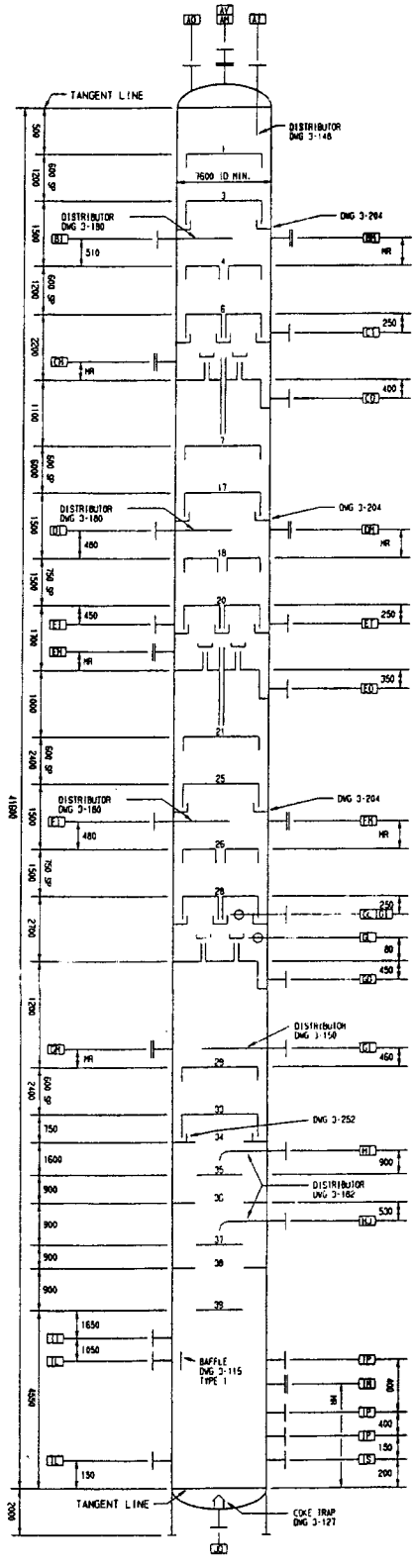
Vessel Sketch
Example
TEC-300-08



MECHANICAL DESIGN SUMMARY
Drawoff Sumps /Regular Traps /Baffled Traps

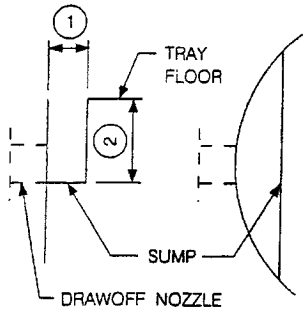
TEC-300-08

SHEET NO 1	PROJECT NO XXXXXX		
DATE 9-4-98	BY MEM		
SERVICE MAIN COLUMN	ITEM NO 912-C601		

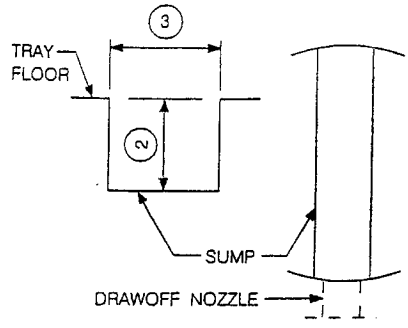
DRAWOFF SUMPS (FOR FRACTIONATING TRAYS)
Below Tray No _____

DRAWOFF SUMP DIMENSIONS		
	ft-in	mm
(1) Chord Height Of Downcomer Of Tray Above		
(2) 1.5 Times Nominal Diameter Of Drawoff Nozzle		
(3) Same Width As Downcomer Of Tray Above		

* SUMPS ARE TO BE FULL DEPTH ACROSS VESSEL. PROVIDE NOZZLE AT EACH END OF SUMP FOR VESSELS LARGER THAN 12'-0" ID

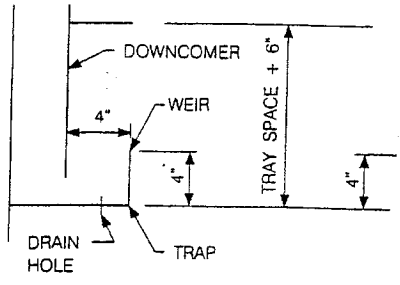


ELEVATION PLAN



ELEVATION *PLAN

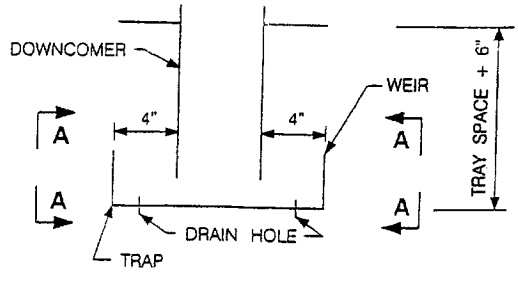
REGULAR TRAPS
Below Tray No(s) 6



SIDE DOWNCOMER

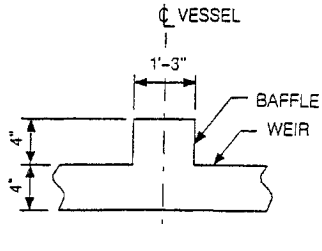
ELEVATION

BAFFLED TRAPS
Below Tray No(s) 6, 20, 28

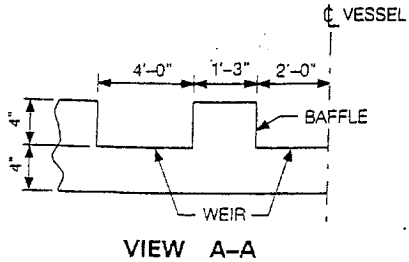


CENTER OR INTERMEDIATE DOWNCOMER

ELEVATION



VIEW A-A
FOR VESSEL DIAMETERS < 10'-0"



VIEW A-A
FOR VESSEL DIAMETERS ≥ 10'-0"

FORM PSD-21-0

FRACTIONATOR INTERNALS MECHANICAL DESIGN SUMMARY
Accumulator Trays /Drawoff Sumps

Summary Form
Example
TEC-300-08

SHEET NO 2	PROJECT NO XXXXXX
DATE 9-4-98	BY MEM
SERVICE MAIN COLUMN	ITEM NO 912-C601

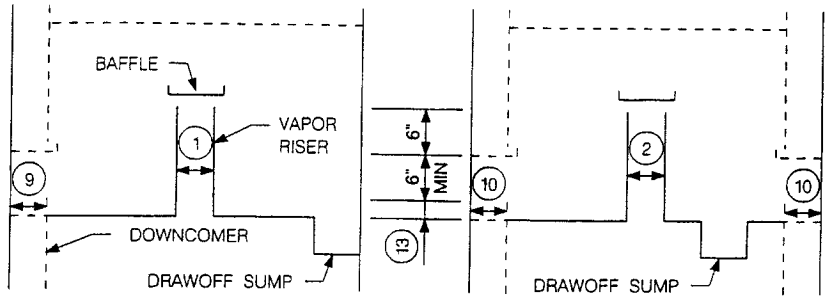
Accumulator Tray Below Tray No 6

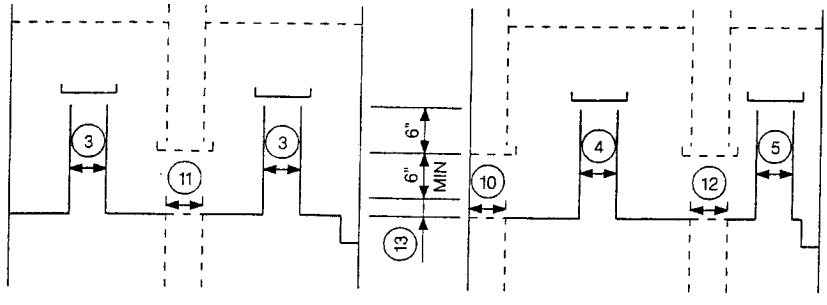
VAPOR RISER AREA For Non-Vacuum Service	ft²	m²
(1) 0.12 Ac		
(2) 0.12 Ac		
(3) 0.06 Ac		
(4) 0.08 Ac		
(5) 0.04 Ac		
(6) 0.06 Ac		2.72
(7) 0.03 Ac		
(8) 0.06 Ac		

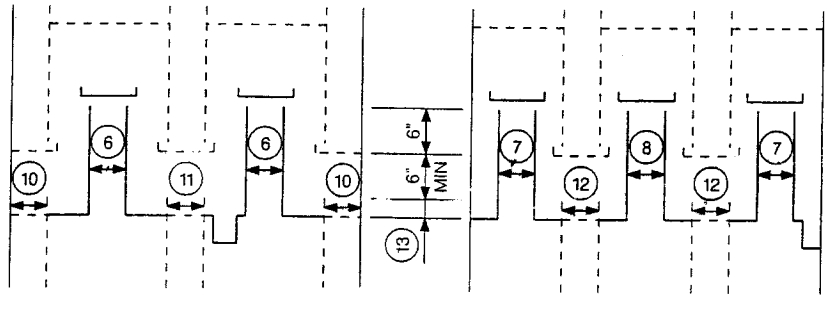
VAPOR RISER AREA For Vacuum Service	ft²	m²
(1) 0.2 Ac		
(2) 0.2 Ac		
(3) 0.1 Ac		
(4) 0.14 Ac		
(5) 0.07 Ac		
(6) 0.1 Ac		
(7) 0.05 Ac		
(8) 0.1 Ac		

DOWNCOMER DIMENSIONS FOR PARTIAL ACCUMULATOR TRAYS	in	mm
(9) Same Width As Downcomer Of Tray Below.		
(10) Same Width As Side Downcomers Of Second Tray Below.		
(11) Same Width As Center Downcomer Of Second Tray Below.		456
(12) Same Width As Intermediate Downcomer(s) Of Second Tray Below.		
(13) Weir Height		1300

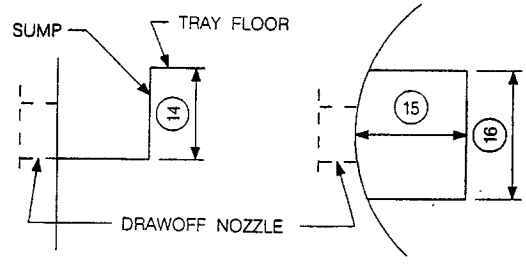
DRAWOFF SUMP DIMENSIONS	in	mm
(14) 1.5 D_N		610
(15) D_N		410
(16) D_N + 3"		480







ELEVATION



DRAWOFF SUMPS
(For Accumulator Trays)

ABBREVIATIONS: A_C CROSS-SECTIONAL AREA OF COLUMN
D_N NOMINAL SIZE OF DRAWOFF NOZZLE

FRACTIONATOR INTERNALS MECHANICAL DESIGN SUMMARY
Accumulator Trays /Drawoff Sumps

Summary Form
Example
TEC-300-08

SHEET NO 3	PROJECT NO XXXXXX
DATE 9-4-98	BY MEM
SERVICE MAIN COLUMN	ITEM NO 912-C601

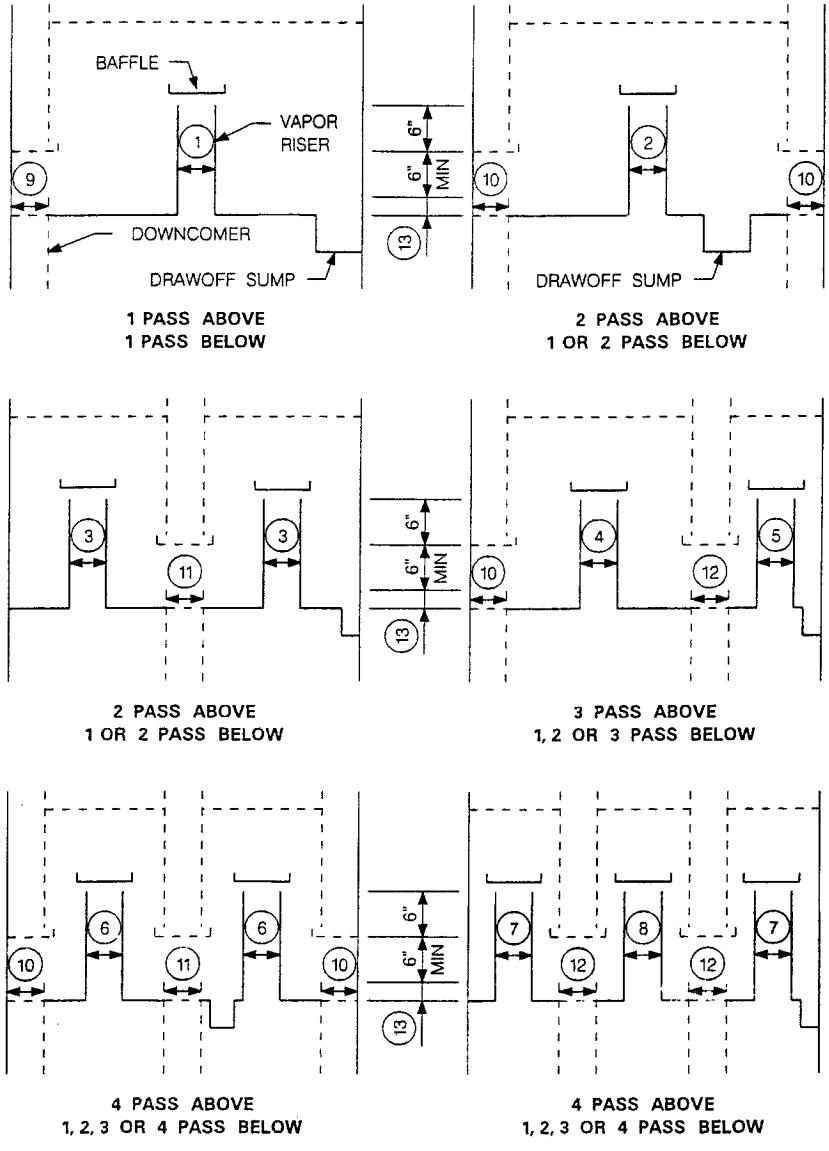
Accumulator Tray Below Tray No 20

VAPOR RISER AREA For Non-Vacuum Service	ft²	m²
(1) 0.12 Ac		
(2) 0.12 Ac		
(3) 0.06 Ac		
(4) 0.08 Ac		
(5) 0.04 Ac		
(6) 0.06 Ac		2.72
(7) 0.03 Ac		
(8) 0.06 Ac		

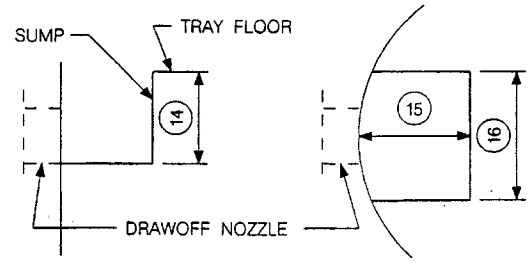
VAPOR RISER AREA For Vacuum Service	ft²	m²
(1) 0.2 Ac		
(2) 0.2 Ac		
(3) 0.1 Ac		
(4) 0.14 Ac		
(5) 0.07 Ac		
(6) 0.1 Ac		
(7) 0.05 Ac		
(8) 0.1 Ac		

DOWNCOMER DIMENSIONS FOR PARTIAL ACCUMULATOR TRAYS	in	mm
(9) Same Width As Downcomer Of Tray Below.		
(10) Same Width As Side Downcomers Of Second Tray Below.		600
(11) Same Width As Center Downcomer Of Second Tray Below.		
(12) Same Width As Intermediate Downcomer(s) Of Second Tray Below.		
(13) Weir Height		650

DRAWOFF SUMP DIMENSIONS	in	mm
(14) 1.5 D_N		530
(15) D_N		360
(16) D_N+3"		430



ELEVATION



DRAWOFF SUMPS
(For Accumulator Trays)

ABBREVIATIONS: A_C CROSS-SECTIONAL AREA OF COLUMN
D_N NOMINAL SIZE OF DRAWOFF NOZZLE

FRACTIONATOR INTERNALS MECHANICAL DESIGN SUMMARY
Accumulator Trays /Drawoff Sumps

Summary Form
Example
TEC-300-08

SHEET NO 4	PROJECT NO XXXXXX
DATE 9-4-98	BY MEM
SERVICE MAIN COLUMN	ITEM NO 912-C601

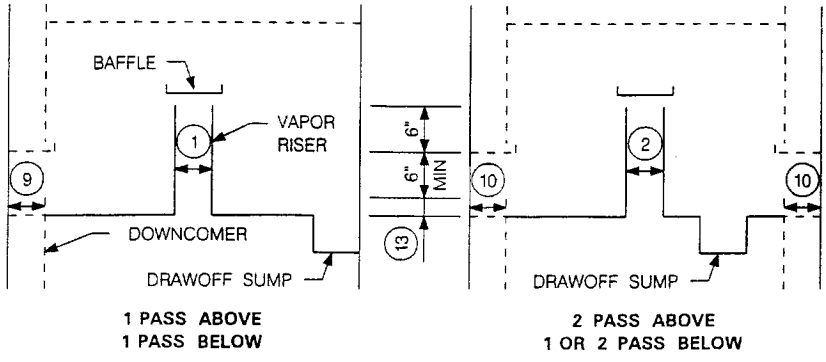
Accumulator Tray Below Tray No 28

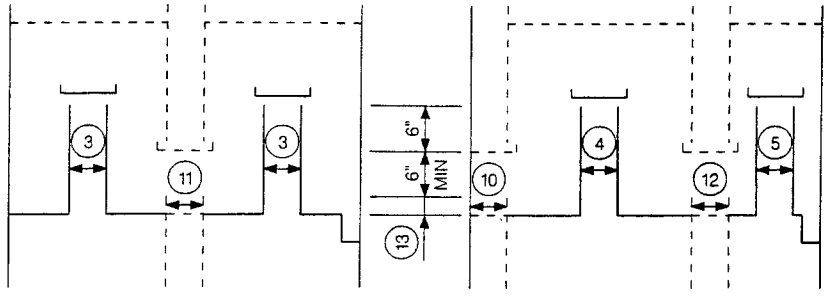
VAPOR RISER AREA For Non-Vacuum Service	ft²	m²
(1) 0.12 Ac		
(2) 0.12 Ac		
(3) 0.06 Ac		
(4) 0.08 Ac		
(5) 0.04 Ac		
(6) 0.06 Ac		2.72
(7) 0.03 Ac		
(8) 0.06 Ac		

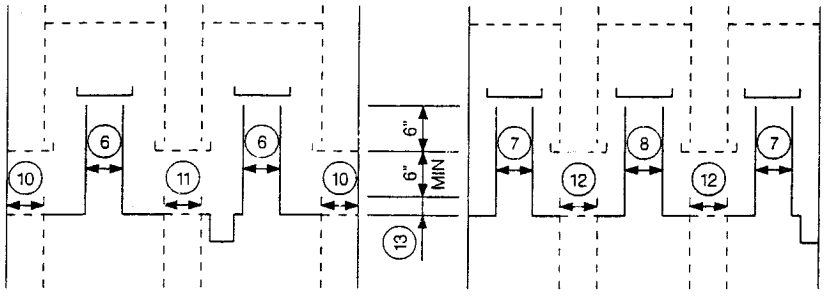
VAPOR RISER AREA For Vacuum Service	ft²	m²
(1) 0.2 Ac		
(2) 0.2 Ac		
(3) 0.1 Ac		
(4) 0.14 Ac		
(5) 0.07 Ac		
(6) 0.1 Ac		
(7) 0.05 Ac		
(8) 0.1 Ac		

DOWNCOMER DIMENSIONS FOR PARTIAL ACCUMULATOR TRAYS	in	mm
(9) Same Width As Downcomer Of Tray Below.		
(10) Same Width As Side Downcomers Of Second Tray Below.		
(11) Same Width As Center Downcomer Of Second Tray Below.		
(12) Same Width As Intermediate Downcomer(s) Of Second Tray Below.		
(13) Weir Height		

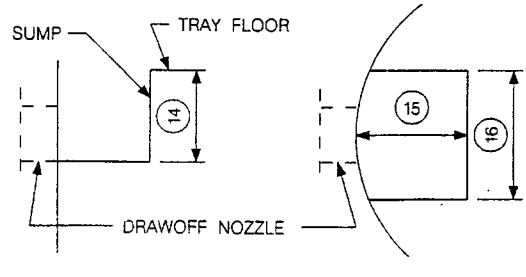
DRAWOFF SUMP DIMENSIONS	in	mm
(14) 1.5 DN		690
(15) DN		460
(16) DN+3"		530







ELEVATION



DRAWOFF SUMPS
(For Accumulator Trays)

ABBREVIATIONS: AC CROSS-SECTIONAL AREA OF COLUMN
DN NOMINAL SIZE OF DRAWOFF NOZZLE

FRACTIONATOR INTERNALS MECHANICAL DESIGN SUMMARY
Distributor Traps

Summary Form
Example
TEC-300-08

SHEET NO 5	PROJECT NO XXXXXX
DATE 9-4-98	BY MEM
SERVICE MAIN COLUMN	ITEM NO 912-C601

Distributor Traps Below Tray No 3

NOTCH DIMENSIONS

	Trap Type						Type F		Type ___	
	A	B	C	D	E	F	ft-in	mm	ft-in	mm
(1)	a	a	a	a	a	a		50		
(2)	b	b	b	b	b	b		100		
(3)		c			c					
(4)				d		d		330		
(5)	e		e							
(6)				f	f					

Below Tray No 17

NOTCH DIMENSIONS

	Trap Type						Type F		Type ___	
	A	B	C	D	E	F	ft-in	mm	ft-in	mm
(1)	a	a	a	a	a	a		50		
(2)	b	b	b	b	b	b		120		
(3)		c			c					
(4)				d		d		330		
(5)	e		e							
(6)				f	f					

Below Tray No 25

NOTCH DIMENSIONS

	Trap Type						Type F		Type ___	
	A	B	C	D	E	F	ft-in	mm	ft-in	mm
(1)	a	a	a	a	a	a		50		
(2)	b	b	b	b	b	b		100		
(3)		c			c					
(4)				d		d		330		
(5)	e		e							
(6)				f	f					

DIMENSION BASIS

a. weir height of tray above.

b. 4" minimum or 0.5" larger than the head over the weir (how).

$$how = 0.4 \left(\frac{gpm}{\text{weir length (inches)}} \right)^{0.67}$$

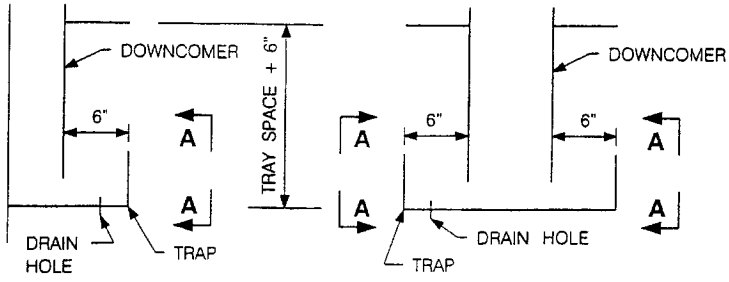
c. width of center downcomer of second tray below, plus 4".

d. width of intermediate downcomer of second tray below, plus 4".

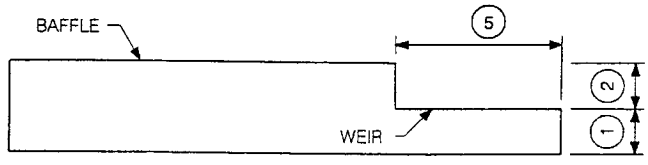
e. 0.6 times the chord height of the side downcomer of the tray below.

f. 0.5 (3) or 0.5 (4).

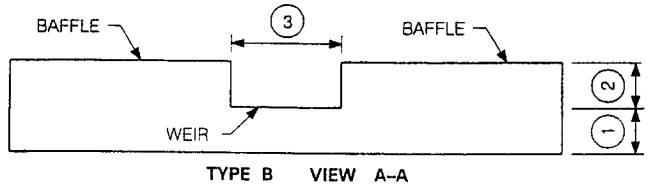
NOTE: DOWNCOMER(S) OF TRAY BELOW MUST BE ORIENTED 90° FROM TRAP.



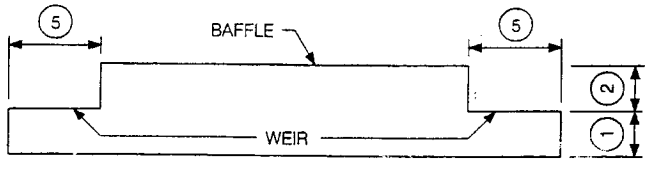
ELEVATION



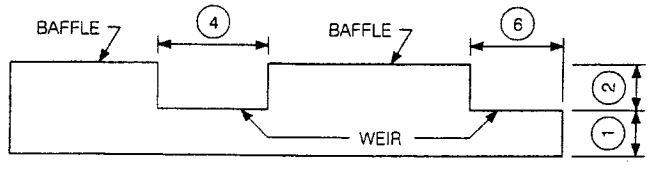
TYPE A VIEW A–A
(TO FEED 1 PASS TRAY)



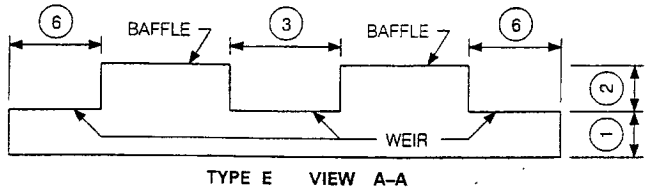
TYPE B VIEW A–A
(TO FEED 2 PASS SIDE DOWNCOMER TRAY)



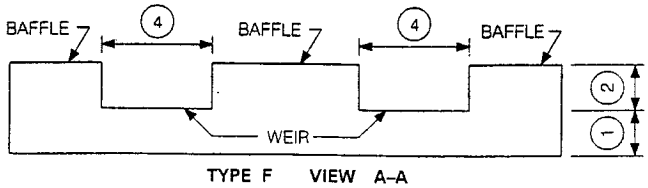
TYPE C VIEW A–A
(TO FEED 2 PASS CENTER DOWNCOMER TRAY)



TYPE D VIEW A–A
(TO FEED 3 PASS TRAY)



TYPE E VIEW A–A
(TO FEED 4 PASS INTERMEDIATE DOWNCOMER TRAY)



TYPE F VIEW A–A
(TO FEED 4 PASS SIDE-CENTER DOWNCOMER TRAY)

FRACTIONATOR INTERNALS MECHANICAL DESIGN SUMMARY
Baffle Trays

Summary Form
Example
TEC-300-08

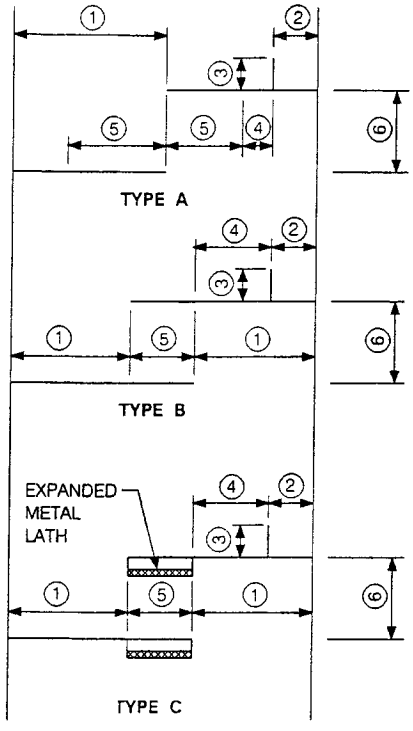
SHEET NO 6	PROJECT NO XXXXXX
DATE 9-4-98	BY MEM
SERVICE MAIN COLUMN	ITEM NO 912-C601

No Of Pans _____ No Of Top Pan _____ Weir On Pan Nos _____

Pan Type	Reference Dimension	Basis	Dimension ft–in or mm	
A NON–OVER–LAPPING	①	0.5 Col I D		
	②	C.H. Of DC. Of Tray Above +4" Or Space To Accommodate Inlet Distributor		
	③	DC. Clearance Of Tray Above +0.5" Or 3" If Inlet Distributor		
	④	2" Min		
	⑤	0.25 Col Area With 1" Dia Holes On 1.75" Equilateral Triangular Pitch		Hole Dia
				Pitch
	⑥	Note 1		
B OVER–LAPPING	①	0.33 Col Area		
	②	C.H. Of DC. Of Tray Above +4" Or Space To Accommodate Inlet Distributor		
	③	DC. Clearance Of Tray Above +0.5" Or 3" If Inlet Distributor		
	④	2" Min		
	⑤	0.33 Col Area With 1" Dia Holes On 1.75" Equilateral Triangular Pitch		Hole Dia
				Pitch
	⑥	Note 1		
C OVER–LAPPING WITH METAL LATH	①	0.33 Col Area		
	②	C.H. Of DC. Of Tray Above +4" Or Space To Accommodate Inlet Distributor		
	③	DC. Clearance Of Tray Above +0.5" Or 3" If Inlet Distributor		
	④	2" Min.		
	⑤	0.33 Col Area With 1" Dia Holes On 1.75" Equilateral Triangular Pitch		Hole Dia
				Pitch
	⑥	Note 1		

ABBREVIATIONS: C.H. CHORD HEIGHT
DC. DOWNCOMER

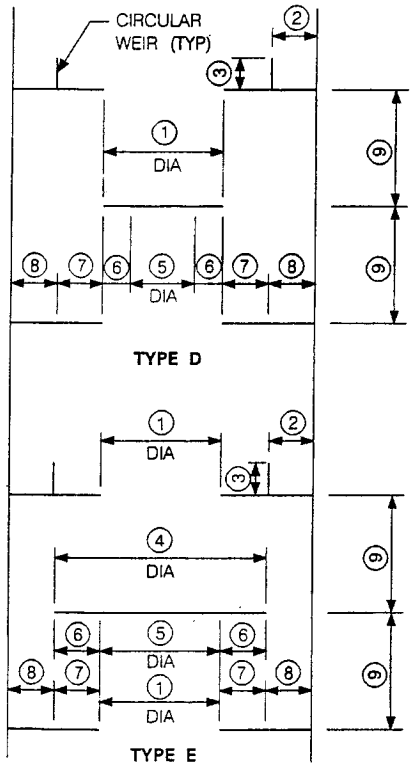
SIDE TO SIDE PANS



No Of Pans 6 No Of Top Pan 34 Weir On Pan Nos 34

Pan Type	Reference Dimension	Basis	Dimension ft–in or mm	
D NON–OVER–LAPPING	①	0.5 Col Area	5360	
	②	C.H. Of DC. Of Tray Above +4" Or Space To Accommodate Inlet Distributor	700	
	③	DC. Clearance Of Tray Above +0.5" Or 3" If Inlet Distributor	75	
	—	———		
	⑤	0.25 Col Area With 1" Dia Holes On 3.5" Equilateral Triangular Pitch, Note 2	3800	Hole Dia 25
				Pitch 90
	⑥	0.25 Col Area With 1" Dia Holes On 1.75" Equilateral Triangular Pitch	780	Hole Dia 25
				Pitch 45
	⑦	0.25 Col Area With 1" Dia Holes On 1.75" Equilateral Triangular Pitch	610	Hole Dia 25
				Pitch 45
	⑧	0.25 Col Area With 1" Dia Holes On 3.5" Equilateral Triangular Pitch	510	Hole Dia 25
				Pitch 90
	⑨	Note 1	900	
E OVER–LAPPING	①	0.33 Col Area		
	②	C.H. Of DC. Of Tray Above +4" Or Space To Accommodate Inlet Distributor		
	③	DC. Clearance Of Tray Above +0.5" Or 3" If Inlet Distributor		
	④	0.67 Col Area		
	⑤	0.33 Col Area With 1" Dia Holes On 3.5" Equilateral Triangular Pitch, Note 2		Hole Dia
				Pitch
	⑥	0.33 Col Area With 1" Dia Holes On 1.75" Equilateral Triangular Pitch		Hole Dia
				Pitch
	⑦	0.33 Col Area With 1" Dia Holes On 1.75" Equilateral Triangular Pitch		Hole Dia
				Pitch
	⑧	0.33 Col Area With 1" Dia Holes On 3.5" Equilateral Triangular Pitch		Hole Dia
				Pitch
	⑨	Note 1		

DISC AND DONUT PANS



NOTES:
1. MINIMUM PAN SPACING MUST BE 0.05 COL I D PLUS A DIMENSION WHICH PROVIDES A CURTAIN AREA BETWEEN OUTLET EDGE OF PAN AND PAN BELOW EQUAL TO OPEN AREA OF PAN (0.5 COL AREA FOR NON–OVERLAPPING PANS AND 0.33 COL AREA FOR OVERLAPPING PANS). PAN SPACING SHOULD BE IN 6" INCREMENTS.
2. NO HOLES AT FEED POINTS