



# DIRTT

Materials & Production

DIRTT offers finishes and materials never seen before in the industry. A full description of the recycled content in each wall type is available from your local DIRTT Representative or Partner. DIRTT is accredited to go beyond their standard offering materials with more recycled content and/or rapidly renewable resources.

### **WATER-BASED FINISHING**

DIRTT's **water-based finishes** and UV curing process eliminates the use of large electricity intensive ovens. DIRTT is the first to use this technology on all surfaces. This means the DIRTT Wood Shop does not have toxic hazards or huge air/heat exchange units, which use a lot of energy and emit a lot of air pollution. DIRTT employees and the surrounding community are safer and so are our clients. Conventional finishing processes lead to weeks and even months of hazardous off gassing in their clients' spaces. DIRTT finishes are applied in-house and do not off-gas on-site.

### **VENEER WRAPPING**

This patent pending process takes the finest quality thinly sliced veneer and wraps it directly onto aluminum extrusions, which is then finished with a water-based finish. The process allows for beautiful wood finishing without using extra wood or other substrate materials. (Global wood consumption is projected to increase by 50 percent by the year 2050 – National Resources Defense Council.) The adhesive is a non-hazardous, non-flammable, micro-emission **PUR** (polyurethane reactive). It is free of VOC (volatile organic compounds) and HAP (hazardous air pollutants) and does not require ovens for curing.

### **FOREST STEWARDSHIP COUNCIL (FSC)**

DIRTT Environmental Solutions attained Forest Stewardship Council (FSC) Chain-of-Custody accreditation. We can source FSC certified veneers and medium density fiberboard (MDF). As these materials go through the production facility, DIRTT guarantees it will maintain a tracking and handling system ensuring the FSC products are not mixed in with other materials.

DIRTT's official certification code: SCS-COC-00848

### **UREA FORMALDEHYDE FREE/FSC CERTIFIED MDF**

DIRTT is the first manufacturer in this industry to use the world's only supplier producing Forest Stewardship Council certified and urea formaldehyde-free Medium Density Fiberboard (MDF). Until now, clients striving for LEED certification had to choose between the point for urea formaldehyde free or FSC certified. For the first time they can have both.



## POWDER COATING

Where liquid finishes contain solvents with pollutants known as volatile organic compounds (VOCs), powder coating contains no solvents and releases negligible amounts of VOCs into the atmosphere. Powder coat lines generally use 50% less energy than conventional systems.

## CHROMA-COAT

This is DIRTT's paint. It too is water-borne lacquer pigment with lower VOCs than even LEED requires. It is applied in DIRTT's factory, which dramatically reduces the time painters must be on-site. (Only the base building will need paint and the painters will be working in a wide-open space for fast application.)

## ALUMINUM

We generally use virgin **aluminum** as our structural wall elements because of its strength and consistency. We do offer aluminum with approximately 25% pre-consumer recycled content, any higher and the aluminum loses strength and consistency, making anodizing impossible due to the mixed metal base. (This will extend lead-times to ensure non-contamination.) Companies providing higher recycled content are forced to over-design extrusions, resulting in more material use even though it is recycled – so it is not particularly environmentally friendly even though they may get points for it.

Though aluminum mining and processing is considered energy intensive and greenhouse gas heavy, in 2002 the aluminum industry received an EPA Climate Change Award for reducing perfluorocarbons by 45%. Aluminum also has several downstream environmental benefits:

- **Recyclable** - Aluminum is completely recyclable. The recycling rate of aluminum is currently approximately 50%, and awareness programs should increase this number.
- **Less Waste** – When aluminum is used in design, there is minimal material waste (as the component can be created virtually to exact size), reducing waste for landfills. Where manufacturing of components cannot be done to exact size, the leftover portions can still be recycled, eliminating waste entirely.
- **Energy Efficiency of Recycled Aluminum** – The recycling process consumes very little energy (about 5% of energy required to create primary aluminum). The more it is recycled, the more energy efficient it becomes.
- **Common resource** – Aluminum is the most common metal in the world; found in mica, feldspar, clay and is primarily extracted from bauxite.



- **Sustainable** – Strong, light (saving energy in some applications) and enduring, aluminum products will often outlast their initial application.
- **Lightweight** – aluminum, versus steel, requires much less fuel to transport

## GLASS

Joel Berman Glass works beautifully with DIRTT's wall products. Their Editions™ glass is 20% post-industrial recycled materials and they can offer 100% post-consumer glass through reclamation of demolished office spaces. (This product is available on request and has some size restrictions.) [www.bermanglasseditions.com](http://www.bermanglasseditions.com)

## FACTORY LIGHTING

DIRTT uses Philips Alto Silhouette T5 lamps with low mercury content. Each one lasts 20,000 hours. They are \*TCLP (Toxicity Characteristic Leaching Procedure) compliant and are much smaller than conventional factory lights. Plus we need fewer of them to get excellent light quality. Their energy efficiency means we are also lessening the pollution pumped out by our local electricity provider, which we are sad to say is mostly coal powered. When they do finally burn out we recycle them. November 2009 we received a certificate congratulating us for diverting 9000 mg of mercury from the landfill. \* <http://www.tclpcompliantbulbs.com>

## PACKAGING

Of course products need to be packaged properly for safe, damage-free shipping, but packaging quickly becomes trash on the job-site. Initially, like many other companies, DIRTT was using cut lengths of 2 x 4 lumber to keep the walls from damaging each other. It was an expensive, labor intensive, wasteful method. Since then DIRTT developed a solution that protects the walls, creates 10% more room in the trucks and is infinitely reusable. It is affectionately called \*The Cookie. The Cookie is a plastic molded piece that is lightweight, strong and is mailed back to DIRTT in a self-addressed 'Cookie Box' for the next shipment. The installation team member who sends the Cookies back gets an "I never toss my Cookies" t-shirt.

*\*It is called The Cookie because someone in Product Development thought it looked like a little Dutch girl carrying a tray of Cookies. In spite of this, he still insists on naming things.*



## **POWER**

DIRTT has the largest corporate solar PV array in the city on its roof. This isn't saying much for the city, as 60 panels isn't that big, but it does power all our office computers and when there's no action in the office (like the weekends) it runs machines in the Wood Shop. The array generates enough power to displace approximately 13 tons of carbon dioxide each year.

## **PHYSICAL FOOTPRINT**

Because of the elimination of large ovens and separate explosion proof areas and because of DIRTT's front-to-back software system, the footprint of our manufacturing is a fraction of a conventional manufacturing facility. The ICE® software coordinates inventory, project assembly and shipping details, helping to make the floor as efficient as it can be and allowing for less real estate to light, power, heat and cool.

## **COMMUTING**

DIRTTbags who cycle, take public transportation or carpool are entered into a monthly draw for cash. Those who drive Hybrids and Smart Cars have company-branding put on their vehicles and are given a stipend each month.

## **SAVANNAH**

DIRTT opened a second production facility in Savannah, GA in the summer of 2009. This proximity to our major markets of Eastern North America means our products have to travel fewer miles and can do so via a selection of transportation options such as rail and ship.

