

An Unexpected and “Timely” Solution

March 8, 2012

Joint Symposium SCAQMD and ILMA



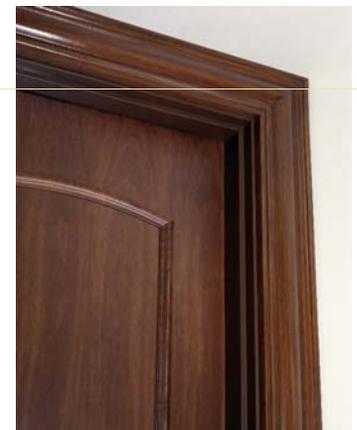


Today's Discussion

- What we manufacture
- Manufacturing Process
- Why we need some form of lubricant
- What we used prior to 2010
- Trial, errors, 2011 solution
- Still not working
- The unexpected “Timely” solution

What we manufacture

- Pre Finished Steel Door Frames



Material we use

- 18, 20, and 22 gauge
- Cold Rolled Steel
- Electro Galvanized
- Hot Dip Galvanized



Material is Pre Finished

- Metal Coaters process
 - Clean Coil
 - Pre-treat
 - Apply organic coating
 - Polyester Baked on finish



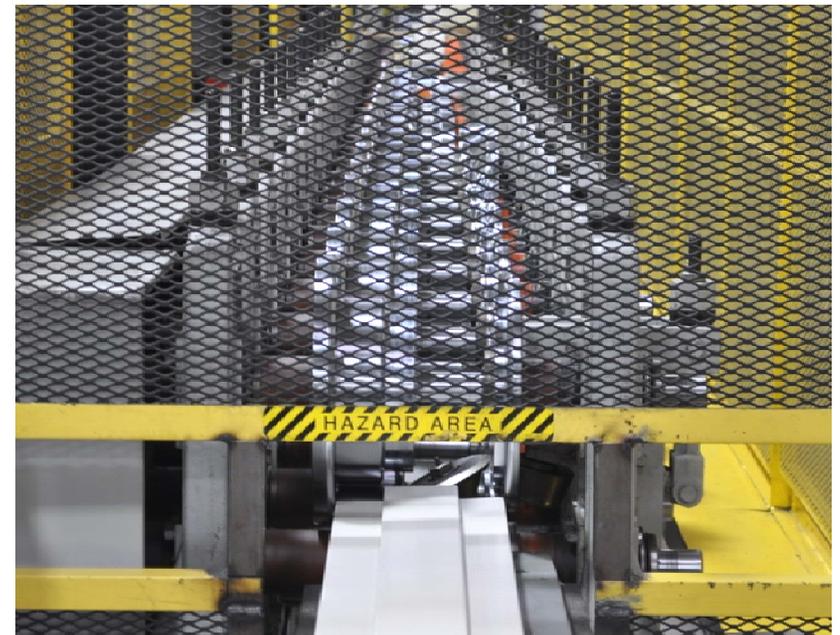
Forming Process

- Coil of Material hung from reel
- Feeds into Roll Mill as flat material



Forming Process

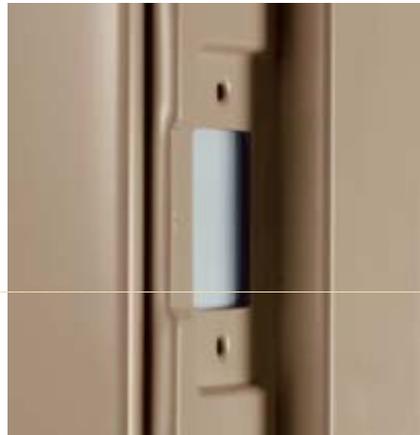
- Material runs through roller dies
- Forms door frame at end of roll mill
- Various profiles and designs



Stamping Process

- Emboss Hinge and strike preps
- Material has to be flexible

Strike Emboss





Why do we use lubricants ?

- Protects the paint
- Extends die life
- Helps in forming process
- Helps in stamping / emboss process

What we used prior to 2010

- Deodorized kerosene
 - Flashpoint = 105 degrees F
- Rule 1144 for 2010
 - Flashpoint > 200 degrees F
 - VOC 50 per liter

Trial, errors, 2011 solution

- Prior to 2010
 - 28 different compounds tested
 - Only one passed, Linpar 1416-V
 - Linpar flashpoint = 250 degrees F
 - Had close to \$ 150,000 invested in R & D
- Started with Linpar in 2011
 - Knowledge of Rule 144 changes in 2012 would not allow Linpar



Still Not Working

- 2011 Linpar Usage
 - Issues
 - Winter months taking too long to dry
 - Customer complaints about wet material
 - Summer drying too quickly
 - Left residue on frames
 - Started variance process with SCAQMD

Idea



- My Uncle
 - Tool and Die Maker 39 years
 - Kept all of his precision tooling rust free with the use of deer tallow
- Contacted the FMA (Fabricators and Manufacturers' Association)
 - Deal with roll forming, stamping, and welding manufacturers'
 - Roll Former in Tennessee using Murphy's Oil Soap on one of their lines



Tallow, Soap,

- Research lead to fat as a lubricant
- Concerns
 - Rusting the tooling
 - Rusting our frames
 - Always told water based solution will not work
- Let's try it in one area



Trial Location

- Determine line
- Determine proper dilution
 - Too much = too many suds
 - Not enough = rusting on edges of frames
- Started on our Trim Mill
 - Roll Forming
 - Punch Press

Trim Mill Trial



Trim Mill Trial

- Reel with Coil (Start of process)



Trim Mill Trial

- Material going into roll mill
- Notice Murphy's Oil Soap, drip



Trim Mill Trial

- Punch Press



Trim Mill Trial

- Final Part - Casing



Tapping Machine (Gussets)

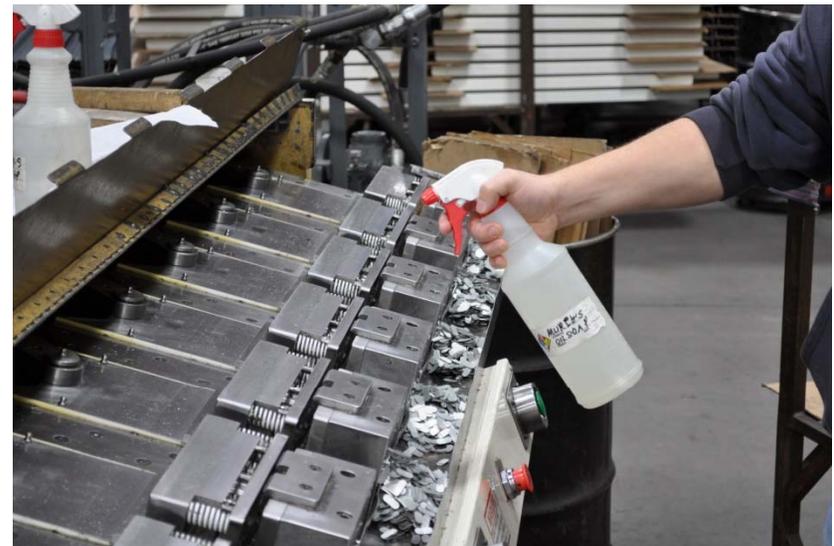




Factory Roll Out

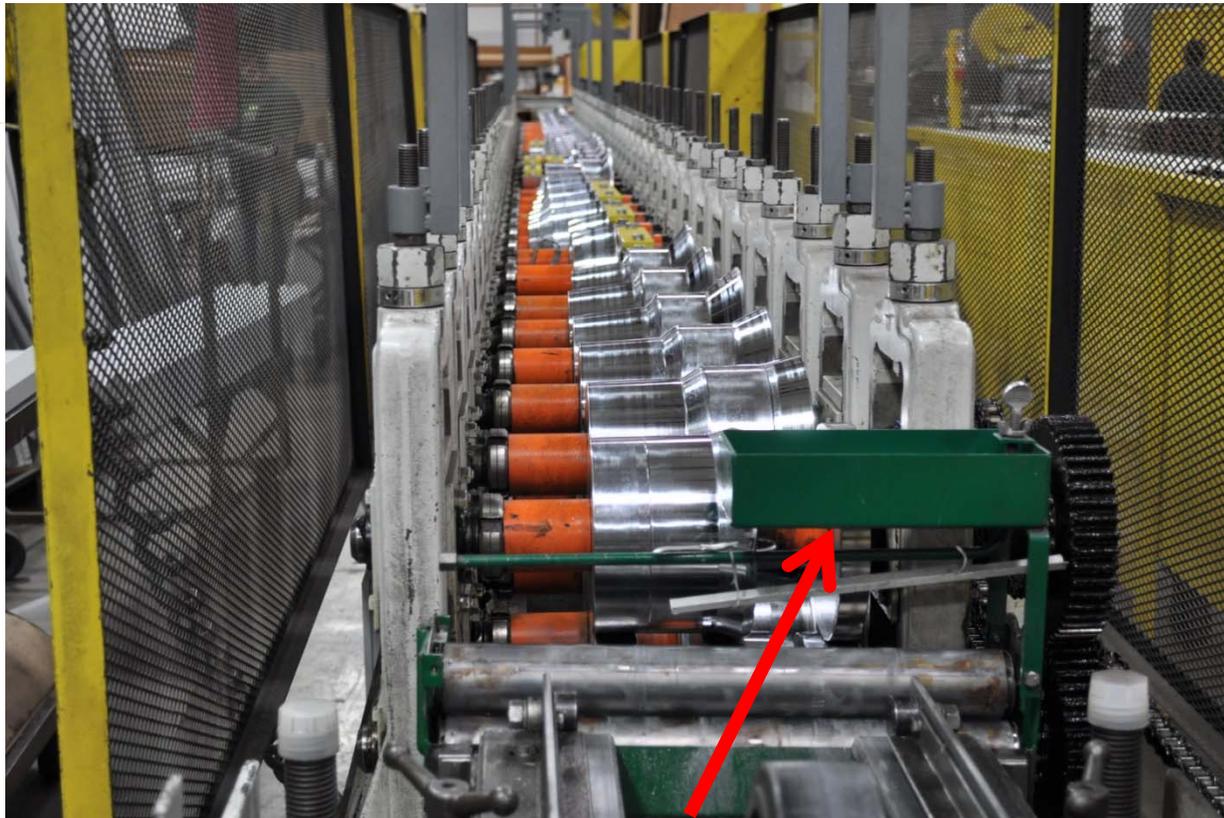
- All of our Roll Mills
 - All of our Punch Presses
 - Steinway's
 - Hydraulic Press
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Punch Presses, Steinways,



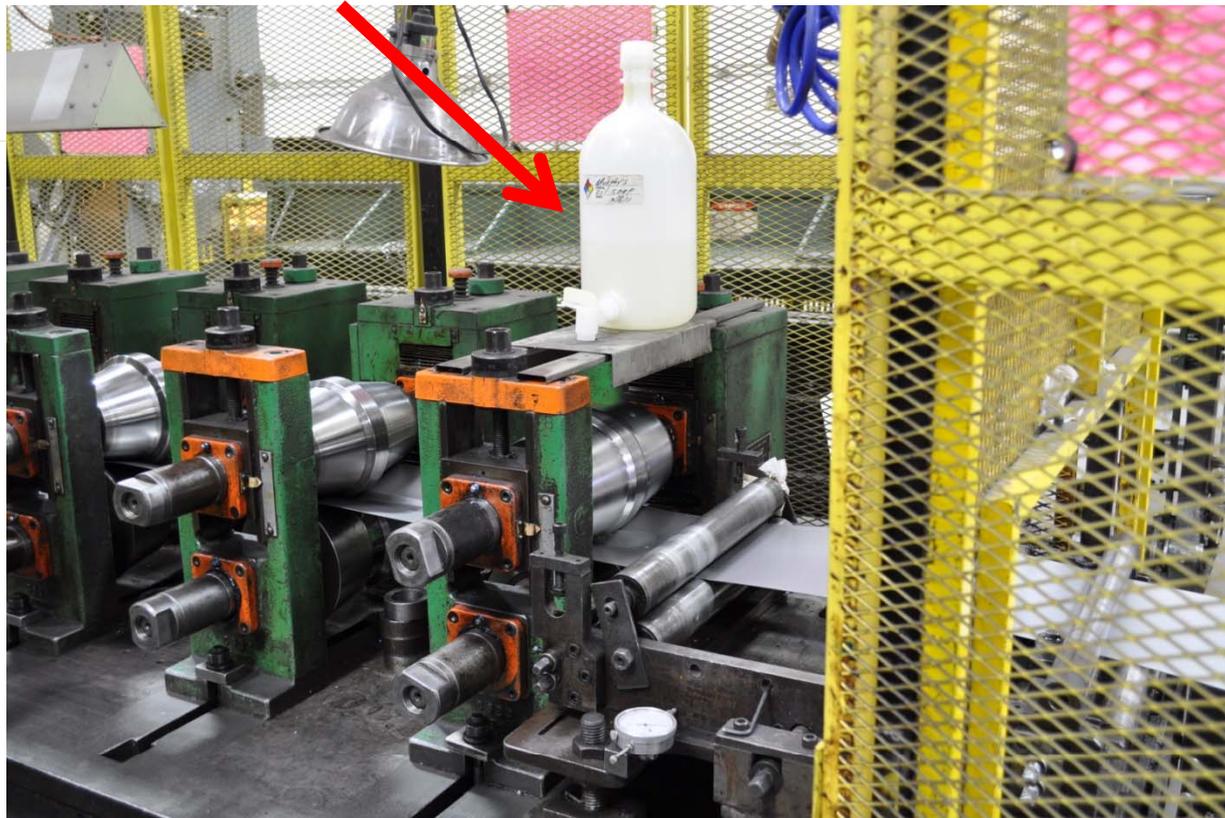
Kerf Roll Mill

- Drip tray



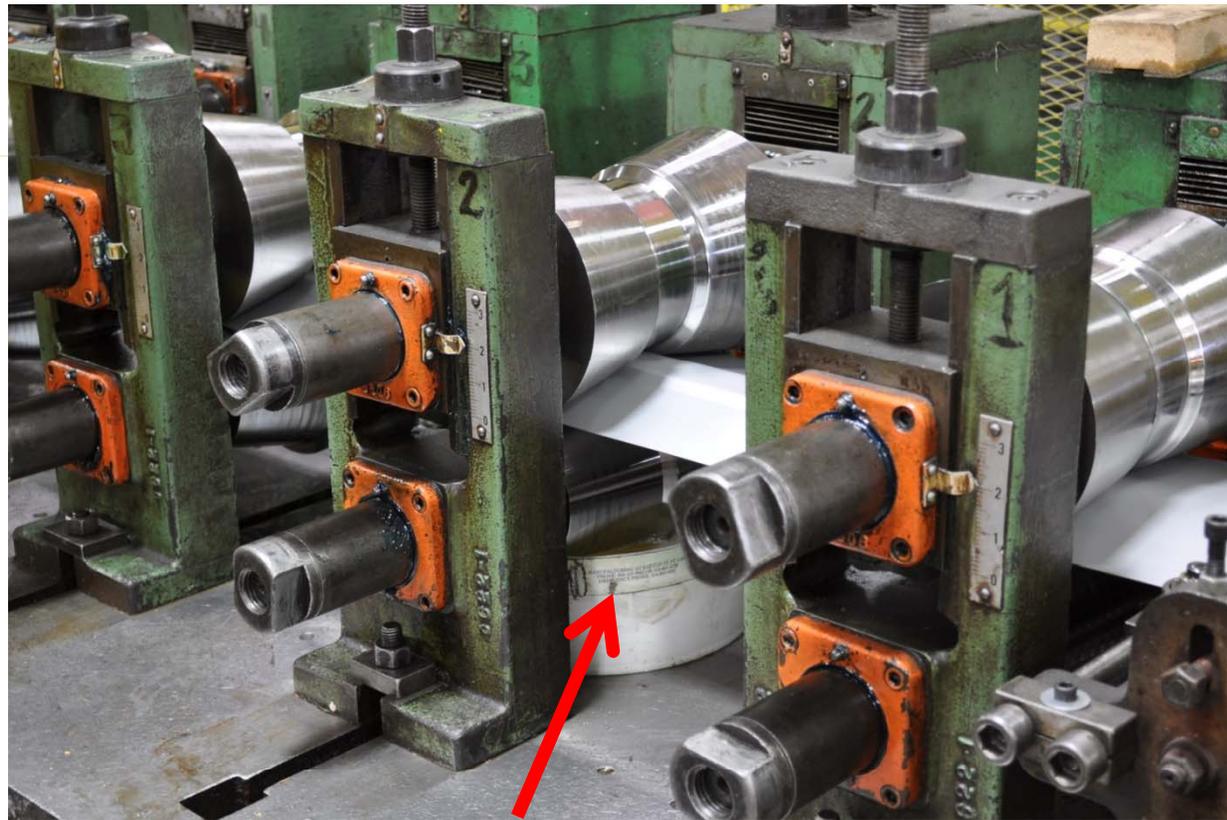
Panel Mill

- Drip Container



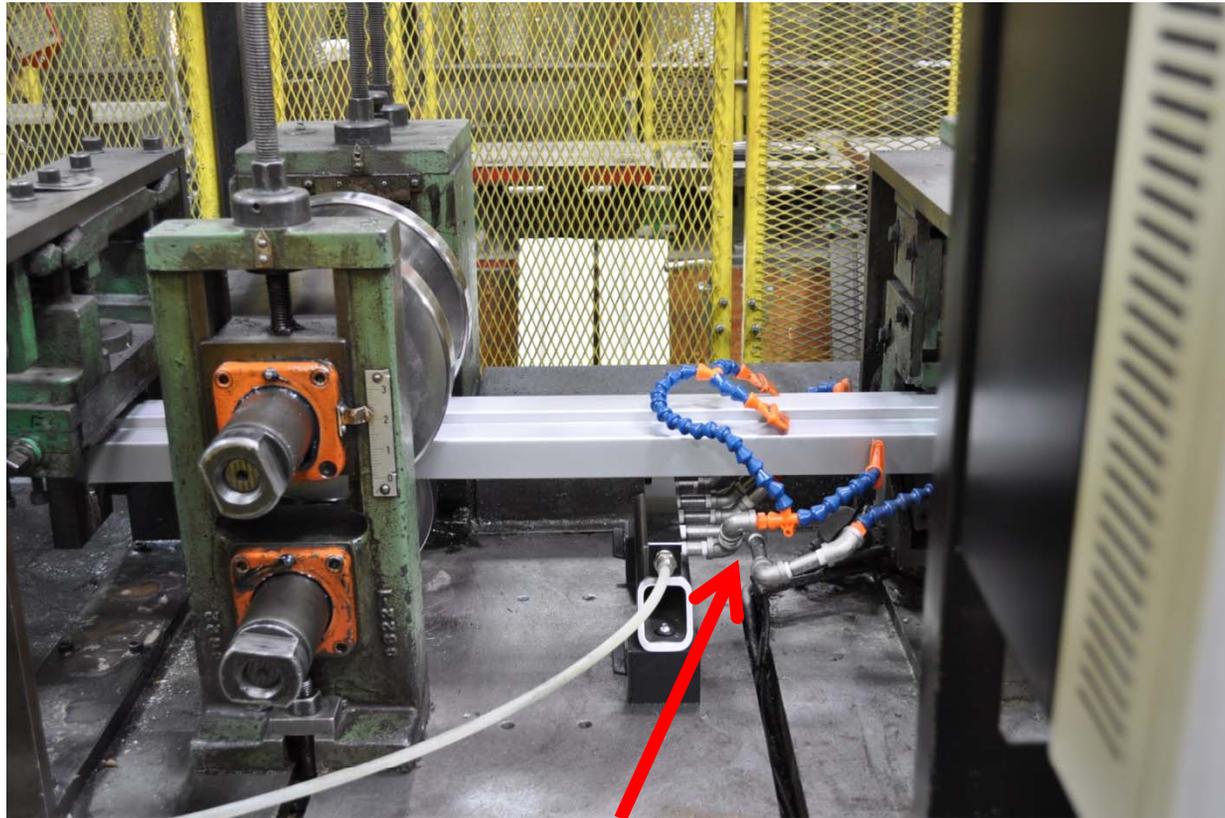
Flying Cut Off

- Tub of Murphy's Oil Soap



Flying Cut Off

- Air to blow off soap





Where are we at today?

- Still have doubters
- Taken apart some dies, no rust
- Potentially will extend bearing life
 - Deodorized kerosene dried up bearing grease
- Factory smells better
- Had some issues with rash and dry skin in the past, no longer



Special Thanks

- Rick Griffis
 - Obdulia Michel
 - Bob Day
 - Stephen DeBoi
 - FMA
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