

# Career and Technical, Technology Education, Industrial Technology Course MN Laboratory Safety Formula

## Variable 1 – Machine Danger Level

## Maximum Class Size

**Class I:** Machines/activities ranking greatest risk/most dangerous **24 students/instructor**  
Classes with many high speed cutters, molten metal/high temperature applications, frequently exposed moving parts  
Typical Labs: High school agriculture, construction, woods, metals, welding, automotive labs

**Class II:** Machines/activities ranking moderate risk/danger **28 students/instructor**  
Limited application of high speed cutters, extensive hand tool use, frequent electrical and chemical applications, some exposed moving parts, limited high temperature applications  
Typical Labs: High school electricity and electronics, small engines, graphics  
Middle school woods, metals, graphics labs, technology fabrication labs

**Class III:** Machines/activities ranking low risk/danger **32 students/instructor**  
Few or no cutting machines, some exposure to chemicals, some hand tool use, no exposed moving parts, little or no high temperature applications  
Typical Labs: High school photography, drafting, CAD, networking, modular labs  
Middle school drafting, CAD, modular labs, technology exploration labs

## Variable 2 – Student Risk Factor

## Class Size Reduction Factor

### **Age/developmental maturity:**

Students in 7<sup>th</sup> grade and below are not allowed to enroll in Class I Machine Danger Level courses  
Students in 5<sup>th</sup> grade and below are not allowed to enroll in Class II Machine Danger Level courses

### **Special needs students:**

### **Reduce max class size by 1 for each IEP/ESL student**

Each student on an Individual Education Plan (IEP) or English as a Second Language classification shall be factored into the formula as two students when enrolling in Career and Technical lab courses

## Variable 3 – Federal Laboratory Area Regulations

Class size calculations resulting from variables 1 and 2 must be further reduced to meet Federal Fire and Safety physical laboratory square feet requirements. Class sizes may not exceed those found in the Federal Fire and Safety Requirements Chart (50 square feet (net) per student).

**Formula Application for \_\_\_\_\_ (course)  
in Room # \_\_\_\_\_**

**at \_\_\_\_\_ (school):**

Enter maximum class size based on Machine Danger (Variable 1)	Max Class Size (line 1)	
Enter the number of IEP/ESL students	Number of IEP/ESL students (line 2)	
Subtract line 2 from line 1: enter on line 3	Revised max class size (line 3)	
Enter the area of the lab (in square feet) on line 4	(line 4)	
Enter the maximum class size for square feet from Federal Fire Code Chart	(line 5)	
Enter which ever is smaller: line 3 or line 5	<b>Final Maximum Class Size (line 6)</b>	

**Class size safety adherence compensation (zero tolerance for unfunded mandates):**

Since reducing class size has a direct impact on staffing, school districts are hereby authorized to impose a local levy to compensate for the increased staffing costs resulting from applying this formula. For all qualifying classes, districts may impose a local levy equal to the cost difference resulting from increased staffing between the average class size in the school applying this formula, and the final class size from line 6 of the formula calculations.

Class size reduction also has the potential to increase the number of sections of courses offered, which, as a result, could exceed the capacity of the lab. In these cases, districts are further authorized to impose a local levy to add facilities to serve the number of class sections that increased as a result of applying this formula.