

Continuous Process Improvement @ DIRTT

For Sustainability



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DIRTT
Build better.™

A little bit of DIRTT



- Founded 2005
- \$187 million 2014
- Largest NA Supplier
- ICE Software
- Automated Systems
- Nothing to Stock
- Revolutionizing

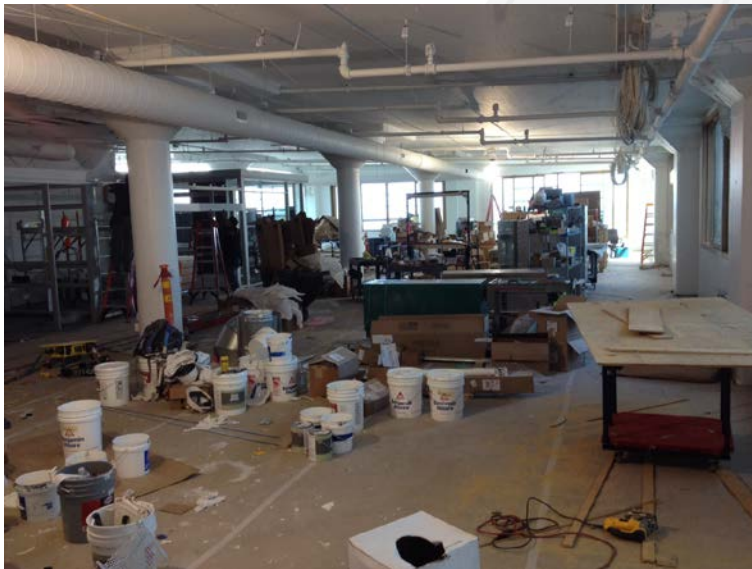
Current Construction Paradigm

- **36% of all waste, is construction related**
- **At some point, needs change, rip everything out, start over**



- **DIRTT has a better solution**

The DIRTT Paradigm



Messy, smelly and takes weeks

OR



Clean, neat and takes days

Overview

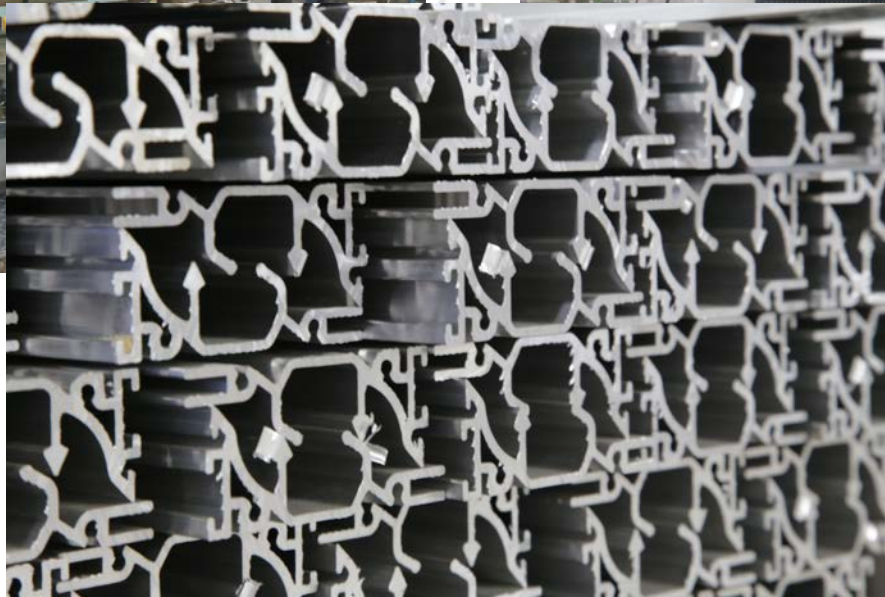
Equipment



Process



Supply Chain



Equipment – End Punches

- Walls have details, top and bottom

	CNC	End Punch
Cycle Time	5 min	1 min
Capacity	120 / day	600 / day
Power	84 MWh / yr	2.5 MWh / yr
Capital	\$117,000	\$15,000

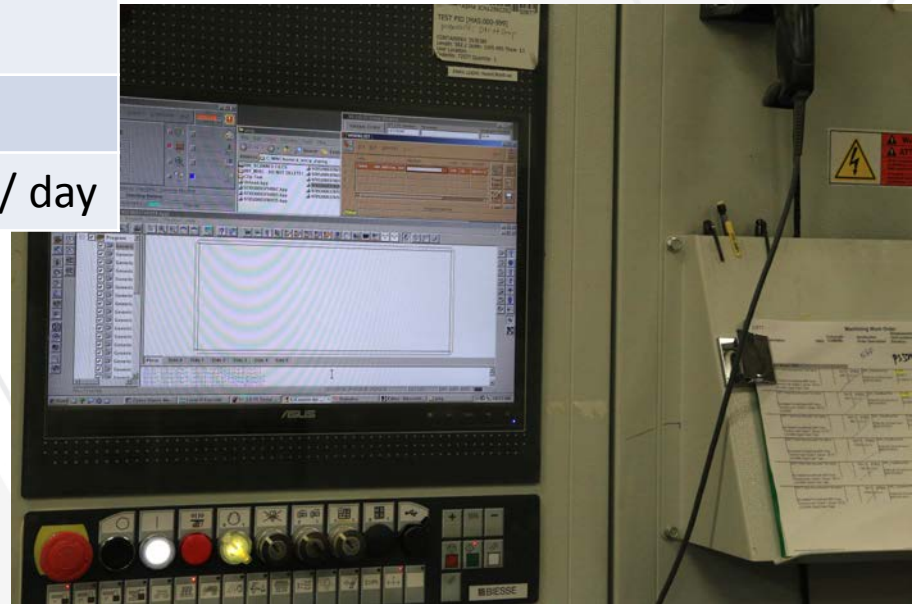


- One time capital savings of \$1.7 million
- Yearly electrical savings of \$172,000
- Reduced carbon foot print by 842,000 kg CO₂ / yr (equivalent to carbon of 142,500 trees)
- \$25,000 savings (new Carbon Tax)

Process – Changes to Flow

	Before	After
Cycle Time	6:20	3:15
Run Time	2:00	1:15
Wait Time	4:20	2:00
Capacity	560 Tiles / day	1,000 Tiles / day

- **Reduced Run time by 37%**
- **Reduced Wait time by 53%**
- **Increased Tile capacity by 78%**
 - no extra people, space or equipment
 - Only marginal increase in power. **HUGE GAIN!!**



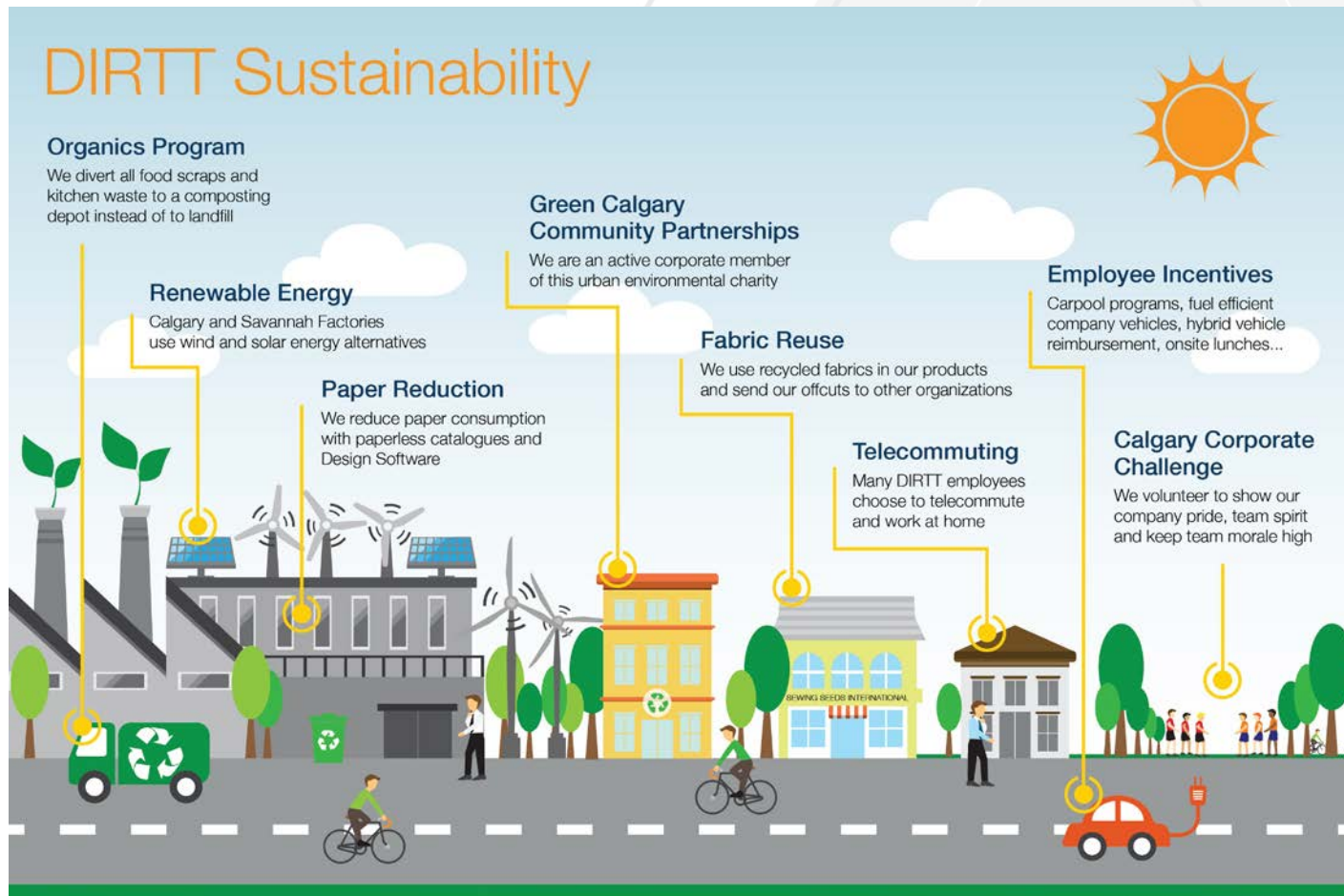
Supply Chain – On Going

Climate Change	240 kg CO ₂ -eq
Acidification	1.7 kg SO ₂ -eq
Eutrophication	1.00 kg N-eq
Ozone Depletion	8.3E-6 kg CFC-11-eq
Photochemical Smog	17 kg O ₃ -eq
Ecotoxicity	4300 CTUe
Human Health – Air	0.28 kg PM _{2.5} -eq
Primary Energy Consumption	2800 MJ non-renewable
	6.9 MJ renewable
Waste Production	0.017 kg hazardous
	43 kg non-hazardous
Material Resource Consumption	210 kg non-renewable
	36 kg renewable
Freshwater Consumption	1.6E+6 L
Land Use	120 m ² -yr

Summary: EPD for Calgary solid wall

- **GWP: 240 kg CO₂**
- **Goal: Reduce CO₂ by 30% in next 2 years**
- **Will also improve our capacity as at least 2 times faster**
- **Reduce our carbon foot print by over 8 million kg CO₂ / yr**
- **\$240,000 Savings (new Carbon Tax)**

DIRTT's Ongoing Sustainability



Your Challenge

Look at your Company:

- Energy use
- Material use
- Process Flow

You will be able to reduce
your footprint



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Thank you.

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