

(N.B. All proposed changes are highlighted)

DRAFT ENVIRONMENTAL HEALTH AND SANITATION GUIDELINES FOR THE FIBERGLASS INDUSTRY

Developed by:

The Belize City Council, the Department of the Environment & the Public Health Bureau

The small-scale fiberglass industry is becoming increasingly popular in Belize as can be seen by the cropping up of many commercial fiberglass-related businesses, such as boatyards, throughout the country. Several health issues associated with the fiberglass industry, which are not limited to exposure to fiberglass but also to other substances that are often utilized along with it. As a result, this industry has created a serious problem since the majority of these businesses are located **within or near residential zones**.

Fiberglass, which is utilized in various ways, is a manmade material made from small fibers of glass twisted together. The **size and structure of glass fibers** may vary. The smaller fibers, which cannot be seen by the naked eye, are suspected of entering the lungs, while larger, visible fiberglass particles, can be irritating to the skin, eyes, nose, and throat. There is a possibility that these fibers cause permanent damage to the lungs **and** airways. Inhalation of fibers may cause irritation of the airways, resulting in cough and production of excess mucus, a condition known as bronchitis.

Chemicals, such as Epoxy Resins, are used in lacquers, varnishes and plastics, or in **a** combination with other components to form plastics **and also** to strengthen, harden, or give flexibility to fiberglass. Breathing epoxy resins may cause chest tightness, shortness of breath, or wheezing. Skin contact can cause rash.

Styrene is part of the polyester resin used with fiberglass. It is extremely irritating to the eyes and nose at low concentrations: at higher concentrations, it causes headaches, dizziness, and sometimes nausea.

Acetone and Methyl Ethyl Ketone (MEK) are commonly used solvents in fiberglass lay-up and spray-up. They are irritation to the eyes, nose, and throat. Inhaling the vapors may cause drowsiness, breathing difficulties, and serious damage to the lungs and nervous system.

Clearly, the development of the following guidelines and operational standards for the use of fiberglass in small industries **in Belize is** critical.

Guidelines for Light-Scale Fiberglass Industry

SITING AND PLACEMENT

1. Prior to the construction of a fiberglass-associated facility, the developer **must** apply to the Trade Licensing Board for a trade licence and the Department of the Environment for Environmental Clearance, in accordance with the Laws of Belize.
2. Proposed **siting of fiberglass-using facilities** within residential or commercial zones will not be considered. Sites will **need to** be located **within designated** industrial zones or on properties

that provide an adequate buffer from **residential and/or commercial sites**. (Sites should be located in areas where there is no potential to affect nearby residents.)

3. **In accordance with the Physical Planning Section of the Lands and Survey Department**, minimum lot sizes for industrial sites **will** be greater than the minimum of a commercial lot (90' X 125').
4. Fiberglass-associated facilities **must** be located at least 200 feet away from any **permanent** water body (such as, rivers, lagoons, creeks, wells, the sea etc.)
5. Setback distances from the property line should be ??, building height should be no greater than ??, and site cover should be no more than ?? %.

OPERATIONAL STANDARDS

1. **All walls and floors of the building that houses the fiberglass workshop must be made of an impervious material, such as concrete.** Building facilities **must** be totally enclosed.
2. Since the building **must** be enclosed, clean air should be supplied so as to replace exhausted air.
3. A proper ventilation system **must** be put in place bearing in mind that these systems require special expertise and should be referred to by a technically qualified person.
4. Exhaust Systems (e.g. ceiling extractor fans) **must** be installed to remove fiberglass dust and fumes. This system should be designed so as to prevent contaminants from entering the **open** air.
5. All necessary equipment/materials **must** be on hand and in the immediate vicinity of the site to prevent workers from frequently exiting/entering the work area.

SAFETY AND HEALTH MEASURES FOR WORKERS

1. Workers **must** be provided with the necessary safety equipment and protective gear **to reduce the potential for direct contact with glass fibers. This should include** dust-filter masks, long-sleeved shirts, **safety goggles for the eyes gloves and other protective clothing.** Coveralls should be laundered separately so that fibers are not introduced into the homes of workers.
2. Spills of hazardous materials (fiberglass resin) should be quickly and thoroughly cleaned.
3. Water-soluble paper sacks must not be used where any risk exists of deterioration by wetting before final disposal.

HOUSEKEEPING/BUILDING MAINTENANCE

1. **As far as is practicable**, work premises **must** be maintained in a clean state.
2. Floors must be regularly cleared of accumulated dust and waste material.
3. Walls should be cleaned annually or **as required due to** the nature of the building or the process.

EQUIPMENT MAINTENANCE

1. All machinery, plant and equipment **must** be kept free from dust, together with all surfaces of exhaust ventilation equipment and all internal surfaces of the building.
2. Machinery and equipment should, where practicable, be cleaned at the end of each shift. The interval between cleaning should never exceed one week.

WASTE DISPOSAL

1. No burning **of waste** will be done at the work site.
2. Bagging of outlets from dust collection hoppers should be designed to make bag changing easy and to minimize dust leakage.
3. When filled, the bags must be sealed to prevent the escape of dust during subsequent handling.
4. All solid waste will be properly stored and disposed of at the designated dumpsite. **Chemical wastes, such as polyester resins, and bags containing fiberglass will be disposed of in consultation with the Department of the Environment and the Public Health Bureau.**

References

Facts About Fiberglass, American Lung Association of Georgia