Educational and Training Materials for Identifying Copper or Brass Material

Introduction

Pursuant to Senate Bill 1646, the Department is required to develop educational and training materials to assist metal recycling entities in identifying copper or brass material as defined by Section 1956.131 of the Texas Occupations Code. These materials focus on items that may be stolen property, particularly from communications industries and public utilities. This document provides foundational information, descriptions, and visual guidance to help recycling entities recognize such materials when presented for purchase. It is designed for easy access via a link on the Department's website and can be distributed as a PDF or printed handout.

The goal is to promote compliance, reduce the recycling of stolen goods, and protect critical infrastructure. These materials were developed in coordination with the advisory committee under Section 1956.017, trade associations, communications industry representatives, utility representatives, law enforcement, prosecuting attorneys, and other stakeholders.

Definition of Copper or Brass Material

As defined in Section 1956.131 of the Texas Occupations Code (added by SB 1646), "copper or brass material" refers to items under Section 1956.001(4)(A), excluding those in (4)(B) or (C), and excluding common household insulated or non-insulated copper wire or cable. Specifically, this includes:

- A power inverter, bus bar, or insulated or non-insulated copper wire or cable that contains copper or an alloy of copper or zinc and is of the type used by:
- A public utility or common carrier;
- A telecommunications provider;
- A cable service provider; or
- A video service provider.

This definition targets infrastructure-related materials commonly stolen from utilities and communications networks, such as telephone lines, DSL/internet cables, and power distribution wires. For the purposes of this document, it does **not** include general construction items (e.g., copper fittings or bars not tied to utilities), copper pipe/tubing, or everyday household wiring (e.g., extension cords or appliance wires). There may be instances of copper used by the public or other

industries that is of the same type used by a public utility, common carrier, or telecom, cable, or video service provider, in which case the copper meets the definition under Section 1956.131 of the Texas Occupations Code and subject to the same regulatory requirements.

Common Types of Copper or Brass Material Often Stolen

Thieves frequently target copper wires and cables from communications and utility infrastructure due to their high scrap value. These materials are typically deployed in overhead lines, underground conduits, substations, or along utility poles. Below is a table summarizing common types, their uses, and key characteristics to aid identification.

Type	Description and Characteristics	Common Sources/Victims	Potential Signs of Theft
Twisted Pair/ Multi-pair Copper Wire/Cable	Multiple pairs of thin copper wires twisted together to reduce interference, encased in a plastic sheath (e.g., gray, blue, or black). May be jelly-filled for moisture protection or foam-insulated. Used for voice and data transmission.	Telecommunications providers like AT&T (telephone/DSL lines); cable providers like Comcast or Charter for hybrid networks.	Irregular cuts at ends (e.g., hacked with tools rather than cleanly severed); stripped insulation exposing bare copper; bundles with utility markings removed or burned off; no accompanying hardware like connectors. Often presented in large, tangled quantities.
Coaxial Cable	Central copper conductor surrounded by insulation, a braided copper or aluminum shield, and an outer jacket (black or white PVC). Types include RG-6 (for TV/internet) or RG-11 (thicker for longer runs).	Cable and video service providers like Comcast, Charter Communications; some telecom hybrids.	Cut sections with exposed inner copper core; char marks from burning off outer layers to extract copper; lack of end fittings (e.g., no F-connectors); sometimes bundled with other utility scraps.
Bus Bars or Power Inverter Cables	Thick, solid or stranded copper bars/rods or heavy-gauge cables (4-00 AWG) with red/black insulation. Used for high-current distribution. May include alloys with zinc for brass components.	Public utilities like CenterPoint Energy (substations, power grids); common carriers.	Bent or damaged from forcible removal; scorch marks from electrical arcing; no labels or serial numbers; often heavy and presented by individuals without documentation.
Other Infrastructure Wire	Non-insulated bare copper ground wire or overhead transmission lines (stranded copper, 10-4 AWG). May appear as loose coils.	Utilities (e.g., CenterPoint Energy for grounding); telecom towers.	Weathered or dirty from outdoor exposure; cut into short segments for easy transport; evidence of climbing tools (e.g., scratches).

Example Pictures and Visual Identification

These items are often stolen from active infrastructure, causing outages for thousands of customers and costing millions in repairs. Thieves may burn insulation to extract pure copper, leaving residue or melted plastic. To assist in visual recognition, images are included below. Industry stakeholders have provided input on representative examples per Sec. 1956.018 (c).

Telecom Cable / Communication Wire: *Image shows pairs of copper wires inside a sheath. Cables can vary in size from 25 pair to 4200 pair.*

Telecom Cable / Communication Wire: *(Continued)*

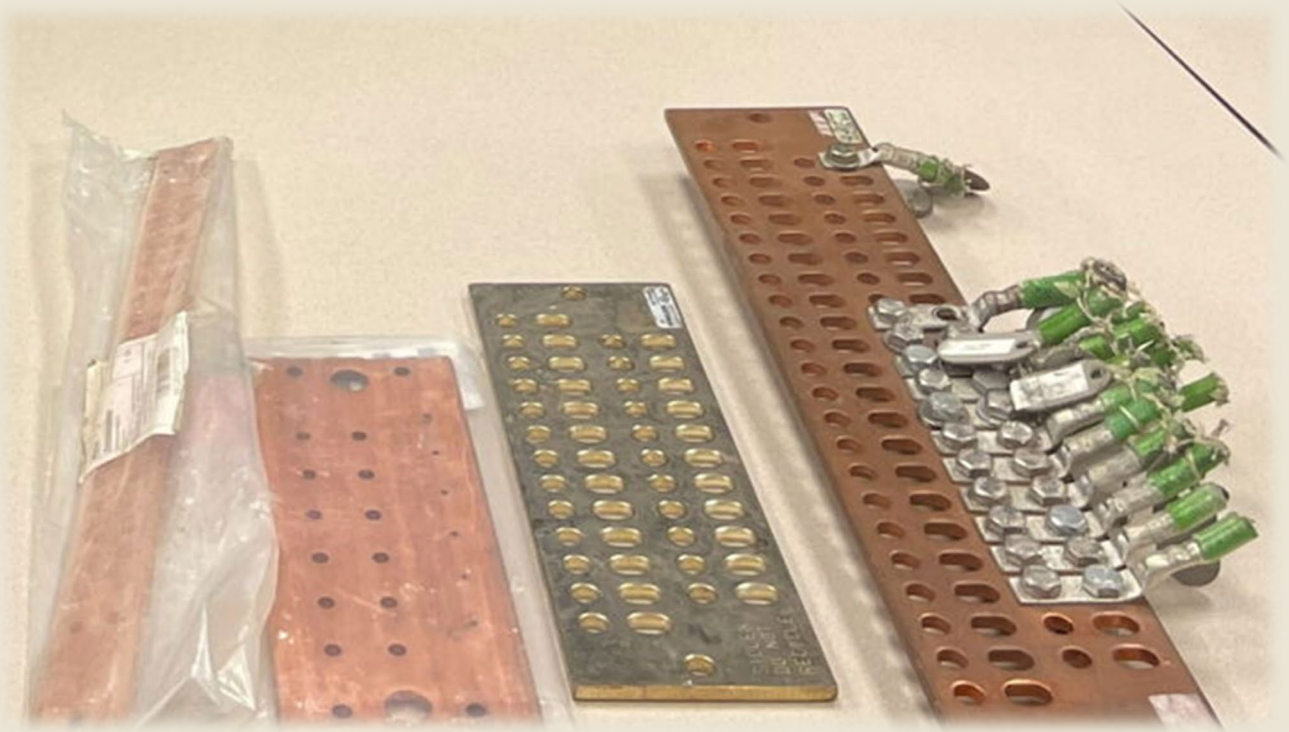
Burned Communication Wire: *For burned wire, look for char marks and melted insulation residue. Burned wire may vary in appearance.*

Burned Communication Wire: *When identified, an MRE must obtain documentation from the seller validating the material was salvaged from a fire.*

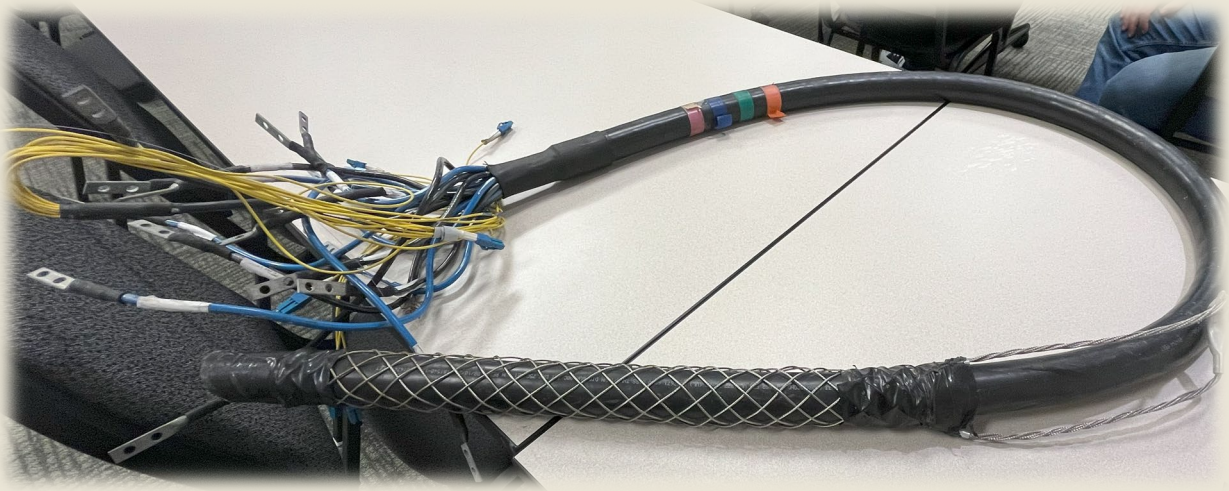
Coaxial Cable: *Image depicts a coaxial cable cut open to reveal the central copper core, insulation, braided shield, and outer jacket.*

Heliax Cable: *Type of coaxial cable designed for high-frequency applications, such as cellular networks, broadcasting, and military communication systems. It features a corrugated outer conductor along with a solid or foam dielectric material that supports the inner conductor.*

Bus Bars: *Image of copper bus bars representative of thick copper used in cell towers and substations.*



Power Inverters / Inverter Cables / Utility Generator Plugs: *Built into backup power systems for cell towers, cable headend, and utilities.*



Power Inverters / Inverter Cables / Utility Generator Plugs: *Built into backup power systems for cell towers, cable headend, and utilities.* *(Continued)*

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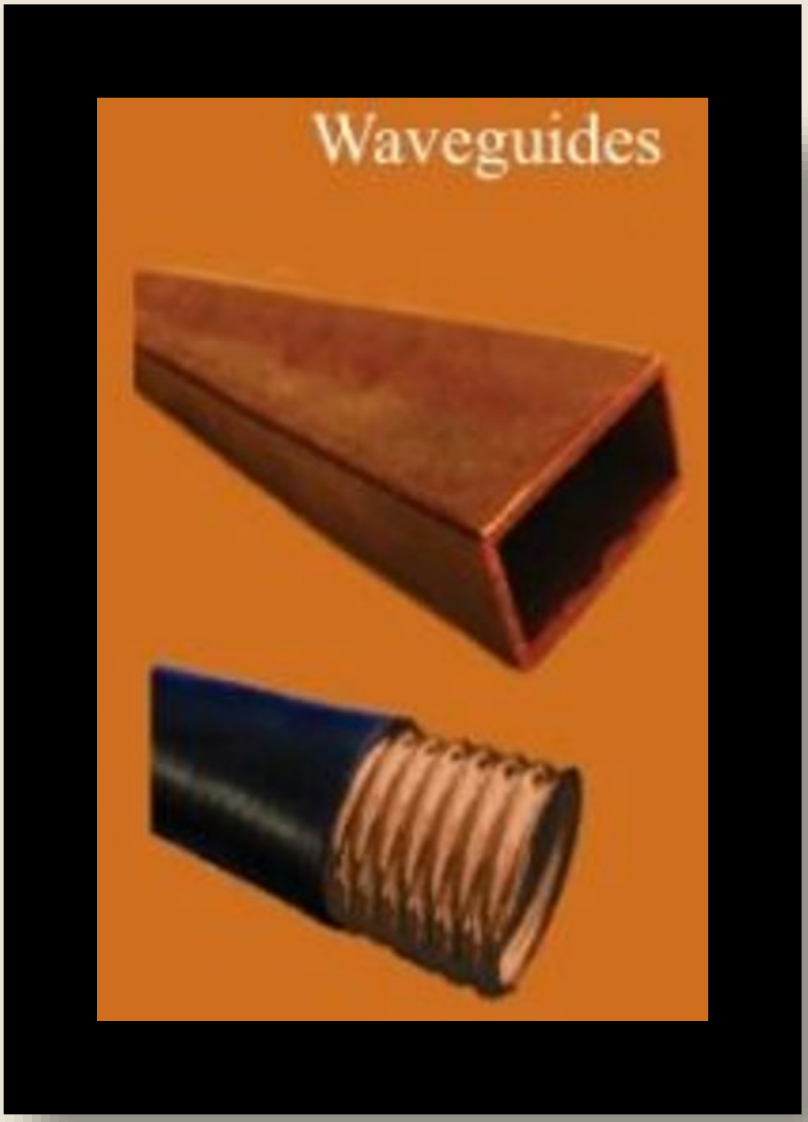
(Continued)

Utility Distribution/MCM Wire: *Overhead or underground lines feeding power from substations to neighborhoods or businesses. These wires can be made of copper or copper-clad steel and may be insulated or bare.*

Utility Ground Wire: *Bare or insulated copper cable used to divert fault currents or lightning to the earth in power or telecom systems, preventing shocks or equipment damage. Utility ground wire can be made of copper or copper-clad steel but is often thinner than power distribution wire, depending on the application.*

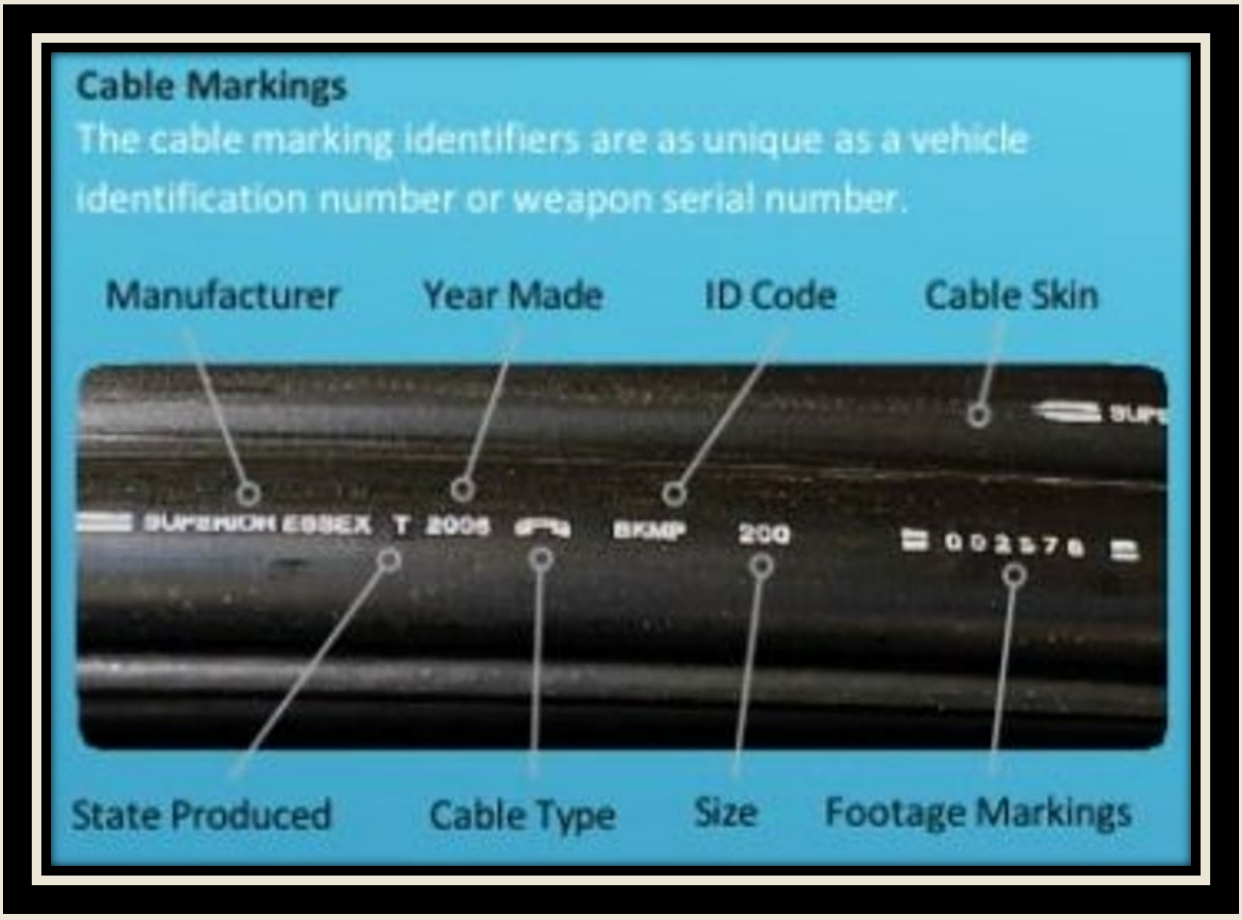
Waveguides: *A waveguide (from microwave towers) resembles cable (somewhat like a coax cable) but is basically a hollow "pipe" and can be square or round.*



Waveguides: *(Continued)*

Copper Clad Aluminum / CCA Wire / Railroad & Common Carrier Infrastructure: *Often found in railways for overhead catenary systems and power lines. It is lighter than pure copper.*

Markings / Identifiers: *Unique numbers, codes, or symbols identifying material facts.*



Markings / Identifiers: *Unique numbers, codes, or symbols identifying material facts.*

Signs That Material May Be Stolen Property

- **Physical Condition**: Jagged or hasty cuts, burn marks from removing insulation, or chemical residues from stripping.
- **Quantity and Presentation**: Large volumes without packaging or documentation; brought in vehicles inconsistent with legitimate sources (e.g., no company truck).
- **Seller Behavior**: No proof of ownership; reluctance to provide ID; history of similar transactions.
- **Markings**: Removed or defaced labels (e.g., "Property of _____"; absence of serial numbers.

Purchasing Copper or Brass Material

- If suspected stolen, do not purchase. Report suspected criminal activity to local law enforcement providing any evidence collected.
- If you identify any copper or brass material on your premises already purchased that you suspect is stolen, retain all required purchase records, contact DPS, report to local law enforcement (e.g. local theft hotlines), and retain material for investigation. In some cases, rewards may be available for tips leading to convictions.
- When purchasing copper or brass material from the public, a metal recycling entity must obtain either written documentation evidencing that the person is the legal owner or is lawfully entitled to sell the regulated material; or obtain a signed written statement provided by the metal recycling entity that the person is the legal owner of or is lawfully entitled to sell the regulated material offered for sale. If the regulated material includes insulated communications wire that has been burned wholly or partly to remove the insulation, the metal recycling entity must acquire acceptable documentation proving that the material was salvaged from a fire. All purchase and record requirements for regulated metal outlined in Occupations Code, Chapter 1956 must be adhered to.
- When purchasing copper or brass material from another business or entity described under Sec. 1956.133, a metal recycling entity shall confirm the business acquired it in the ordinary course of their business. A metal recycling entity shall maintain an accurate record of each transaction in accordance with Sec. 1956.134.

Training Exercises

To reinforce the information in this document, the following scenarios and quiz questions are provided. These can be used in staff training sessions, printable worksheets, or online modules. Answers are included for facilitators.

Scenarios

Scenario 1: A seller presents a bundle of twisted pair wires with burned ends and no labels. What questions should you ask, and what actions should you take? (Answer: Request proof of origin (e.g., receipt or work order); check for utility markings or serial numbers; if you believe stolen, do not purchase, record seller details, and report to law enforcement.)

Scenario 2: An individual arrives with several short segments of coaxial cable, some with char marks and exposed copper cores, claiming it's from a home renovation. How would you evaluate if this might be stolen material? (Answer: Look for signs like lack of end fittings, irregular cuts, or large quantities inconsistent with household use; ask for documentation; if doubtful, do not purchase and contact authorities.)

Scenario 3: A customer brings in heavy bus bars that appear bent and scorched, without any accompanying paperwork. What indicators suggest theft, and what is the next step? (Answer: Indicators include damage from forcible removal, no labels or serial numbers; next steps: If you conclude it is stolen material, refuse purchase, document the interaction, and notify local law enforcement or utility representatives.)

Scenario 4: A large amount of rainbow-colored insulated wire is found in a refrigerator in the scrap iron pile. What actions should you take? (Answer: Inspect the wire for identifying markers and for indicators that it is stolen wire; determine when and how it was received. If suspected stolen, retain any purchase records or information on how it was obtained. Contact DPS or local law enforcement and retain material for investigation.)

Quiz Questions

True/False 1: Household extension cords qualify as regulated copper material under Section 1956.131. (False – Excluded under the definition, as they are common household items.)

True/False 2: Burn marks on insulation are a potential sign that material may be stolen, as thieves often burn off coverings to extract copper. (True – This is a common method used by thieves.)

Multiple Choice 1: Which of the following is NOT typically a sign of stolen copper material?
a) Jagged cuts at ends
b) Factory-sealed packaging with documents
c) Removed or defaced labels
d) Large quantities without documentation
(Answer: b) Factory-sealed packaging with documents– This suggests legitimate sourcing.)

Multiple Choice 2: If you suspect material is stolen, what should you do?
a) Purchase it at a lower price
b) Ignore it and proceed with the transaction
c) Record details, refuse purchase, and report to law enforcement
d) Ask the seller to come back later
(Answer: c) Record details, refuse purchase, and report to law enforcement.

Conclusion

This document aims to equip metal recycling entities with practical tools to identify copper or brass materials commonly targeted by thieves, such as telecommunications cables and utility wires. By using the descriptions, visual aids, and training exercises provided, recyclers can better recognize suspicious materials, ask critical questions, and report potential stolen goods to law enforcement. Your efforts in using these resources contribute to reducing copper theft, protecting vital infrastructure, and supporting safer communities across Texas.