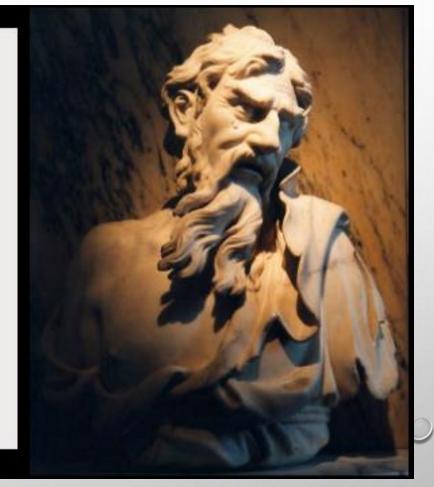


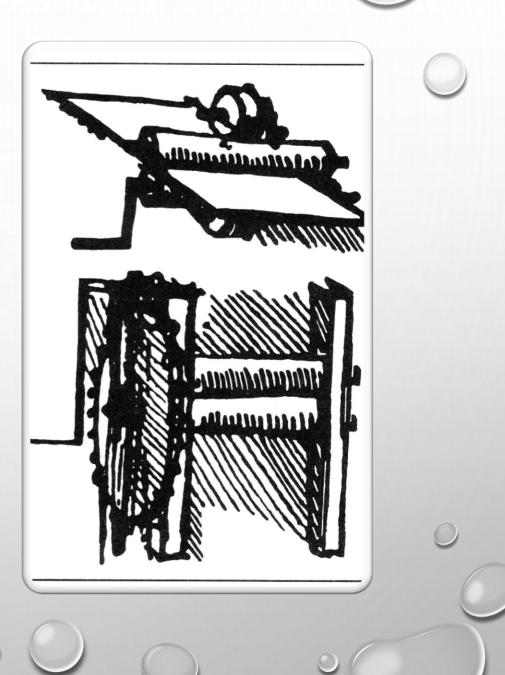
THEN AND NOW

CHANGES IN STEEL MILLS, THE IRD &

PASS DESIGN

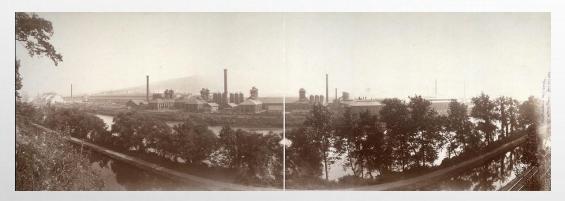
The only thing that is constant is change. ~ Heraclitus





HISTORY OF ROLLING MILLS 1495 DA VINCI SKETCH OF ROLLING MILL 17TH CENTURY HOT ROLLING BEGINS 1783 HENRY CORT RECIEVES PATENT FOR **GROOVED ROLLING** LATE 19TH EARLY 20TH CENTURIES, LARGE STEEL MILLS ARE BUILT

INTEGRATED MILLS



CONVERTED ORE TO PIG IRON CONVERTED PIG IRON TO LIQUID STEEL CAST AND SOLIDIFY THE LIQUID STEEL - INOT BLOCKS OR BLOOMS REHEAT & REDUCE THE SIZE OF THE BLOCKS FINISH THE SHAPE



INTEGRATED MILLS

LARGE FACILITIES – 2,000,000 TONS

FINISHED PRODUCTS - LARGE STUCTURAL SECTIONS, HEAVY PLATE, STRIP, RAIL WAY RAILS, OCCASIONALLY LONG PRODUCTS (BAR & PIPE)

LITTLE ABLITY TO ADJUST PRODUCTION RATES

MINIMILLS

CONVERT SCRAP TO LIQUID STEEL CAST BILLET OR NEAR NET SHAPE REHEAT BILLETS REDUCE TO FINISHED SHAPE



MINIMILLS

SMALLER FACILITIES - 400,000 - 600,000 TON

FINISHED PRODUCTS - REBAR, FLATS, ANGLE, CHANNEL, PIPE, WIRE ROD, LIGHT RAILS, SPECIALTY SHAPES

GREATER ABLITY TO ADJUST PRODUCTION RATES TO MEET DEMAND

MICRO MILLS

COVERT SCRAP TO LIQUID STEEL

CAST DIRECTLY TO ROLL MILL FOR FINISH SHAPE



MICRO MILLS

SMALLER FACILITIES - 200,000 - 400,000 TON

IMPROVED YIELD – LESS NOSES TO COBBLE

FINISHED PRODUCTS ARE MOSTLY REBAR, CAN PRODUCE OTHER SMALL SHAPES AND SPECIALTY PRODUDCTS

GREATER ABLITY TO ADJUST PRODUCTION RATES TO MEET DEMAND

INSTITUTE OF ROLL DESIGN

SPRING 1975 ROB KIBLER DISTRUBUTES FLIER FIRST ORGANIZATIONAL MEETING SEPT. 13, 1975 FIRST ACTUAL MEETING DEC. 4 1975 42 CHARTER MEMBERS – 27 PRESENT JULY 8, 1977 FIRST SOLO MEETING WITH TOUR 1984 FIRST CANADIAN MEETING 1987 FIRST HOSPITALITY SUITE

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INSTITUTE OF ROLL DESIGN SEVERAL FIRSTS

1989-1991 KEYNOTE SPEAKER COMPUTERIZED RECORDS ROLL DESIGN CERTIFICATION TECHNICAL PAPER AWARDS WIRE ROD COMMITTEE MEMBERSHIP DIRECTORY ROUND TABLE DISCUSSION **1991-1995** HARDNESS COMMITTEE EDUCATION COMMITTEE CAD/CAM USERS GROUP

LADIES SUITE AND TOUR

SCHOLARSHIP AWARD

OPERATOR MEMBERS

1997-PRESENT

INTERNET COMMITTEE

WEB PAGE

HOSPITALITY SUITE COMBINE

STRUCTURAL COMMITTEE MEETING

MERCHANT COMMITTEE MEETING

FIRST LADY OFFICER

FIRST ONLINE REGISTRATION PAYMENT





PRESENTATIONS

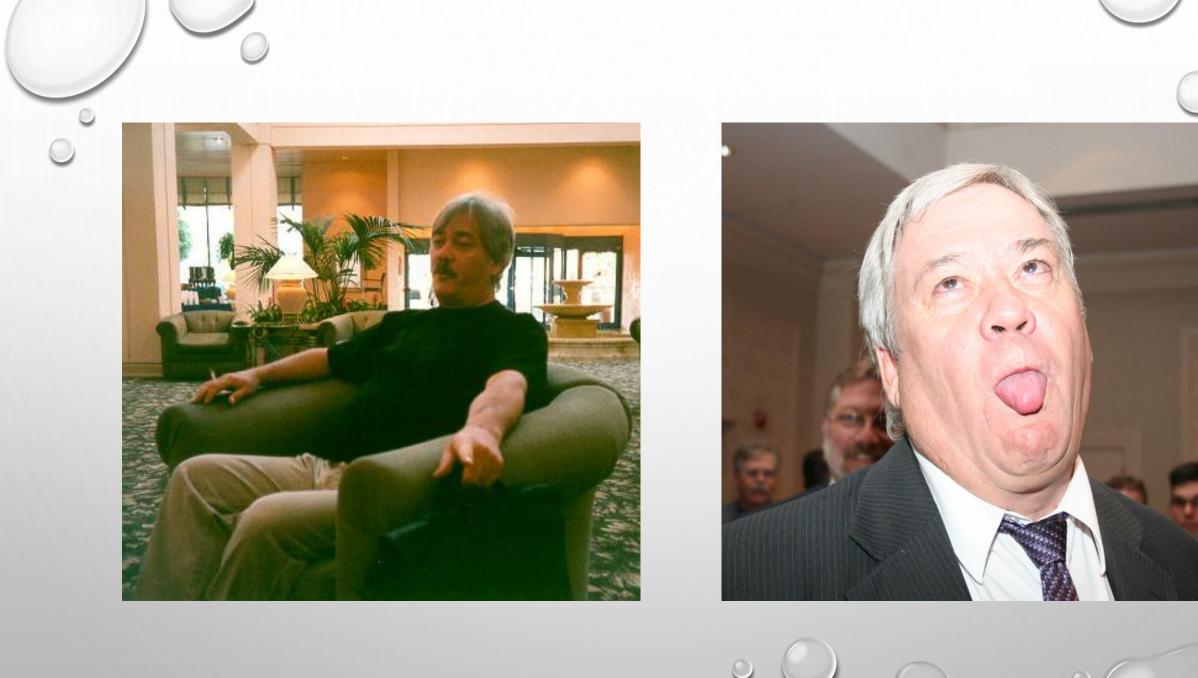
- DIE ROLLING HORSE SHOES
- GREASE OR AIR OIL
- IN HOUSE TRAINING PROGRAMS
- ROLL DESIGN JEOPARDY GAME
- HISTORIES OF ROLLING AND ROLLING MILLS
- EFFECTIVE ROLL COOLING
- ADVANTAGES AND DISADVANTAGES OF DIFFERENT ROLL MATERIALS
- PASS DESIGN CLASSES VARIOUS CHANNEL & ANGLE





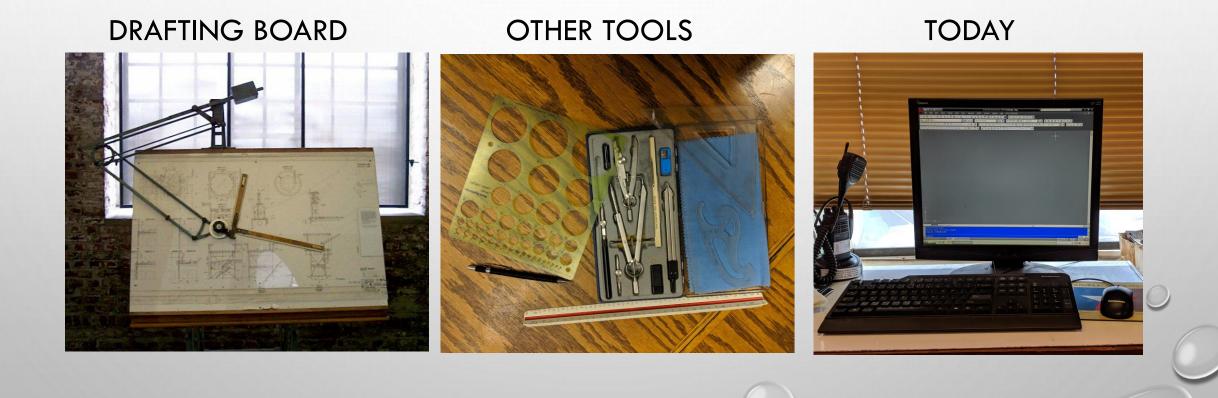


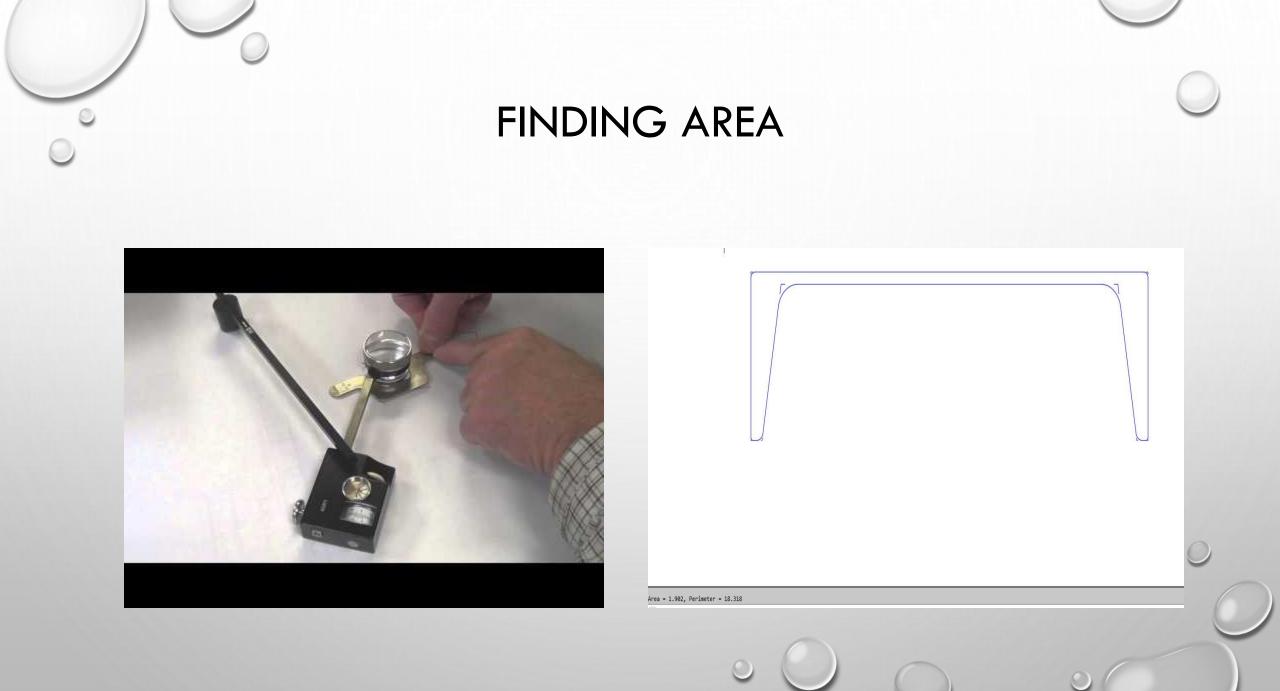




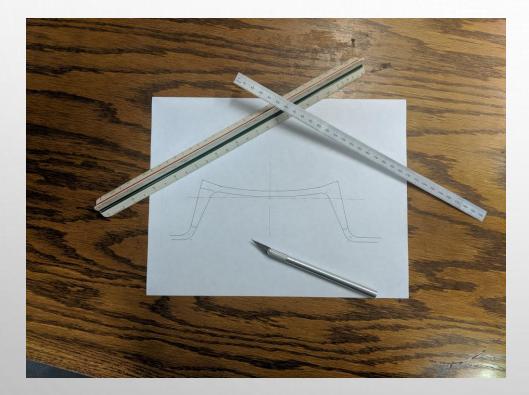


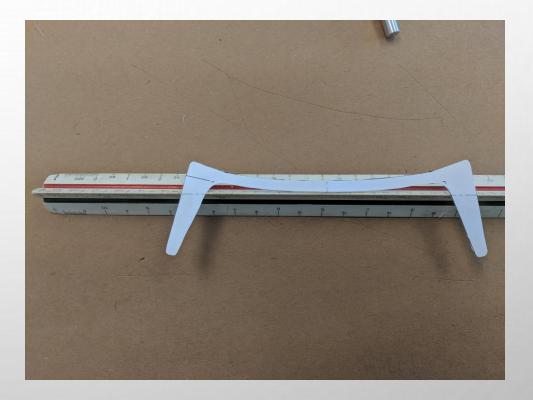
PASS DESIGN











WORKING DIAMETER

DIAMETER OF THE ROLL WHERE THE BAR AND THE ROLL ARE GOING THE SAME SPEED

ON NEW COLORADO FUEL & TRON CORP. F. M. MILL
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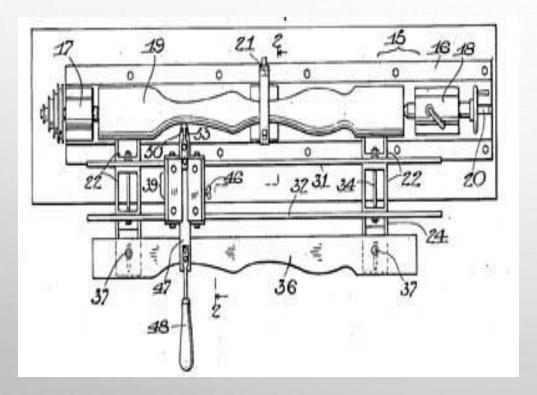
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JUST FOR FUN

NUCOT STEEL MOURS FREMULAS	SHEET OF DATE G-27-99 BY B. D.
Zoll R. P. M = C workaging Area x georratio (c-con	stant)
Finisher R.P.M. = FR.M. (Roll P.R.M.; Ratio) (WORKING DIA M.) IZ	
Tons/have = $\left(\frac{\log(k_{10}, d_{14}, \cdot T)}{12}\right) \times \frac{m}{2}$	10/10
F.R.M = (Tashr.) x 2000 / (WORKING DIA 40) + /ft	Emilians
% Reduction = <u>Ara, - Areaz</u> Area,	
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24	A	REAS)		0.350	22.3%	30	384	1800	20	90%	0.4	0.8	1		89.0	27927.3	3.4	40.0	400	60
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	12	0	13			0.607	2.608	0.210	0.188	1850	14.6	14.51	640	127.9	168.46	iron	1.548	26.5%	1.64	1.897	0.578
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CUTTING THE ROLLS



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N0030 G96 S400		
N0040 T0101(TOOL 3/4)		
N0050 M24		
N0060 G04 X1.0		
N0070 M03		
N0080 G04 X1.0		
N0090 G00 X27.25 Z0.475		
N0100 Z-0.375		
N0110 G01 X26.75 Z-0.375 F0.020		
N0120 Z-35.058		
N0130 G03 X25.25 Z-35.808 I-0.75 K0.		
N0140 G01 X25.25 Z-35.908		
N0150 G00 X27.25 Z-35.908		
N0160 Z-0.375		
N0170 G01 X26.75 Z-0.375		
N0180 G02 X25.25 Z0.375 I-0.75 K0.		
N0190 G01 X25.25 Z0.475		
N0200 G00 X26.95 Z0.475		
T100		
G65 H01 P#2701 Q0		
N0210 M30		
%		
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QUESTIONS?

COMMENTS!

