Fire Risks in our Woodshops

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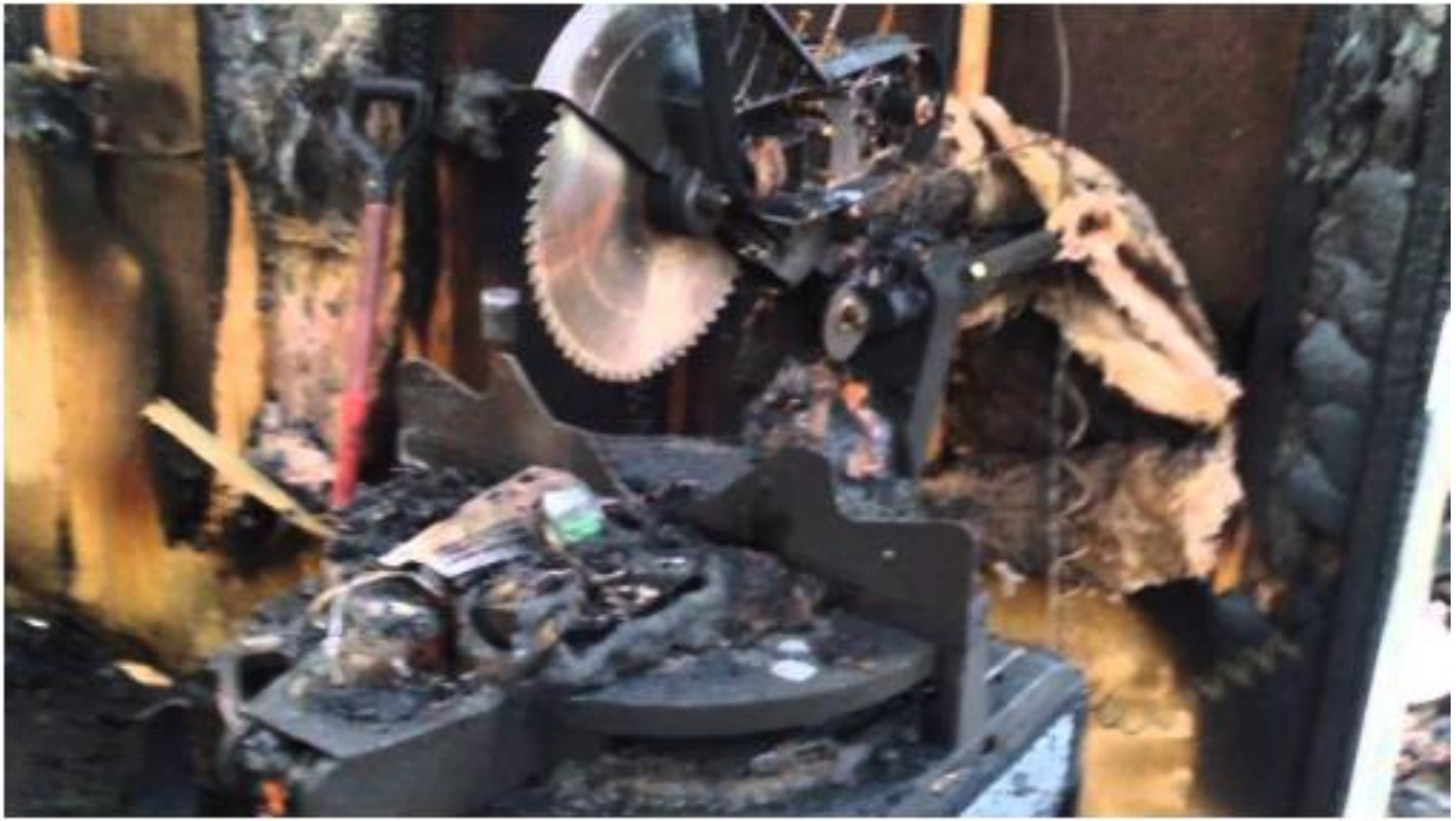
Oops!



Basics of Ignition/Combustion/Fire

Necessary prerequisites:

- Fuel (wood, dust, flammable liquids)
- Oxidizer (generally air or oxygen)
- Sources of ignition (heat, spark, flame)

Fuels

- Dry wood, paper, card board
- The smaller, the more combustible: original diesel engines were designed to burn coal dust: wood dust isn’t much different
- Organic solvents, paints, finishes, glues, etc.
- Rags soaked with oils, varnishes, urethanes, etc.

Oxidizers

- Oxygen
- Chemical oxidizers used in rockets (any rocket scientists in the crowd?)

Ignition

- Sparks (electrical, static?) due to faulty wiring
- Heat (friction (dull blades), oxidation of solvents (heat generating chemical reactions), irons, glue pots)
- Open flame (torches, stoves)
- Grinding wheels when grinding metals

Controlling Variable in your Shop?

- Combustible material is everywhere
- Oxygen is everywhere

- **Sources of ignition are key to manage!**

Fire Response

- Smother the fire (remove the oxygen)
- Cool the combustible material
- Cut the source of ignition
- Remove the fuel

Categories of Fires

- Class A – Ordinary combustibles such as wood, paper, cloth, trash, and plastics.
- Class B – Flammable liquids like gasoline, petroleum, oil, and paint or gases like propane and butane. This class excludes grease and cooking oils.
- Class C – Energized electrical equipment like appliances, transformers, and motors. The electricity must be turned off to aid extinguishing efforts.
- Class D – Combustible metals like titanium, magnesium, aluminum, potassium, sodium, and other metals with combustive properties.
- Class K – Animal and vegetable fats, cooking oils and greases, and other combustible liquids generally used in food preparation.

http://www.qrfs.com/66--Ultimate-Guide-to-Fire-Extinguisher-Types-Servicing-and-Uses_b_72.html?view_full_site=1&gclid=Cj0KCQiA7dHSBRDEARIsAJhAHwjKDg7dRfGBVIiZcDsdcX6FNBldPrz97tdf_QhAVg4HKFv9Iqe1oJMaAvvuEALw_wcB

Water, Foam, or Wet Blanket

- For Type A fires
- Smothers the fire and cools fuel.

- **Dangerous when used on flammable liquids or electrical equipment fires**

Carbon Dioxide

- Type B or Type C, but not as effective for Type A
- Displaces oxygen and cools fuel

Dry Chemicals

- Types A, B, or C, generally the best all around
- Displaces oxygen
- Safest for combustible liquids and electrical fires

- Don’t worry about the mess

Other Concerns

- Fires release toxic combustion products
  - Carbon monoxide
  - Smoke
  - Toxic compounds

  - Fires remove necessary oxygen from the air

Areas of Particular Concern

- Your high volume dust collector: it can suck up hot embers and ignite with the high air flow rate and create your own turbocharged kiln
- Old or repurposed motors (not TEFC, Totally Enclosed Fan Cooled) exposed to dust
- Electrical boxes, switches, and plugs
- Gas water or space heaters located in wood shop

Pay Attention to

- Sources of ignition
- Faulty electrical wiring
- Solvents
- Rags soaked with paints, varnishes, oils (they all generate heat when in air as they cure)
- Dust build up around motors, switches, and electrical boxes & plugs
- Dull or pitched-up saw blades
- Lithium Batteries and their chargers???

In your Shop, Do you Have?

- A extinguisher in your shop (ABC)
- A smoke alarm
- An easy escape route
- Know where the fire extinguisher is located
- A charged fire extinguisher

Don’t let this happen to you!