LEARNING BY DOING:
A STUDENT RUN CONSTRUCTION PROJECT

PROJECT BREAKDOWN

1.) DESIGN PROCESS

2.) SCHEDULING / CONTRACT PROCESS

3.) FRAMING / BUILDING PROCESS

DESIGN PROCESS

MAIN AREAS OF FOCUS

- Efficient Land Use (Excavating)
- Building Materials Incorporated Into Design
- Scheduled Meetings & Payment Breakdown
- Construction Drawings
- Structural Beam Reports
- State Required Energy Report

TECHNOLOGY USED

- AutoCad Software
- "D/E" Size Inkjet Plotter
- RES*check* Software

Energy Code Compliance Report

- FASTBeam Software

LVL Beams / Pre-engineered Joists

- Plan Analyst Beam Calc.

Traditional Lumber Beams / Columns

DESIGN PROCESS

FINAL PACKAGE

- 8 Sets of Diazo Blue-line Prints
- Cover Sheet
- Elevations
- Floor Plans
- Cross – Sections
- Foundation Plan

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1 Set of 8 ½” x 11” Prints

1 Copy of Energy Report

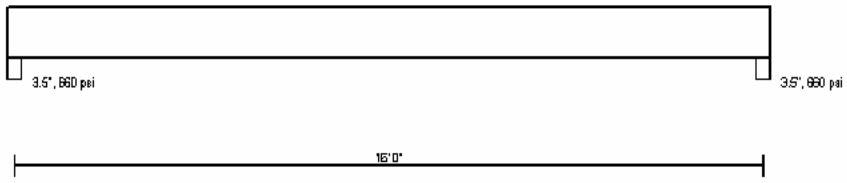
1 Set of Structural Beam Reports

BEAM REPORT (ENGINEERED LUMBER)

GEORGIA PACIFIC

- LVL
- I – JOISTS
- RIM BOARDS

Project : **RESNICK RESIDENCE.FBD**
Mark # : **Floor Beam - Beam #2** **Beam #2**
Usage : **Beam (Floor)** Repetitive : **No** Spacing (in.) : **0.0**
Max Defl : **LL = L/360 TL = L/240** Composite Action : **No**



LOADS *Project Design Loads : Floor: Live=30 psf, Dead=10 psf;*

#	Shape	Live+Dead Ld(T) @Start	Live+Dead Ld(T) @End	Live Ld(L) @Start	Live Ld(L) @End	LDF	Location* Span#	Location* Starts	Location* Ends	Additional Info
1	Span Carried(psf)	40		30		100%	0	0' 0"	16' 0"	20' 0" s.c. - Second Floor Joists (Back Addition)
	+ Wall(plf)	80		0			0	0' 0"	16' 0"	Second Floor Joists (Back Addition)
2	Concentrated(lbs)	1440		1080		100%	0	8' 0"		Ridge Beam Posted From Above
	Uniform(plf)	13		0			0	0	16' 0"	Self Weight

**Dimensions measured from left end when span# is 0, otherwise, from left end of the specified span.*

SUPPORTS(lbs)

	1	2	
Max R'n	4662	4662	
Max 100%	2940	2940	
Min R'n	1722	1722	
Min 100%	2940	2940	
DL R'n	1722	1722	
Min Brg(in.)	2.02	2.02	[Based on bearing stress below]
Brg Str(psi)	660	660	

DESIGN

	Value	Span	X	Group	Allow	LDF	Ratio	
V(lbs)	4015	1	0' 2"	21	9310	100%	0.43	
M(ft-lbs)	21528	1	8' 0"	21	27630	100%	0.78	
LtRn(lbs)	4662	0	0' 0"	21	8085	100%	0.58	See Note #5
RtRn(lbs)	4662	0	16' 0"	21	8085	100%	0.58	See Note #5
LLDefl(in.)	0.40	1	8' 0"	21	0.53		L/484	
TLDefl(in.)	0.62	1	8' 0"	21	0.80		L/310	

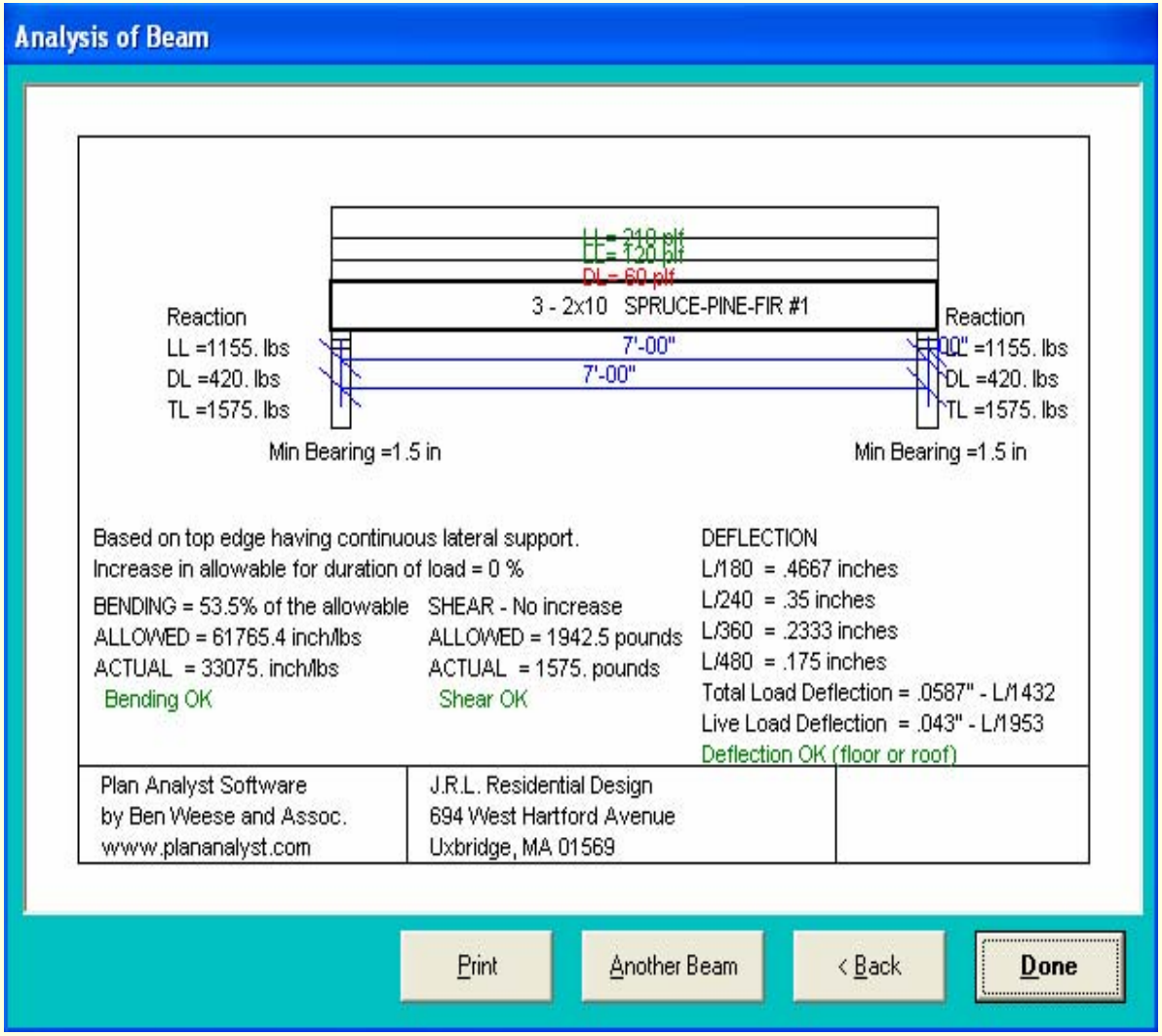
USE: GPLAM 2.0E 1.75x14.00" 2 Plies *Grade, Depth, Plies selected by User*
G-P LAM tm Georgia-Pacific Corp.

NOTES :

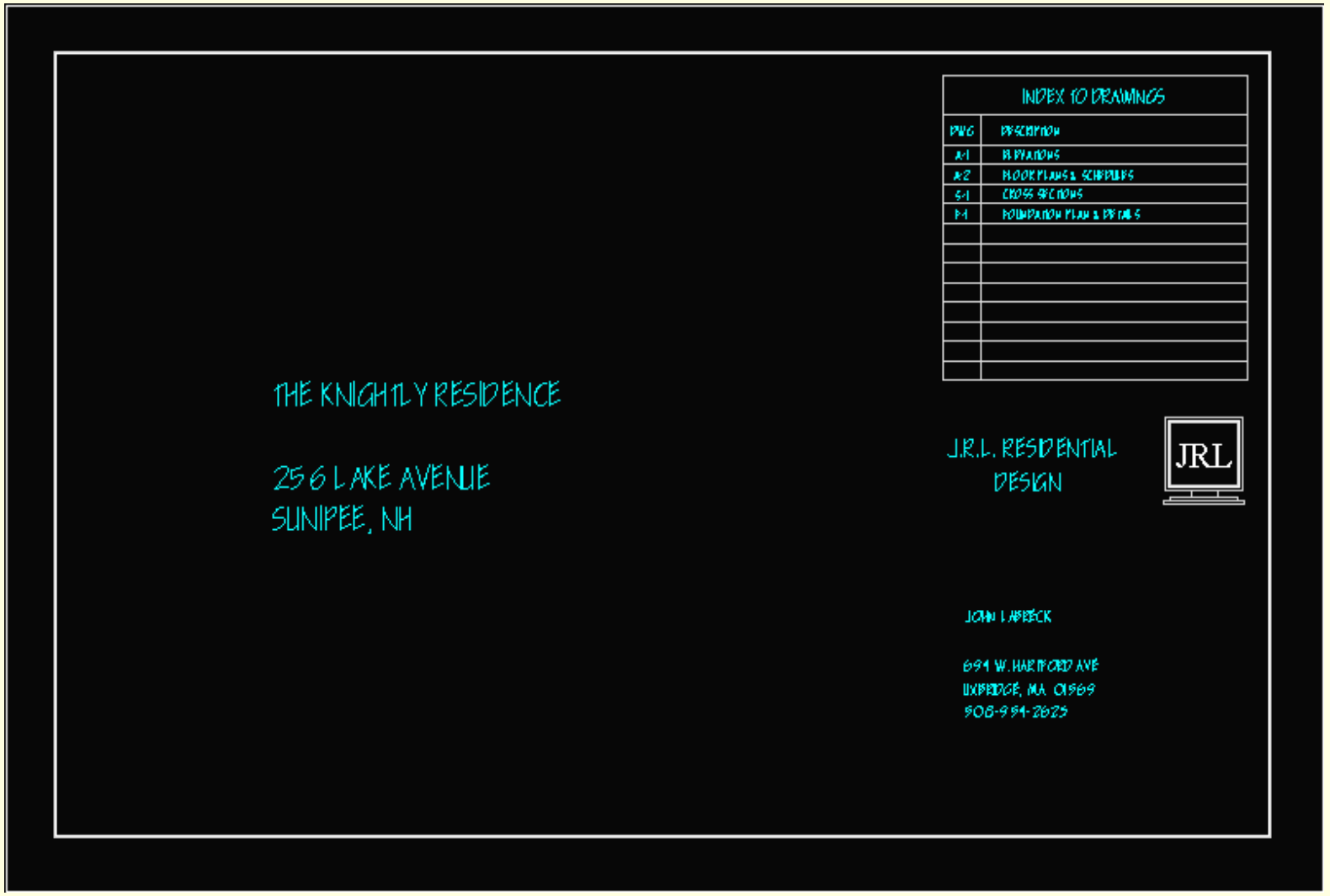
BEAM REPORT (TRADITIONAL LUMBER)

PLAN ANALYST

- HEADERS
- STRUCTURAL BEAMS
- COLUMNS

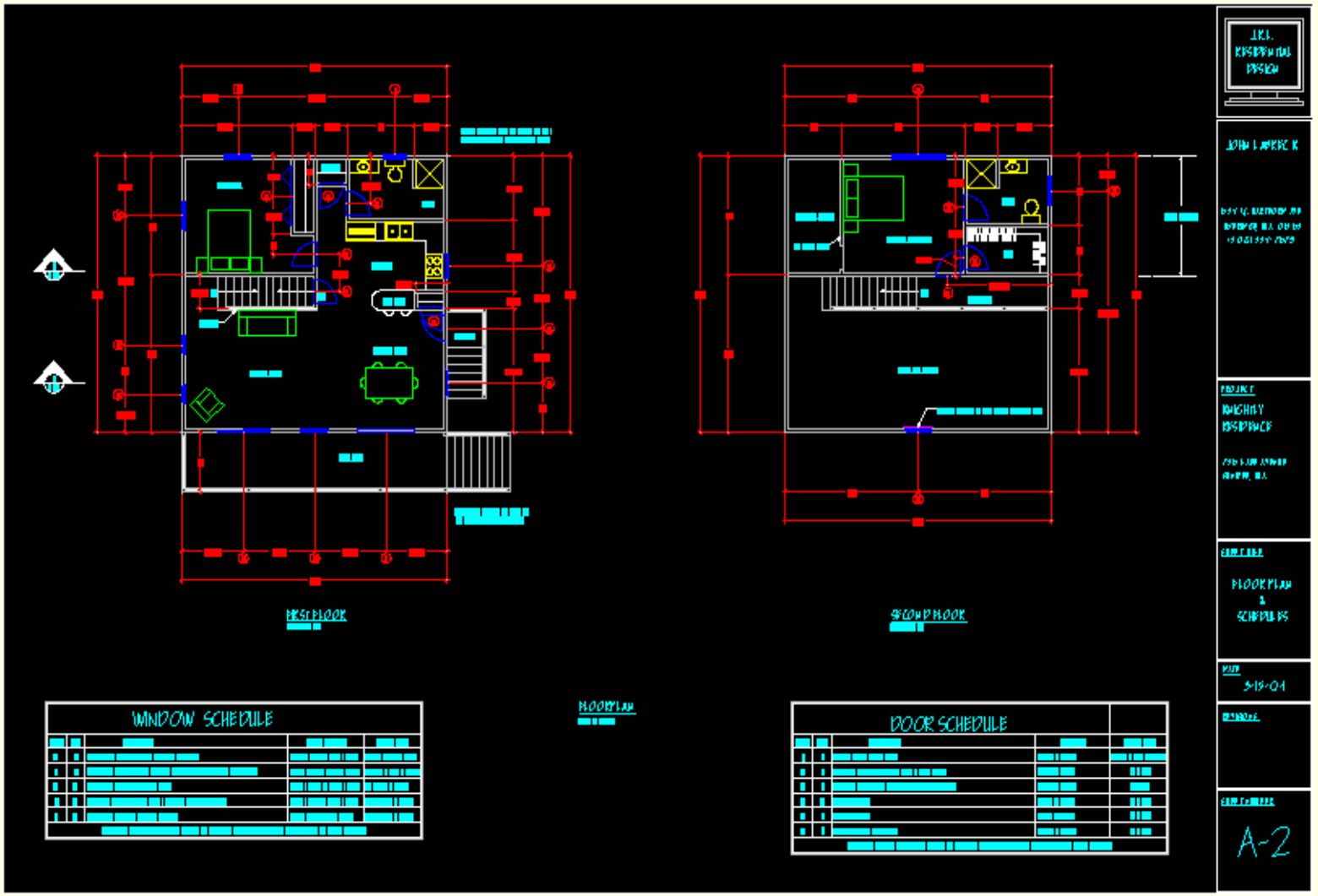


COVER SHEET


INDEX TO DRAWINGS
DWG
DESCRIPTION
A-1
ELEVATIONS
A-2
FLOOR PLANS & SCHEDULES
S-1
CROSS SECTIONS
F-1
FOUNDATION PLAN & DETAILS
THE KNIGHTLY RESIDENCE
256 LAKE AVENUE
SUNIPEE, NH
J.R.L. RESIDENTIAL DESIGN
JRL
JOHN LABBECK
691 W. HARTFORD AVE
UXBRIDGE, MA 01569
508-954-2625

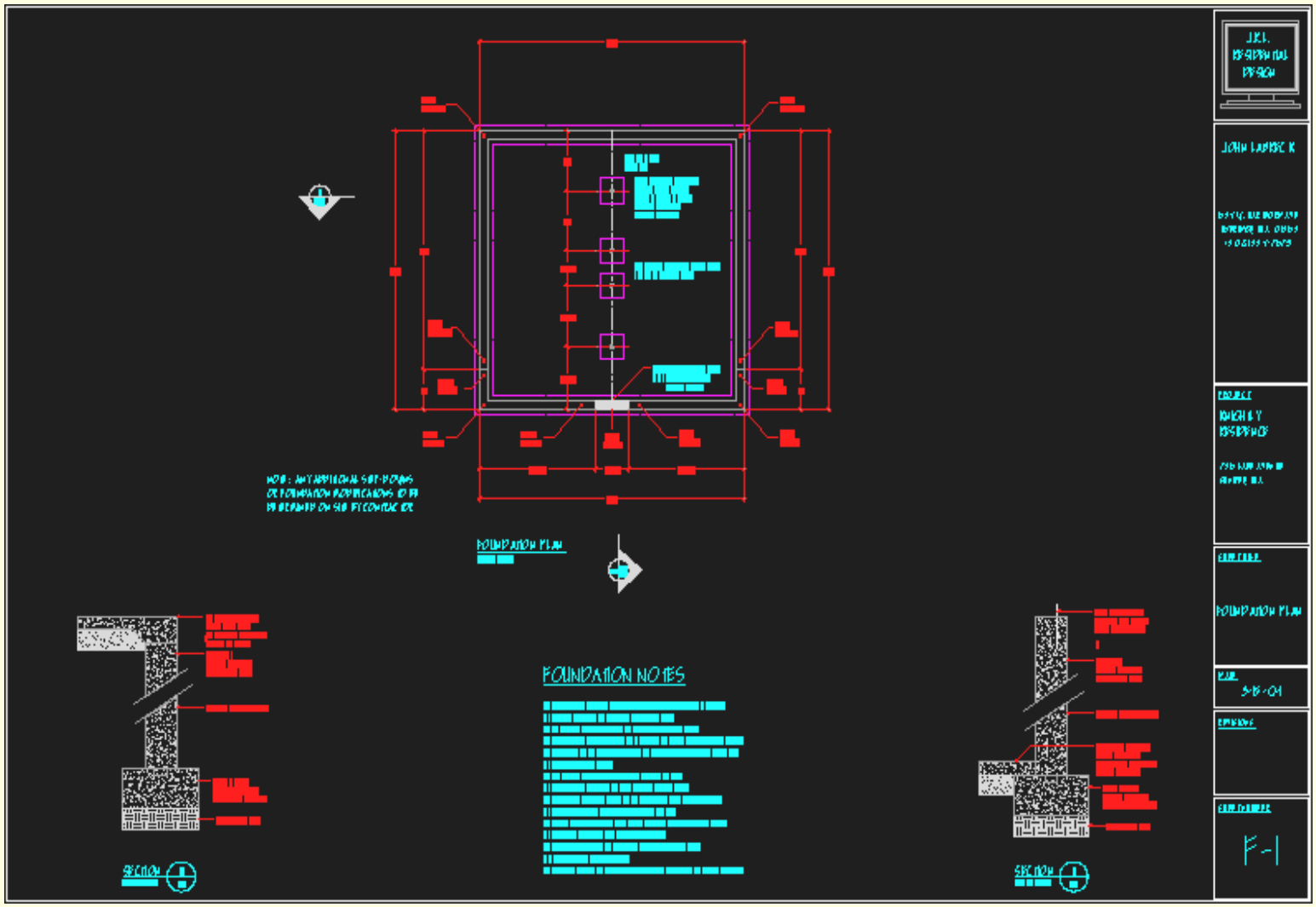
ELEVATIONS

FLOOR PLANS / SCHEDULES



CROSS-SECTIONS

FOUNDATION PLAN



SCHEDULING & CONTRACT PROCESS

CONTRACT DEVELOPMENT

• MATERIAL PRICING (TAKE-OFFS / ESTIMATING)

• PAYROLL (NUMBER OF EMPLOYEES)

• WORK TO BE DONE

• SUB - CONTRACTORS

• SCHEDULE BREAKDOWN / DATES

EXCAVATING – ROUGH FRAMING – ELECTRICIAN – PLUMBER – HEATING – INTERIOR FINISH -- LUMBER DROPS – WINDOWS & DOORS (ORDER/DROP-OFF)

CHANGE ORDERS (AESTHETIC OR UNFORESEEN CONDITIONS)

FINAL PRICE / PAYMENT BREAKDOWN

SIGNATURES FROM BOTH PARTIES

FRAMING PROCESS

- APPROPRIATE TOOLS
- **MAN POWER**
- BUILDING CODES
- TIME RESTRAINTS
- CHANGES IN TECHNOLOGY

(P.T. LUMBER – FLASHING – NAILS)

- CHANGE ORDERS

(DECK SIZE – INT. FLOOR JOISTS – ROOF OVERHANG)

- INSPECTIONS
- LUMBER DROP – OFFS
- WINDOWS & DOORS (ORDER / DROP-OFF)

RELATED COURSEWORK

STRUCTURAL DESIGN

FLOOR JOISTS

HEADERS

BEAMS

RAFTERS

FRAMING

BUILDING CODES

MATERIAL ESTIMATING

BIDDING / CONTRACTS

SCHEDULING

COMMUNICATION

FINISHED PRODUCT