. Every hole cover shall extend adequately beyond the edge of the hole.
6. Suitable hard material should be used.

#### 18 Compressed Air / Gases

1. All cylinders should have protective caps.
2. Check hoses and couplings daily before use.
3. Use only hoses designed to handle compressed air. Provide all hose couplings with a positive locking device.
4. Never crimp, couple, or uncouple pressurized hose. Shut off valves and bleed down pressure.
5. When using compressed air for cleaning purposes, ensure pressure does not exceed 30 psi.
6. Do not use compressed air to clean dust or debris off your body.

#### 19 Electrical Work

1. All electrical work must be done under the supervision of Licensed Electrical Worker (LEW).
2. Only authorized persons are allowed to install, service or repair electrical equipment.
3. Use only extension cord with PSB certification.
4. No equipment or cord shall be used if the grounding prong has been removed. No two-wire extension cords are permitted.
5. Every temporary light shall have a lamp holder with lamp installed and lamp guard in place, and shall be suspended with non-conducting materials.
6. All temporary electrical installations in building and engineering construction work sites shall be provided with earth leakage circuit breakers (ELCB).
7. All electrical energized equipment shall be grounded.
8. After job completion or in the case of power failure, always remember to switch off portable tools.
9. If the machinery is under repair, always apply suitable tag-out and lock-out procedure to prevent accidental energisation. The tag shall not be removed until the fault or parts had been rectified and/or replaced.
10. Do not activate equipment locked or tagged out into the switch receptacle.

11. Do not interfere with or leave anything in the switch.
12. The fuses used shall be those of specific rating.
13. All electrical junction boxes and connectors shall be protected as far as possible against damages from vehicles, water and rough handling.
14. Conductor shall not be handled with the bare hands, but with rubber gloves or insulated appliances designed for the voltage applied. Rubber boots shall also be provided against risk of electrical shocks.
15. All electrical appliances and conductors shall be clearly and properly labeled to indicate their purpose and voltage.
16. Where necessary, installation shall also be protected against lightning strikes.

a Energized Electrical Work

1. It is defined as any work that involves intentional physical contact using hands or tools (except for approved test equipment) with exposed energised equipment.
2. No energized electrical work is allowed without the approved work permit.

b Proximity Work

1. It is defined as any work performed near exposed and unguarded energized electrical systems, where tools, equipment and parts of the body, could come into contact with live circuits.
2. Proximity work shall be avoided and adequate approval is necessary with specific instructions furnished by the relevant Departmental and/or Safety Coordinator.

20 Fire Protection

Fire alarms, hydrants, fire extinguishers, etc., shall be plainly marked and shall be kept clear of all obstructions.

a Fire Alarms

Know:

- The location of the nearest manual call point or fire alarm panel.
- How to raise the alarm.
- How to contact the Ademco (Fire Alarm Monitoring Company tel: 62229941).
- Site emergency phone no.
- Proper exit route and assembly points.

b Fire Extinguishers

Know:

- Location of fire extinguisher.
- How to operate it.
- Type of extinguisher and their purpose.
- Check for damages, labeling and contents.

Be aware that:

- For each job requiring open flame work or welding, the fire watcher must be present and have at least a fully charged and appropriate fire extinguisher.
- All extinguishers that had been discharged must be recharged or replaced promptly after use.

c Combustibles

They shall be kept away from steam lines, radiators and other sources of ignition. Use only non-flammable or flame-retardant materials whenever possible.

21 Infection Control

1. Construction or renovation in a health-care institution has been primarily associated with airborne nosocomial infections, particularly those linked with *Aspergillus* sp. Other nosocomial infections involving environmental bacteria have also been rarely reported. The primary means of transmission is thought to be via the generation of dust particles during the construction process.
2. The focus of infection control is therefore directed at minimising risks of dust pollution in a health-care setting during construction process, though the use of a multi-disciplinary approach.
3. Before any commencement of construction is commenced, infection control risk assessment must be carried out. The assessment form is attached in Form D.

**Work Requiring Factory Permit**

Projects that require factory permit will need to have the following items keep in place and have records submitted to CGH from time to time

- 1 Control of Hazardous Materials
  - a Site Control Measures
    - Hazardous Materials Register
    - Controls By Site Safety Co-ordinator
  - b Systems of Controls
    - Procedures
- 2 Hazard Analysis
  - a Hazard Analysis Programme
  - b Hazard Identification And Risk Assessment
  - c Action Plan
- 3 Safety Committee
  - a Definitions, Application and Duties.
  - b Formation of Safety Committee.
  - c Meetings of Safety Committee.
  - d Work of Safety Committee.
- 4 Safety Inspection
- 5 Safe Work Practice
- 6 Safety Training
- 7 Emergency Preparedness
  - a Emergency Contacts
- 8 Occupational Health
  - a Safety induction
  - b First aid facilities
  - c Safety indicators
  - d Occupational health management programme
  - e Industrial hygiene monitoring
  - f Medical surveillance
- 9 Accident / Incident Reporting
- 10 Report of Industrial Disease
  - Use of Nine Schedule

**Forms Schedules**

- 1 Form A – Request for isolation of fire alarm
- 2 Form B – Temporary electrical supply installation
- 3 Form C – Hot work permit
- 4 Form D – Infection control risk assessment

**CHANGI GENERAL HOSPITAL**

**FORM A REQUEST FOR ISOLATION OF FIRE ALARM**

**SECTION A (To be completed by contractor / requestor)**

I / We undertake to comply with the procedure above mentioned and understand that any failure to comply which results in activation of fire alarm shall carry a penalty of S\$500 for first incident and S\$1,000 for subsequent incidents.

**Company:** \_\_\_\_\_

\_\_\_\_\_

**Person In Charge:** \_\_\_\_\_

**Contact No:** \_\_\_\_\_

**Project Info:** \_\_\_\_\_

\_\_\_\_\_

**Start Date:** \_\_\_\_\_

**Expected End Date:** \_\_\_\_\_

**Date of Fire Related Work:** \_\_\_\_\_

**Note:**

- a) Proposed changes have to be indicated on drawing and submitted together with this requisition form.
- b) Requisition form has to be submitted to Maintenance Office at least 48 hours before commencement of work.

**SECTION B (For internal use only)**



**CHANGI GENERAL HOSPITAL**

**FORM B TEMPORARY ELECTRICAL SUPPLY INSTALLATION**

Changi General Hospital  
Maintenance Department  
2, Simei Street 3,  
Singapore, 529889.

Dear Sir,

I, \_\_\_\_\_, Licensed Electrical Worker, PUB license no. \_\_\_\_\_, understood the Hospital requirements and will fully comply to all the procedures stand below: -

- b. All temporary installation/supplies must have the approval from the Maintenance Department prior to usage. The appropriate forms shall be submitted before turn-on.
- c. The electrical supply taken from CGH's distribution panel, switched socket or isolator shall be connected to a temporary board supplied by the Contractor. This temporary board shall have provision of ELCB, MCB & MCCB and usage of electrical supply shall be taken from Contractor's distribution board via the protective devices.
- d. The Contractor shall be liable to pay CGH a sum of S\$500 for the first tripping and S\$1000 for subsequent tripping.

\_\_\_\_\_  
Signature of Electrical Worker (LEW)

\_\_\_\_\_  
Date

Company Address : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone No. : \_\_\_\_\_

Fax : \_\_\_\_\_

**CHANGI GENERAL HOSPITAL**

**FORM C**

**HOT WORK PERMIT**

(APPLIES ONLY TO LOCATION SPECIFIED BELOW AND MAY BE MODIFIED TO SUIT LOCAL CONDITIONS)

Date \_\_\_\_\_  
Location \_\_\_\_\_  
Description of Work \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Contractor \_\_\_\_\_

The above location has been examined. The precaution listed on the reverse side of this card has been taken care of. Permission is therefore granted for this work.

Permit Expires \_\_\_\_\_  
Date \_\_\_\_\_ Time \_\_\_\_\_

Signed \_\_\_\_\_  
Safety Coordinator/Permit Officer

Time Started \_\_\_\_\_ Time Completed \_\_\_\_\_

**FINAL CHECK**

Work area and all adjacent areas to which sparks and heat might have spread (such as floors above and below and on opposite side of walls) were inspected for at least 30 minutes after the work was completed and were found firesafe.

Signed \_\_\_\_\_

*After signing, return permit to person who issue it.*

*See other side*

**PRECAUTIONS**

Before approving any cutting or welding work, the maintenance officer should inspect the proposed work area and ensure that the following precautions have been taken: -

- Sprinklers, if installed, are in service.
- Cutting & welding equipment is in good repair.

#### PRECAUTION WITHIN 35 FT OF WORK

- Floors have been swept clean and, if combustible, wet down, covered with damp sand or metal or abets sheets.
- Combustible materials and combustible and flammable liquids are removed; or else, protected with non-combustible covers, guards or metal shields.
- All wall and floor openings covered.
- Fire-resistive tarpaulins suspended with beneath work to collect sparks.

#### WORK ON WALLS OR CEILINGS

- Construction is non-combustible and without combustible covering or insulation.
- Combustibles removed from the other side of wall.

#### WORK ON ENCLOSED EQUIPMENT

- Equipment cleaned of all combustibles.
- Containers purged of flammable vapours or gasses.
- Gas tests conducted to ensure absence of flammable vapours or gasses.

#### FIRE WATCH

- To be provided during and for at least 30 minutes after work.
- Supplied with suitable extinguishers and small hose
- Trained in the use of fire fighting equipment and sounding alarm.

**FORM D**                      **Infection Control Risk Assessment**

**Matrix of Precautions for Construction & Renovation**

<b>Project:</b>	<b>Site:</b>
<b>Date of Commencement:</b>	<b>Construction Project Type:</b>
<b>Class of Infection Control Precautions Required:</b>	
<b>Project Coordinator:</b>	<b>Date:</b>

**Step One: Construction Activity Type**

**Using the following table, identify the Type of Construction Project Activity (Type A-D)**

(Construction activity type is defined by the amount of dust that is generated, the duration of the activity and any impact on the HVAC system)

Contact Infection Control for assistance if unsure how to categorise activity type.

<b>TYPE A</b>	<p><b>Inspection and Non-Invasive Activities.</b></p> <ul style="list-style-type: none"> <li>▪ removal of ceiling tiles for visual inspection.</li> <li>▪ painting (but not sanding).</li> <li>▪ wall covering, electrical work, minor plumbing, and activities which do not generate dust or require cutting of walls.</li> <li>▪ Data and telephone cabling work</li> </ul>
<b>TYPE B</b>	<p><b>Small scale, short duration activities which create minimal dust</b></p> <ul style="list-style-type: none"> <li>▪ cutting of walls or ceilings where dust migration can be controlled.</li> <li>▪ Carpentry work where dust is generated</li> <li>▪ minor duct work or electrical work above ceilings</li> </ul>
<b>TYPE C</b>	<p><b>Work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies</b></p> <ul style="list-style-type: none"> <li>▪ sanding of walls for painting or wall covering</li> <li>▪ removal of floorcoverings, ceiling tiles and casework</li> <li>▪ new wall construction</li> <li>▪ major cabling activities</li> </ul>
<b>TYPE D</b>	<p><b>Major demolition and construction projects</b></p> <ul style="list-style-type: none"> <li>▪ Major addition and alteration (A&amp;A) and repair and re-decoration (R&amp;R) works.</li> </ul>

**Step Two:**

Using the following table, *identify the Patient Risk Groups* that will be affected. If more than one risk group will be affected, select the higher risk group:

Low Risk	Medium Risk	High Risk	Highest Risk
<ul style="list-style-type: none"> <li>▪ Office areas</li> <li>▪ Vacant patients area</li> <li>▪ Outdoor work</li> </ul>	<ul style="list-style-type: none"> <li>▪ CMU</li> <li>▪ Endoscopy</li> <li>▪ Rehabilitative Medicine</li> <li>▪ Radiology/MRI</li> <li>▪ Specialist Clinics</li> <li>▪ GDH</li> <li>▪ Dental</li> <li>▪ Laboratories</li> <li>▪ Pharmacy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Accident and Emergency</li> <li>▪ Wards</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cardiac Cath Lab</li> <li>▪ Central Sterile Supply</li> <li>▪ Intensive Care Units</li> <li>▪ Negative/Positive pressure isolation rooms</li> <li>▪ MOT and DSOT</li> </ul>

**Step Three: Match the**

**Patient Risk Group** (*Low, Medium, High, Highest*) with the planned **Construction Project Type** (*A, B, C, D*) on the following matrix, to find the **Class of Precautions** (*I, II, III or IV*) or level of infection control activities required.

**Class I-IV Precautions are delineated on the following page.**

IC Matrix - Class of Precautions: Construction Project by Patient Risk

Patient Risk Group	Construction Project Type			
	TYPE A	TYPE B	TYPE C	TYPE D
LOW Risk Group	I	II	II	III
MEDIUM Risk Group	I	II	III	III
HIGH Risk Group	I	II	III	III/IV
HIGHEST Risk Group	II	II/III	III/IV	IV

Note: Infection Control approval will be required when the Construction Activity and Risk Level indicate that **Class III** or **Class IV** control procedures are necessary.

**Description of Required Infection Control Precautions by Class**

	<b>During Construction Project</b>	<b>Upon Completion of Project</b>
<b>CLASS I</b>	<ol style="list-style-type: none"> <li>1. Execute work by methods to minimize raising dust from construction operations.</li> <li>2. Immediately replace a ceiling tile displaced for visual inspection</li> </ol>	<ol style="list-style-type: none"> <li>1. Contractor to clean work area upon completion of task.</li> <li>2. Housekeeping to clean up area upon handover.</li> </ol>
<b>CLASS II</b>	<ol style="list-style-type: none"> <li>1. Water mist work surfaces to control dust while cutting.</li> <li>2. Seal unused doors with duct tape.</li> <li>3. Block off and seal air vents.</li> <li>4. Place dust mat at entrance and exit of work area</li> <li>5. Remove or isolate HVAC system in areas where work is being performed.</li> <li>6. If workers need to pass through clean area, they have to change to scrub suit, put on shoe cover, cap. Shoe covers must be changed each time the worker exits the work area</li> </ol>	<ol style="list-style-type: none"> <li>1. Contractor to clean work area upon completion of work.</li> <li>2. Housekeeping to clean up area upon handover.</li> <li>3. Contain construction waste before transport in covered containers.</li> <li>4. Remove isolation of HVAC system in areas where work is being performed.</li> </ol>
<b>CLASS III</b>	<ol style="list-style-type: none"> <li>1. Remove or Isolate HVAC system in area where work is being done to prevent contamination of duct system.</li> <li>2. Erect hoarding or barrier to seal work area, ie. plywood, plastic sheet.</li> <li>3. If need to work within clean area, maintain negative air pressure within work site utilizing HEPA equipped air filtration units.</li> <li>4. Contain construction waste before transport in covered containers.</li> <li>5. Cover transport receptacles or carts. Tape covering unless solid lid.</li> <li>6. If workers need to pass through clean area, they have to change to scrub suit, put on shoe cover, cap. Shoe covers must be changed each time the worker exits the work area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contractor to clean work area upon completion of work.</li> <li>2. Housekeeping to clean up area upon handover.</li> <li>3. Contain construction waste before transport in covered containers.</li> <li>4. Remove isolation of HVAC system in areas where work is being performed.</li> <li>5. Do not remove barriers from work area until completed project is inspected by Facilities and Infection Control and thoroughly cleaned by the Housekeeping.</li> <li>6. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction.</li> <li>7. Vacuum work area with fine dust filtered vacuums and/or wet mop area.</li> </ol>
<b>CLASS IV</b>	<ol style="list-style-type: none"> <li>1. Isolate HVAC system in area where work is being done to prevent contamination of duct system.</li> <li>2. Complete all critical barriers i.e. plywood, plastic sheet, to seal area from non work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins.</li> <li>3. Seal holes, pipes, conduits, and punctures appropriately.</li> <li>4. Dusty works to be carried out off-site, eg. sawing and cutting of materials.</li> <li>5. For clean area, maintain negative air pressure within work site utilizing HEPA equipped air filtration units.</li> <li>6. If workers need to pass through clean area, they have to change to scrub suit, put on shoe cover, cap. Shoe covers must be changed each time the worker exits the work area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contractor to clean work area upon completion of work.</li> <li>2. Housekeeping to clean up area upon handover.</li> <li>3. Contain construction waste before transport in covered containers.</li> <li>4. Remove isolation of HVAC system in areas where work is being performed.</li> <li>5. Do not remove barriers from work area until completed project is inspected by Facilities, Maintenance, and Infection Control Department and thoroughly cleaned by Housekeeping Department.</li> <li>6. Remove barrier material carefully to minimize spreading of dirt and debris associated with construction.</li> <li>7. Vacuum work area with HEPA filtered vacuums and/or wet mop area.</li> </ol>

Note : "Clean Area" refers to MOT, DSOT, Cath Lab and CSSD.

**Step 4. Identify the areas surrounding the project area, assessing potential impact**

Unit Below	Unit Above	Lateral	Lateral	Behind	Front
Risk Group	Risk Group	Risk Group	Risk Group	Risk Group	Risk Group

**Step 5. Identify specific site of activity eg, patient rooms, medication room, etc.**

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**Step 6. Identify issues related to: ventilation, plumbing, electrical in terms of the occurrence of probable outages.**

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**Step 7. Identify containment measures, using prior assessment. What types of barriers? (Eg, solids wall barriers); Will HEPA filtration be required?**

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(Note: Renovation/construction area shall be isolated from the occupied areas during construction and shall be negative with respect to surrounding areas)

**Step 8. Consider potential risk of water damage. Is there a risk due to compromising structural integrity? (eg, wall, ceiling, roof)**

**Step 9. Work hours: Can or will the work be done during non-patient care hours?**

**Step 10. Do plans allow for adequate number of isolation/negative airflow rooms?**

**Step 11. Plan to discuss the following containment issues with the project team.  
Eg, traffic flow, housekeeping, debris removal (how and when),**

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Infection Control approval:

Prepared by:

Name : \_\_\_\_\_

Name: \_\_\_\_\_

Signature : \_\_\_\_\_

Signature \_\_\_\_\_

Date: \_\_\_\_\_

Date \_\_\_\_\_

**FORM E**

LOTO Serial No:

## LOCKOUT -TAGOUT PERMIT

**Instructions**

1. Prepare this form and send it to Maintenance dept
2. Applicant (Vendor/Maintenance dept) is to complete section A, B, C, D and E, sections F to G to be filled by Maintenance dept.
3. This permit is not valid unless all concerned signed where indicated
4. Upon approval, a copy each of the permit will go to the Maintenance dept
5. A copy will be displayed at the location where the work is carried out.
6. Complete section H and return the displayed copy to the maintenance dept on completion of work.
7. This permit is to be read in conjunction with PTW guidelines

A) LOCATION & DESCRIPTION OF WORK	
<b>Company Name:</b>	<b>Name of requestor:</b>
<b>Permit start date/time:</b>	<b>Permit expiry date/time:</b>

B) PREPARATION FOR WORK				CHECKLIST FOR PROJECT EXECUTIVE/OFFICER		
DESCRIPTION	YES	NO	NA	COMPLY	NON COMPLY	REMARKS
Sign on LOTO log book to show record of movement and usage of LOTO devices						
All energy sources shut off before work						
Ensure store energy is released before commencement of work						
Usage of right type of lockout for the energy sources						
Place tagout in obvious location for easy identification						
Do not remove other workers' LOTO devices even if it is on the same energy source						
Essential PPE provided						
Emergency rescue procedure explained to all concerned						
Safety operation procedure explained to all concerned						
Affected personnel informed of the shutdown						

C) PARTICULARS OF THE SUPERVISOR/T.O(Technical Officer)		
<b>Name</b>		<b>Signature :</b>
<b>Designation</b>		<b>Date :</b>

D) ACKNOWLEDGEMENT (ALL PERSONS WORKING ON LOTO)					
We, the under mentioned, understand the hazards associated with this work and the precautions need to be taken. They have been fully explained to us by the person-in charge.					
Name	Signature	Date	Time in	Time out	Remarks

E) SEEKING APPROVAL FROM THE SUPERVISOR/T.O (Maintenance/Vendor)
I am satisfied that a thorough inspection and proper assessment to the above location and its surroundings have been made.

<b>Name and signature of the requestor:</b>
<b>Date and time:</b>

<b>F) ENDORSEMENT FROM T.O/Engineer IN CHARGE</b>		
I have examined the area and am satisfied that it is ready for commencement of work.		
<b>Name</b>		<b>Signature :</b>
<b>Designation</b>		<b>Date :</b>

<b>G) APPROVAL FROM MAINTENANCE Engineer/Manager</b>		
The location has been fully examined. Permission is granted for this work.		
<b>Name and signature of the approving authority</b>		
<b>Date and time:</b>		

<b>H) COMPLETION OF WORK</b>		
The works detailed in this permit have been completed and the location /equipment have been restored back to a safe and orderly condition.		
<b>Company Name:</b>		
<b>Name</b>		<b>Signature :</b>
<b>Designation</b>		<b>Date :</b>

**FORM F**

**CONFINED SPACE PERMIT**

Instructions

8. Prepare this form and send it to Maintenance dept at least 24 hrs before operation.
9. Applicant (Vendor/Maintenance dept) is to complete section A, B, C, D, E and F, sections G to H to be filled by Maintenance dept.
10. This permit is not valid unless all concerned signed where indicated
11. The maximum validity duration of this permit is 8 hrs.
12. Manhole supervisor, Manhole watcher(Confined space attendant) and safety assessor must be trained/certified
13. Upon approval, a copy each of the permit will go to the Maintenance dept
14. A copy will be displayed at the location where the work is carried out.
15. Complete section I and return the displayed copy to the maintenance dept on completion of work.

A) LOCATION & DESCRIPTION OF WORK	
Company Name:	Name of requestor:
Permit start date/time	Permit expiry date/time

B) PREPARATION FOR WORK				CHECKLIST FOR PROJECT EXECUTIVE/OFFICER		
DESCRIPTION	YES	NO	NA	COMPLY	NON COMPLY	REMARKS
Lines purged, flushed and vented						
All energy sources shut off before work						
Secure Area (Barricaded and warning posted)						
Forced ventilation provided						
Naked lights ,Smoking prohibited						
Explosion proof electrical apparatus/tools						
Check the following: <ul style="list-style-type: none"> <li>• Essential PPE provided</li> <li>• Gas detector</li> <li>• Identification badge and display of name of persons entering confined space at the entrance of confined space</li> <li>• Safety harness and lifeline provided</li> <li>• Self contained breathing apparatus available(SCBA)</li> </ul>						
Emergency rescue procedure explained to all concerned						
Check the rescue equipment/reviving equipment for: <ul style="list-style-type: none"> <li>• Kept readily available</li> <li>• Properly maintained</li> <li>• Examined by a competent person monthly</li> </ul>						
Safety operation procedure explained to all concerned						
Submission of relevant certificates <ul style="list-style-type: none"> <li>• Confined space Assessor</li> <li>• Confined Space Supervisor</li> <li>• Manhole watcher</li> <li>• Workers (SOC-Manhole)</li> </ul>						

C) ATMOSPHERIC TESTING BY SAFETY ASSESSOR			Project Officer		
Gas Test Taken	Time	Level	Comply	Non Comply	Remarks
% of Oxygen (CP: 19.5% to 23.5%)					
% Lower Explosion level (CP < 10 %)					
Carbon Monoxide PPM (CP :25)					
Hydrogen Sulphide PPM (CP:10)					
Other gases					
Additional precautions needed					

<b>D) PARTICULARS OF THE SAFETY ASSESSOR</b>		
<b>Name</b>		<b>Signature :</b>
<b>Designation</b>		<b>Date :</b>

<b>E) ACKNOWLEDGEMENT (ALL PERSONS ENTERING THE CONFINED SPACE MUST SIGN)</b>					
We, the under mentioned, understand the hazards associated with this work and the precautions need to be taken. They have been fully explained to us by the person-in charge.					
<b>Name</b>	<b>Signature</b>	<b>Date</b>	<b>Time in</b>	<b>Time out</b>	<b>Remarks</b>

<b>F) SEEKING APPROVAL FROM THE CONFINED SPACE SUPERVISOR</b>	
I am satisfied that a thorough inspection and proper assessment to the above location and its surroundings have been made.	
<b>Name and signature of the Confined space requestor:</b>	
<b>Date and time:</b>	

<b>G) ENDORSEMENT FROM T.O(Technical Officer)/Supervisor of Maintenance Dept</b>		
I have examined the area and am satisfied that it is ready for commencement of work.		
<b>Name</b>		<b>Signature :</b>
<b>Designation</b>		<b>Date :</b>

<b>H) APPROVAL FROM MAINTENANCE ENGINEER</b>	
The location has been fully examined. Permission is granted for this work.	
<b>Name and signature of the approving authority</b>	
<b>Date and time:</b>	

<b>I) COMPLETION OF WORK</b>		
The works detailed in this permit have been completed and the location /equipment have been restored back to a safe and orderly condition.		
<b>Company Name:</b>		
<b>Name</b>		<b>Signature :</b>
<b>Designation</b>		<b>Date :</b>