ILLINOIS FIRE SERVICE INSTITUTE
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
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FACEBOOK FORUM

ENGINE COMPANY OPERATIONS – DEPLOYING THE FIRST DUE LINE

BROADCAST DATE: June 5, 2020
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- **SYNOPSIS**

  The first due Engine Company is the lynchpin for successful operation on the fireground. The avoidance of critical error in the first 5 minutes on the scene will determine the next hour of operation. That means that building, training and mastering the first due attack package is an important factor in preparing for structure fires. No matter what apparatus a firefighter shows up on, supporting the first due Engine must be a focus for successful fire extinguishment.

- **BUILDING THE ATTACK PACKAGE**
  - Nozzle Selection
  - Hose Characteristics
  - Placement of lines on beds

Hose	Nozzle	40 PSI		50 PSI		60 PSI	
		GPM	NR LBS	GPM	NR LBS	GPM	NR LBS
1 ¾"	7/8"	144	48	161	60	176	72
1 ¾"	15/16"	165	55	185	69	202	83
	1"	188	63	210	79	230	94
2 ½"	1 1/8"	238	79	266	99	291	119
2 ½"	*1 3/16"*	265	89	296	111	325	133
2 ½"	1 1/4"	294	98	328	123	360	147

Table#1 RF = 1.57 x (D)sq x NP GPM = 29.7 (D)sq √NP (Fornell)

Freeman Ratio

- Nozzle orifice diameter should be half of the hose diameter

NR Ration for Firefighters Manning Hose Lines (B. Brush, Elkhart Brass):

1. 1 F/F 60# NR – 7/8" = 59# NR and 15/16" = 68# NR
2. 2 F/F 75# NR – Hot 15/16" = 83# NR and Various Fog Nozzles $\geq$ 75# NR
3. 3 F/F 95# NR – 1-1/8" = 98#, 1-3/16" = 109# NR and 1-1/4" = 121# NR

Define *Hot & Soft* Lines

- Gallons Per Minute &. Gallons Per Second @50 PSI (Isakson):
  1. 100 GPM = 1.66 GPS
  2. 150 GPM = 2.5 GPS
  3. 185 GPM = 3.08 GPS
  4. 250 GPM = 4.76 GPS
  5. 300 GPM = 5 GPS

• TESTING AND TRAINING ON THE ATTACK PACKAGE (THE FLAT LOAD) – ALEXIS PUMPER

- Effective Bedding
- Pulling and Management of flat load hose lines
- Deploying from Crosslay

Crosslay Flat Load

1. Flat Load History
2. Pros & Cons
3. The math of the rear hose bed and the relation to bights/folds
4. Loading basics
5. Counting stacked bights
6. Midpoint marking
7. Shoulder loading of the working/lead length (100') and the drag pull of the setback length with a clearing of the crosslay bed
8. Shoulder loading of the working/lead length (100') by nozzleman, drag pull of the setback length with a clearing of the crosslay bed by backup man

Rear Flat Load and Reverse Horseshoe

1. Loading the reverse horseshoe
2. Shouldering the reverse horseshoe
3. Pulling from the rear of the apparatus.
4. The math of the rear hose bed and the relation to bights/folds

Rear hose pulls will reinforce best practices for single and multiple firefighters.

Charged Line & Flowmeter Demonstration

• SIMULATED RUNS