distribute changes in regulatory requirements and to obtain compliance with regulatory requirements campus-wide with minimal interruption to ongoing research.

One representative from each Department at the University is required to attend each meeting, unless it is specified as optional. The function of this committee will be to serve as the primary link between the research community and the Howard University facility management group, including the EH&S office.

The safety committee meets on a quarterly basis. The meetings are used to provide updates on health and safety policies/procedures at the University and any facility related changes or concerns. Committee members serve as primary contact for EH&S issue and assist in the completion of corrective actions required as a result of inspections by the University EH&S and outside regulatory agents. Departments are also expected to create their own safety committee that will meet at least six times per year.

2.4 RISK ASSESSMENT

A risk assessment should be performed prior to the start of any new project or prior to beginning work with any new process or material that may pose a risk to the health and safety of the laboratory workers. The risk assessment should include hazard identification and an analysis of the probability that workers are exposed to the hazard(s) identified. Once this is completed, recommendations for work practice, engineering controls and proper training must be evaluated and established.

2.5 CONTROL BANDING

Control banding is a generic technique that determines a control measure (e.g., dilution ventilation, engineering controls, containment) based on a range or “band” of hazards (such as skin/eye irritant, very toxic, carcinogenic) and exposures (small, medium, large). The principle of control banding was first applied to dangerous chemicals, chemical mixtures, and fumes. The control banding process emphasizes the controls needed to prevent hazardous substances from causing harm to people at work. The greater the potential for harm, the greater the degree of control needed to manage the situation and make the risk “acceptable.”

Source: http://www.cdc.gov/niosh/topics/ctrlbanding/

Materials are first placed into a "hazard band." Factors used to decide which band a product belongs to include:

- Toxicity of the material (how "poisonous" a material is)
- Ease of exposure (e.g., how easy it is for the material to get into a worker's body such as how fine (dusty) or volatile a product is)
- Type of work process being used (e.g., grinding vs. transferring)
- Duration of exposure (amount of time doing the task)
- Quantity of material used in task (small vs. large amounts)

In the example below, the bands represent levels of control: band 1 is low control, while band 4 is the highest amount of control. These bands are based on increased toxicity of the products being used. For example, a skin irritant that is only used in tiny amounts would require less stringent controls than a cancer-causing chemical.

Band No.	Hazard Group	Control
1	Skin and/or eye irritant	Use good industrial hygiene practice and general ventilation.
2	Harmful on single exposure	Use local exhaust ventilation.
3	Severely irritating and/or corrosive	Enclose the process.
4	Very toxic on single exposure; reproductive hazard; sensitizer	Seek expert advice.

Another example is a decision matrix for control selection. Note in this example:

- High ease of exposure AND high health hazard (i.e., high risk) = Stringent control (isolation)
- Medium ease of exposure AND medium health hazard (i.e., medium risk) = Engineering controls (often includes ventilation requirements)
- Low ease of exposure AND low health hazard (i.e., low risk) = Dilution ventilation (least stringent controls)

Health Hazard		High	Medium	Low
Ease of Exposure	High	HIGH Isolation	MEDIUM Engineering Controls	MEDIUM Engineering Controls
	Medium	HIGH Isolation	MEDIUM Engineering Controls	LOW Dilution Ventilation
	Low	MEDIUM Engineering Controls	MEDIUM Engineering Controls	LOW Dilution Ventilation

Source: Sullivan E and Malik O. 2007. Control Banding: Pharmaceutical Caterpillar to Mainstream IH Butterfly. American Industrial Hygiene Association *Diplomate* Article.

2.6 LABORATORY DESIGN

The primary purpose of these design criteria is to establish minimum design requirements for laboratories to provide a safe work environment and prevent undesirable exposures to chemical contaminants among students, faculty, and staff in laboratories.

These design criteria are minimum design standards required for all new construction and renovation projects involving laboratory furniture and fume hoods in Howard facilities. Individual institutions may have more stringent requirements.

Standard References:

- National Fire Protection Association (NFPA) 45, Standard on Fire Protection for Laboratories Using Chemicals
- NFPA 30, Flammable and Combustible Liquids Code
- NFPA 70, National Electric Code
- American National Standards Institute/American Industrial Hygiene Association (ANSI/AIHA) Z9.5, Standard for Laboratory Ventilation
- ANSI/AIHA Z358.1, Standard for Emergency Eyewash and Shower Equipment
- American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 55, Thermal Environment Conditions for Human Occupancy
- ASHRAE 110-R, Method of Testing the Performance of Laboratory Hoods