Appendix A Designated Substance Assessment Form

RECORD OF DESIGNATED SUBSTANCE ASSESSMENT

SUBSTANCE: lead solder
DATE: Aug 8, 2007

COMPANY: McMaster University, Department of Engineering Physics

DEPARTMENT OPERATIONS:

Lead solder is used in room BSB B101 for the Engineering Physics course 4A06 for construction of electronic circuit boards.

LOCATIONS:

BSB B101

ASSESSMENT PREPARED BY:

Ray LaPierre, Dept. Engineering Physics, x 27764

TITLE: Assistant Professor

DATE PREPARED: Aug. 8, 2007

APPLICATION – WORKSHEET 1: IS THE DESIGNATED SUBSTANCE PRESENT?

1. Do any material safety data sheets from your suppliers indicate the presence of the substance?

YES ☑ NO ☐

2. If substance is present, indicate the department where it is used, nature of the use (i.e. Direct or Indirect), and the quantity used per month or year:

Product Name	Department	How Used? Direct / Indirect	Quantity Per Month / year
lead solder	Engineering Physics	direct use during soldering operation	~20 cm length of solder wire per year per student

CONCLUSIONS

Read statements and check applicable box:

☐ Substance not present anywhere in the workplace; regulation does not apply

No Assessment needed

☑ Processes / activities have been identified where substance present.

Proceed to worksheet 2

APPLICATION – WORKSHEET 2: IS WORKER EXPOSURE LIKELY?

1. In what form does the substance enter the plant?
   Product Title: Kester "44" resin core solder
   Type of Container: spool Size of Container: 1 lb. spool

2. Is this form altered during use or in the operation: YES ☑ NO ☐
   If YES, indicate the altered form: lead solder is melted for soldering operation

3. Is there a possibility of the substance being released into the workplace environment during normal use? YES ☑ NO ☐
   If YES, indicate the stage of the operation or areas where this can occur.
   physical contact with hands during soldering operation (hazard of subsequent ingestion); inhalation of solder vapour

4. If YES to Question 3, specify the job functions and approximate number of employees who might be exposed:

Job Function	Number of Employees
Level 4/5 students in Eng Phys 4A06	3 lab sections, 20 students each section

5. If YES to Question 3, indicate how workers could be exposed:
   Inhalation ☑ Ingestion ☑ after skin contact Skin Absorption ☐ Skin Contact ☑

6. If NO to Question 3, is there a likelihood of escape due to leaks, accidents, etc.?
   YES ☐ NO ☑

7. Are workers likely to be exposed? YES ☑ NO ☐
   if engineering controls and hygiene practices not followed

CONCLUSIONS

Are there any activities / situations where exposure by any route is likely? YES ☑ NO ☐

If NO, no further action is necessary. Date completed: _____

If YES, an assessment is necessary – **proceed to Section III.**

Note: If protection against exposure has been left up to some engineering control measure which can fail or deteriorate for any reason, or to a work hygiene practice, an assessment is necessary – **Proceed to Section III.**

ASSESSMENT – WORKSHEET 4: EXISTING CONTROLS

Process Flow Stage	Control Description	Problems / Recommendations
1 4	**Engineering Controls:** Weller Fume Absorber Model WSA350 (http://www.elexp.com/sdr_a350.htm); see attachment provided at each soldering station **Work Practices:** wash hands wear safety goggles	Students do not wash hands Fume absorber not used Fume absorber breaks ↓ Each soldering station will have one fume absorber A spare can be borrowed from another soldering station in case of failure Each soldering iron has a note reminding students to use the fume absorber and to wash their hands after each soldering operation, and to wear safety goggles. Students check fume absorber is drawing air before use. No food or drink allowed in lab. Work alone policy to be adhered to.

ASSESSMENT – WORKSHEET 5: EXISTING CONTROLS (cont.)

Process Flow Stage	Control Description	Problems / Recommendations
4	**Hygiene Facilities and Practices:** Wash hands after each soldering operation Sink is available in BSB B101	N/A
2	**Training / Information:** Students are required to obtain MSDS sheets and complete a safety report prior to any soldering being performed	N/A
	Emergency Procedures / Equipment: N/A	
	Personal Protective Equipment: wear protective eyewear to protect against solder "splash" goggles are provided	N/A

ASSESSMENT – WORKSHEET 6: JOB EXPOSURE ANALYSIS

Process Flow Stage	Job Title	Total Number of Employees	Tasks where Exposure Likely	Duration Hrs per Week	PPE Req'd to be Used
1	Turn on fume extractor	60	N/A	1	
2	Perform soldering	60	inhalation possible	1	fume extractor
3	Turn off extractor	60	N/A	1	protective eye wear
4	Wash hands	60	ingestion following skin contact	1	

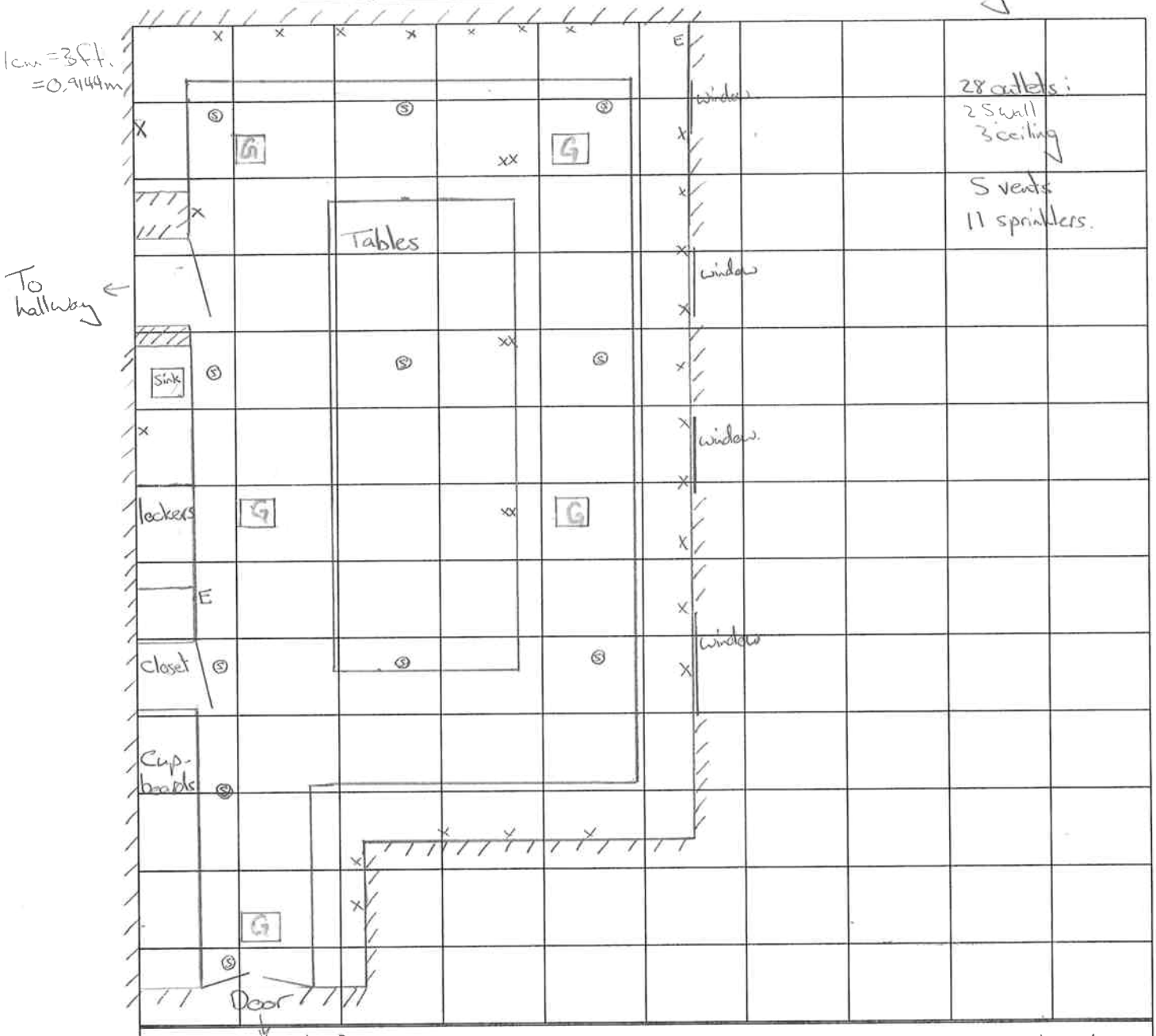
CONCLUSIONS

Jobs / tasks to be noted during walk-through survey:

Availability of fume extractor

APPLICATION – WORKSHEET 7: FLOOR PLAN

LOCATION: BSB/B101 **DATE:** August 24, 2007.



DIMENSIONS: L 48', 14.6m W 27'6", 8.4m H 8'6", 2.6m

- O WORK STATION – enter number from job title – Worksheet 5
- Δ EXPOSURE SOURCE – enter number from Process Flow – Worksheet 3
- G VENTILATION – enter L for local exhaust, and G for general ventilation

//// : room boundary.
x = wall mounted outlet.
xx = ceiling mounted outlet.
E = Emergency power off button.
(S) = water sprinkler, ceiling mounted

→ a work station and exposure source is possible at any soldering station which may be located at any wall or ceiling mounted electrical receptacle designated as x or xx, respectively.

APPLICATION – WORKSHEET 8: WALK THROUGH

Evidence of Contamination: None

Hygiene Facilities and Work Practices:

Sink available on west facing wall; goggles provided. Note placed on each soldering iron: "Use Fume extractor and wash hands after soldering. Use safety goggles".

Ventilation Systems:

5 general (ceiling) ventilation vents available
Fume extractors available for local exhaust

Storage Facilities:

Solder on bench top near each soldering station

APPLICATION – WORKSHEET 8: WALK THROUGH (cont.)

Dispensing Procedures:

Lead Solder Dispensed from spool

Housekeeping:

N/A

Personal Protective Equipment:

Glasses provided.

Emergency Facilities / Procedures:

If lead solder is ingested, ingest large quantities of water, call a physician.

APPLICATION – WORKSHEET 9: WALK THROUGH CONCLUSIONS

1(a). Were any areas found where controls are required or where existing controls may require improvement?

YES ☐ NO ☑

1(b). If YES, indicate the areas where the controls may be required or where existing controls may require improvement.

AREA	SUGGESTED IMPROVEMENTS

2(a). Personal exposure monitoring is required. YES ☐ NO ☑

2(b). If YES, indicate where:

3. Indicate any workers for whom medical testing and / or examinations may be required.

N/A

APPLICATION – WORKSHEET 6: HEALTH EFFECTS

☑ CONCLUSION A: NO WORKER'S HEALTH MAY BE AFFECTED

☐ CONCLUSION B: A WORKER'S HEALTH MAY BE AFFECTED.

OVERALL CONCLUSION

A control program is necessary. YES ☐ NO ☑

Improvements needed in existing program:

DATE Aug 8/07 SIGNED