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**Residuos Eléctricos y Electrónicos y Calidad del Aire**



W.E.E. and Air Quality

# Manual of good practices for WEEE and consumables for educational centers (BUPRAEECE)

Made by:

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# Properly classify EEE (Electrical and Electronic Devices) and its consumables

The division by categories of the inventory must be carried out following the European regulations for the Classification of EEE (Electrical and Electronic Equipment), Royal Decree 110/2015, of February 20, on waste electrical and electronic equipment, which is based on Directive 2012/ 19/EU of the European Parliament and of the Council, of July 4, 2012, on waste electrical and electronic equipment (WEEE).

# Category 1

## 1. Temperature exchange apparatus

*Refrigerators, freezers, appliances that automatically supply cold products, air conditioners, dehumidification equipment, heat pumps, oil radiators and other temperature exchange appliances that use fluids other than water.*

**Examples:** Refrigerator, Air Conditioner, Oil Radiators, Portable Air Heater.

# Category 2

## 2. Monitors, screens, and devices with screens with a surface greater than 100 cm<sup>2</sup>

*Screens, televisions, digital photo frames with LCD technology, monitors, laptops, including those of the "notebook" type.*

**Examples:** PC screen, Digital Television, Laptops.

# Category 3

## 3.Lamps

*Straight fluorescent lamps, compact fluorescent lamps, fluorescent lamps, high intensity discharge lamps, including pressure sodium lamps and metal halide lamps, low pressure sodium lamps and LED lamps.*

**Examples:** fluorescent lamps, emergency lights, stair lights, light bulbs

# Category 4

## 4. Large appliances

*Washing machines, dryers, dishwashers, kitchens, electric stoves and ovens, electric stoves, electric hot plates, lights; sound or image reproducing apparatus, music equipment (except pipe organs installed in churches), knitting and weaving machines, large computers, large printers, copiers, large slot machines, large sanitary products, large instruments of surveillance and control, large devices that supply products and money automatically, photovoltaic panels.*

**Examples:** Ceiling fan, Mobile Foot Fan, Podoscope, Large Photocopier, Coffee Machine, Soft Drinks and Food Machine.

# Category 5

## 5. Small appliances

*Vacuum cleaners, carpet cleaners, sewing machines, lighting fixtures, microwave ovens, ventilating appliances, irons, toasters, electric knives, electric kettles, watches, electric razors, scales, hair and body care appliances, calculators, radio, video cameras, video recording apparatus, hi-fi systems, musical instruments, sound or image reproducing apparatus, electric and electronic toys, sporting goods, computers for cycling, diving, racing, rowing, etc., motion detectors smoke, heating regulators, thermostats, small electrical and electronic tools, small sanitary products, small monitoring and control instruments, small devices that supply products automatically, small devices with integrated photovoltaic panels.*

**Examples:** Wall, floor, table or mobile power strips, VGA Splitter, Fan Control Panel, Circuit Breaker, Speaker Set, Patch Panel, Projector, Smoke Sensor, Light Switches, Screen Remote Control, Motion Sensor, Power Sources power supply, multimeter, CD/DVD reader, cable tester, floppy drive, small coffee maker, buzzer alarm, theft alarm sensor, extractor fan, stereo.

# Category 6

## 6. Small computer and telecommunications devices (with no external dimension greater than 50 cm)

*Mobile phones, GPS, pocket calculators, routers, personal computers, printers, landlines.*

**Examples:** Mini Towers, Towers, Keyboard, Keyboard boxes, Mouse, Access Point, Switch, Graphics Cards, Home Scanner, Hard Drive, VGA Cables, Power Cables, Motherboard, Portable Chargers, Printer, Router, Telephone.



# Category 7

## 7. Large photovoltaic panels (with an external dimension greater than 50 cm).

*Monocrystalline or polycrystalline silicon photovoltaic panels.*

*Thin film photovoltaic panels, where cadmium telluride is included.*

**Examples:** Solar panels.

# Models and examples

The process we followed was as follows:

- Preparation of a model, fillable on paper, to document the ESAs that are in the various rooms of the Educational Center.
- The students fill in the documentation in each of the rooms (classrooms, departments,...). If there is an updated inventory of EEE in the Center, it could be used.
- Distribution of the various EEE in their categories.

➤ Example:

# Separate EEE into different containers and assign them recycling companies

The companies that are dedicated to the recycling of WEEE can be generic or dedicated to a specific type of waste. Many of the companies are national in scope and the types of waste to be recycled are standard.

Below we express the EEE that are recyclable and that must be separated into different containers and seek the appropriate company for recycling.

# Lighting

Recycling of:

- Fluorescent lights
- Energy saving bulbs
- Discharge bulbs
- LED and Luminarias

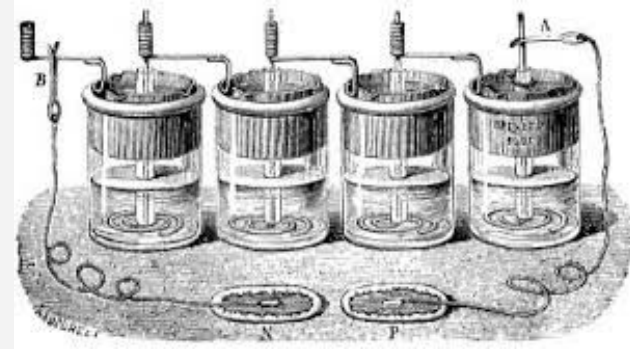
**Companies:** Crest Group, VIVALUX,  
Ecobultech



# Batteries

Responsible recycling of:

- Alkaline batteries (standard)
- Lithium Batteries (cell phone batteries)
- Nickel Batteries (used in drills and other large appliances)
- Mercury or Lithium button cells (used in watches and remote controls)
- Industrial battery or accumulator: designed exclusively for industrial use or used in any type of electric vehicle
- Automotive battery or accumulator: battery or accumulator used for starting, igniting or lighting of vehicles



**Companies:** Eco Battery, Nuba Recycling, Rovotel Steel

# Ink and Toner

Responsible recycling of:

- Ink Cartridges
- Toner
- Toner + drum
- Waste toner bottle
- Fussors



**Companies:** Toner Ekspres, Toner Kaseti, Toner Center

# Mobiles

Responsible recycling of:

- Chargers
- Batteries
- Terminals



**Companies:** NordHolding AD, Collect4Life, Mazuma Mobile

# Generic EEE



Recycling of any type of electrical or electronic equipment: (EEE categories included in the scope of application of the Royal Decree of 15 August 2018)

- Temperature exchange devices.
- Monitors, screens and devices with screens larger than 100cm<sup>2</sup>
- Lamps
- Large appliances (with an external dimension greater than 50cm)
- Small appliances (with no external dimensions greater than 50cm)
- Small computer and telecommunication devices (with no external dimensions greater than 50cm)
- Large photovoltaic panels (with an external dimension greater than 50 cm)



# GENERIC EEE COMPANIES

- GREENTECH BULGARIA AD, Sofia
  - ELTEHRESURS AD, Sofia
  - NATIONAL ORGANIZATION FOR WASTE RECOVERY AND RECYCLING AD , Sofia
  - RANSINS TECHNORECYCLING COMPANY AD, Varna
  - ECOBULTECH AD, Sofia
  - LECTRIC USE AD, Burgas
  - TENECO RECYCLING EOOD, Sofia



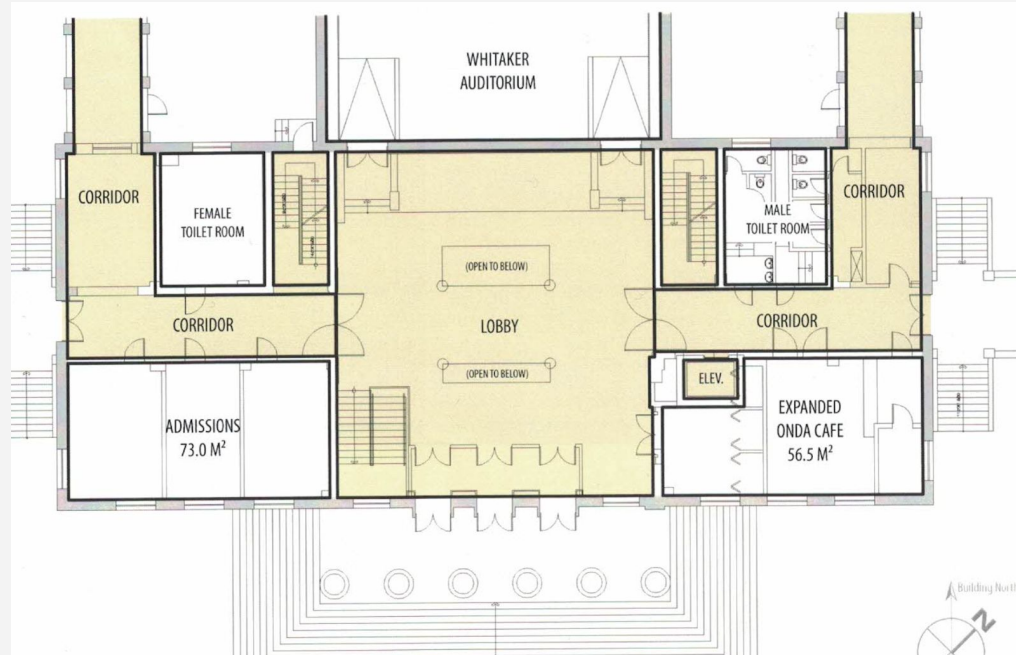
# Steps to follow

1. Establish a system for repairing equipment and a system for reusing device components that break down or become obsolete.
2. Make the following recycling containers available to the educational community:
  - Batteries
  - Lightning.
  - Generic EEE
  - Mobile
  - Ink and toner.
3. Contact the companies for the withdrawal of the different EEE devices.



# Steps to follow (continuation)

4. Clearly publicize the location of the containers in the school. Design of a plan with the locations of the containers. Example:



# EEE Point of Sale Obligations

- ★ Distributor outlets or shops are obliged to collect your Electrical and Electronic Equipment Waste (EEEW).
- ★ 1x1: you will be able to hand in your old device equivalent to the new one, and you will be able to hand it in at the point of sale or have the distributor pick it up at your home when the new device is delivered to you
- ★ 1x0: you can deposit your Electrical and Electronic Equipment Waste (EEEW) in areas intended for the sale of EEE with a minimum area of 400m<sup>2</sup>. The EEEW must be no larger than 25 cm
- ★ Distributors that market products through online sales must comply with the same obligations as a distributors with a physical point of sale.



# Bibliography Bulgaria:

[Bibliography: This project has been funded with support from the European Commission. This publication \[communication\] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.](#)  
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