TABLE OF CONTENTS

[1.0 PURPOSE 1](#_Toc328741365)

[2.0 SCOPE 1](#_Toc328741366)

[3.0 reference documents 1](#_Toc328741367)

[4.0 definitions 1](#_Toc328741369)

[5.0 REQUIREMENTS 1](#_Toc328741370)

[5.1 Equipment Installation Process 1](#_Toc328741371)

[5.2 Training 3](#_Toc328741372)

[5.3 Records 3](#_Toc328741373)

[6.0 standard Approval 3](#_Toc328741374)

[7.0 Revision History 3](#_Toc328741375)

# PURPOSE

Establish minimum equipment installation requirements for protection of human health and the environment from hazards associated with manufacturing and support equipment/machines.

# SCOPE

The provisions of this standard apply to all TI employees, suppliers, vendors, and visitors at TI sites worldwide.

# reference documents

## TI Standard Policy and Procedure (SP&P) 04-04-01: “Environmental, Health and Safety”

# definitions

[TI ESH Standards Glossary of Definitions](https://sps01.itg.ti.com/sites/wwf/esh/standards/Knowledge_Bank/00.01.xlsx)

# REQUIREMENTS

Sites shall ensure all equipment which is brought onto TI property is properly evaluated and determined to meet the environmental, safety and health requirements prior to acquisition, installation and operation.

## Equipment Installation Process

### Sites shall develop and maintain a process which requires an assessment of the layout design and the installation of all new, used and relocated equipment which meets any of the following criteria:

#### Equipment that uses, creates, or contains any of the following:

##### Any chemicals (solid, liquid, or gas);

##### Ionizing and non-ionizing radiation;

##### Hazardous waste;

##### Electrical potential 120 Volts or greater (phase to ground);

##### Hazardous energy sources in addition to electricity;

##### Moving parts which require guarding to prevent injury; and

##### Ergonomic conditions which require two-person or assisted lifts and clearances.

Note: Cord/plug equipment 120V or greater with no additional concerns as described within section 5.1.1.1 may be considered exempt from this standard.

#### Equipment that requires facilities hookups such as exhaust, drain, house gases, and cooling water.

### The process shall include the following elements:

#### A process owner responsible for ensuring affected site personnel understand the equipment installation requirements;

#### Roles and responsibilities for implementing the requirements of this standard;

#### A process for layout design review to ensure that the equipment installation will:

##### Meet TI and regulatory ESH requirements; and

##### Be reviewed and approved by representatives from facilities engineering, ESH and equipment engineering (maintenance) prior to installation.

#### A process for receiving, unpacking/uncrating and placement of used and/or migrated equipment:

##### Review of decommission, decontamination or other relevant documentation;

##### Identification and control of potential hazards associated with used and/or migrated equipment to understand potential hazards of equipment received; and

##### Determine personnel and PPE requirements for unpacking, uncrating and moving equipment from receiving area to final placement.

#### A process for equipment installation sign-off that, at a minimum, includes the following elements:

##### A Level I assessment to ensure the equipment is safe to energize before non-hazardous chemicals and electrical power of 120V or less (phase-to-ground voltage) may be supplied to the tool, including, but not limited to:

###### Electrical hookups;

###### Lock Out Tag Out procedures;

###### Access and clearances;

###### Exhaust ventilation systems;

###### Drains;

###### Lasers;

###### Radiation sources;

###### Minimal risk gas / liquid (water) and vacuum lines;

###### Guarding; and

###### Emergency machine off (EMO) switches.

Note: All EMO switches must be verified as functional

during initial power up for machine to remain energized.

##### A Level II assessment to ensure that the required system checks are performed and that documented procedures are in place prior to introducing hazardous chemicals or other hazardous energy sources, including, but not limited to verification of:

###### Wet process chemical systems;

###### Bulk chemical delivery systems;

###### Gas delivery systems;

###### Gas and Chemical detection systems;

###### Chemical disposal;

###### Post-process exhaust treatment systems;

###### Fire detection & protection;

###### Interlocks; and

###### Radiation controls.

### Sites shall document assessments using a checklist on which each item is listed and verified as complete.

## Training

### The site shall ensure that persons responsible for implementing the equipment installation process have received training or are by other means competent to perform their roles.

## Records

### Installation checklists shall be retained in accordance with TI’s ESH Record Retention Matrix.

# standard Approval

This standard has been approved by David Thomas, TI Vice President.

# Revision History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Rev#** | **Date** | **Nature of Revision** | **Author/Editor** | **Approver** |
|  | 12/29/06 | Original | Christie Lotspeich |  |
| A | 07/14/10 | Minor change: Section 1.0 – clarified purpose; Section 3.1.b.4 - additional language for receiving equipment | Jack McAdams, Matt Jones | Standards Review Committee |
| B | 06/12/13 | Minor changes:  Entire Document - Reformatting/ rewording;  Section 5.1.2.5 – Clarified checklist levels  Section 5.1.2.5.1 – Added non-hazardous chemistries  Section 5.1.2.5.1.5 – Added drains  Section 5.1.2.5.1.10 – Clarified EMO assessment  Major changes:  Removed written program requirement;  Section 5.1.2.4 – Added requirement for Used/ Migrated process | Matt Jones, Jack McAdams | ELC |
| C | 03/17/15 | Section 5.1.1.1 – Exemption for cord/plug equipment as noted | Matt Jones | ELC |