

Table 7.3
Overall Tray Efficiencies

Column Service	Typical No. of Actual Trays	Typical Overall Efficiency	Typical No. of Theoretical Trays
Simple Absorber/Stripper	20 – 30	20 – 30	
Steam Side Stripper	5 – 7		2
Reboiled Side Stripper	7 – 10		3 – 4
Reboiled Absorber	20 – 40	40 – 50	
Deethanizer	25 – 35	65 – 75	
Depropanizer	35 – 40	70 – 80	
Debutanizer	38 – 45	85 – 90	
Alky DeiC4 (reflux)	75 – 90	85 – 90	
Alky DeiC4 (no reflux)	55 – 70	55 – 65	
Naphtha Splitter	25 – 35	70 – 75	
C2 Splitter	110 – 130	95 – 100	
C3 Splitter	200 – 250	95 – 100	
C4 Splitter	70 – 80	85 – 90	
Amine Contactor	20 – 24		4 – 5
Amine Stripper	20 – 24	45 - 55	9 – 12
Crude Distillation	35 – 50	50 – 60	20 – 30
Stripping Zone	5 – 7	30	2
Flash Zone – 1 st draw	3 – 7	30	1 – 2
1 st Draw – 2 nd Draw	7 – 10	45 – 50	3 – 5
2 nd Draw – 3 rd Draw	7 – 10	50 – 55	3 – 5
Top Draw – Reflux	10 – 12	60 – 70	6 – 8
Vacuum Column (G.O. Operation)			
Stripping	2 – 4		1
Flash Zone – HGO Draw	2 – 3		1 – 2
HGO Section	3 – 5		2
LGO Section	3 – 5		2
FCC Main Fractionator	24 – 35	50 – 60	13 – 17
Quench Zone	5 – 7		2
Quench – HGO Draw	3 – 5		2 – 3
HGO – LCGO	6 – 8		3 – 5
LCGO – Top	7 – 10		5 – 7

Ref: G. L. Kaes, *A Practical Guide to Steady State Modeling of Petroleum Processes (Using Commercial Simulators)*, Athens Printing Company, 2000, pg. 68