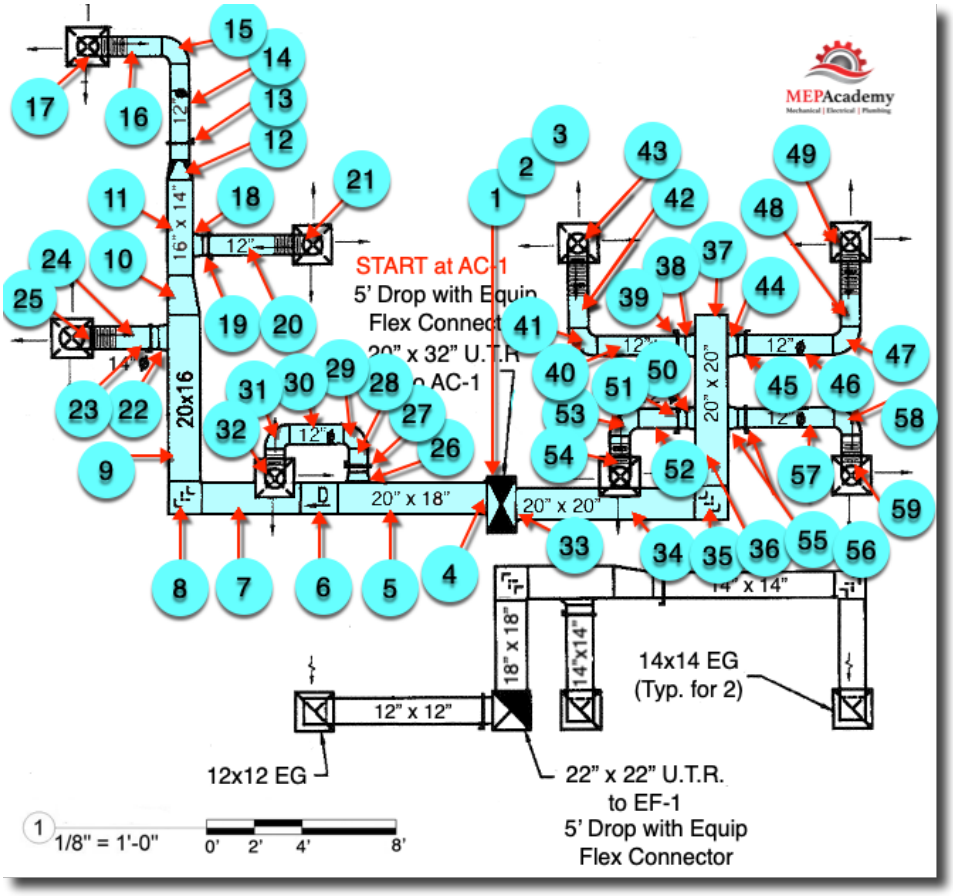
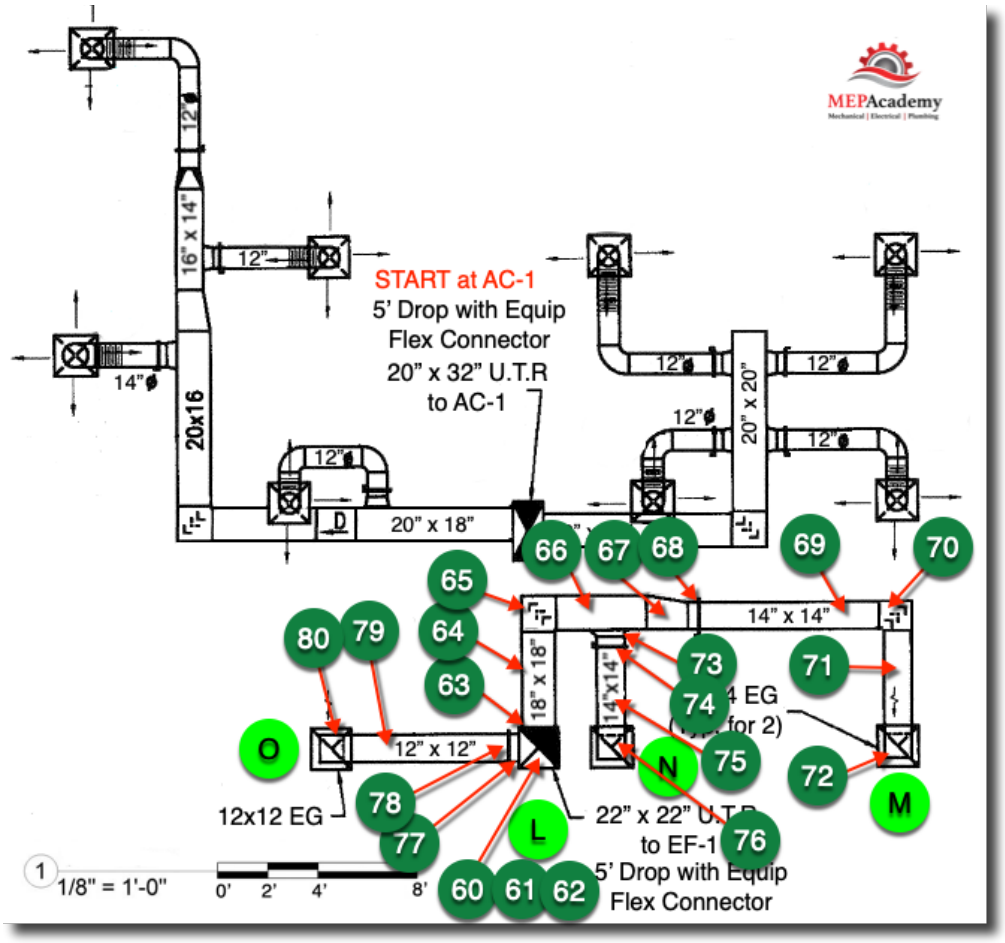
Sheet Metal Ductwork Takeoff - Test #3 – Answers

Below are the answers to Test #3. Your answers don't have to be in the exact same order, but you should have all the ductwork and fittings identified below. Check your answers to the ones below.

Air Conditioning Unit Ductwork #1



See below for Line Item List of Answers and Exhaust System Answers


START at AC-1
5' Drop with Equip
Flex Connector
20" x 32" U.T.R
to AC-1
12"
16" x 14"
14"
20x16
20" x 18"
20" x 20"
14" x 14"
18" x 18"
14"X14"
12" x 12"
12x12 EG
22" x 22" U.T.R
to EF-1
5' Drop with Equip
Flex Connector
1/8" = 1'-0"
0' 2' 4' 8'
60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
L M N O

Air Conditioning Unit Ductwork – Takeoff #1 – Test #3				
Letter	**Item #**	**Duct or Fitting Description**	**Size**	**Qty or Length**
A	1	Equipment Flexible Duct Connector	32” x 20”	1
	2	Rectangular Duct	32” x 20”	5’-0”
	3	End Cap	32” x 20”	1
	4	Tap	20” x 18”	1
	5	Rectangular Duct	20” x 18”	10’-0”
	6	Transition	20” x 18” to 20” x 16”	1
	7	Rectangular Duct	20” x 16”	6’-6”
	8	90-Degree Square Elbow	20” x 16”	1
	9	Rectangular Duct	20” x 16”	11’-0”
	10	Transition	20” x 16” to 16” x 14”	1
	11	Rectangular Duct	16” x 14”	6’-3”
	12	Square to Round	16” x 14” to 12”	1
	13	Volume Damper	12”	1
	14	Round Duct	12”	6’-3”
	15	90-Degree Elbow	12”	1
	16	Round Duct	12”	2’-3”
B	17	Flexible Duct Connector	12”	1
C	18	Start Collar (Spin-in)	12”	1
	19	Volume Damper	12”	1
	20	Round Duct	12”	5’-0”
	21	Flexible Duct Connector	12”	1
D	22	Start Collar (Spin-in)	14”	1
	23	Volume Damper	14”	1
	24	Round Duct	14”	3’-0”
	25	Flexible Duct Connector	14”	1
E	26	Start Collar (Spin-in)	12”	1
	27	Volume Damper	12”	1
	28	Round Duct	12”	2’-0”
	29	90-Degree Elbow	12”	1
	30	Round Duct	12”	3’-6”
	31	90-Degree Elbow	12”	1
	32	Flexible Duct Connector	12”	1
F	33	Tap	20” x 20”	1
	34	Rectangular Duct	20” x 20”	12’-0”
	35	90-Degree Square Elbow	20” x 20”	1
	36	Rectangular Duct	20” x 20”	11’-4”

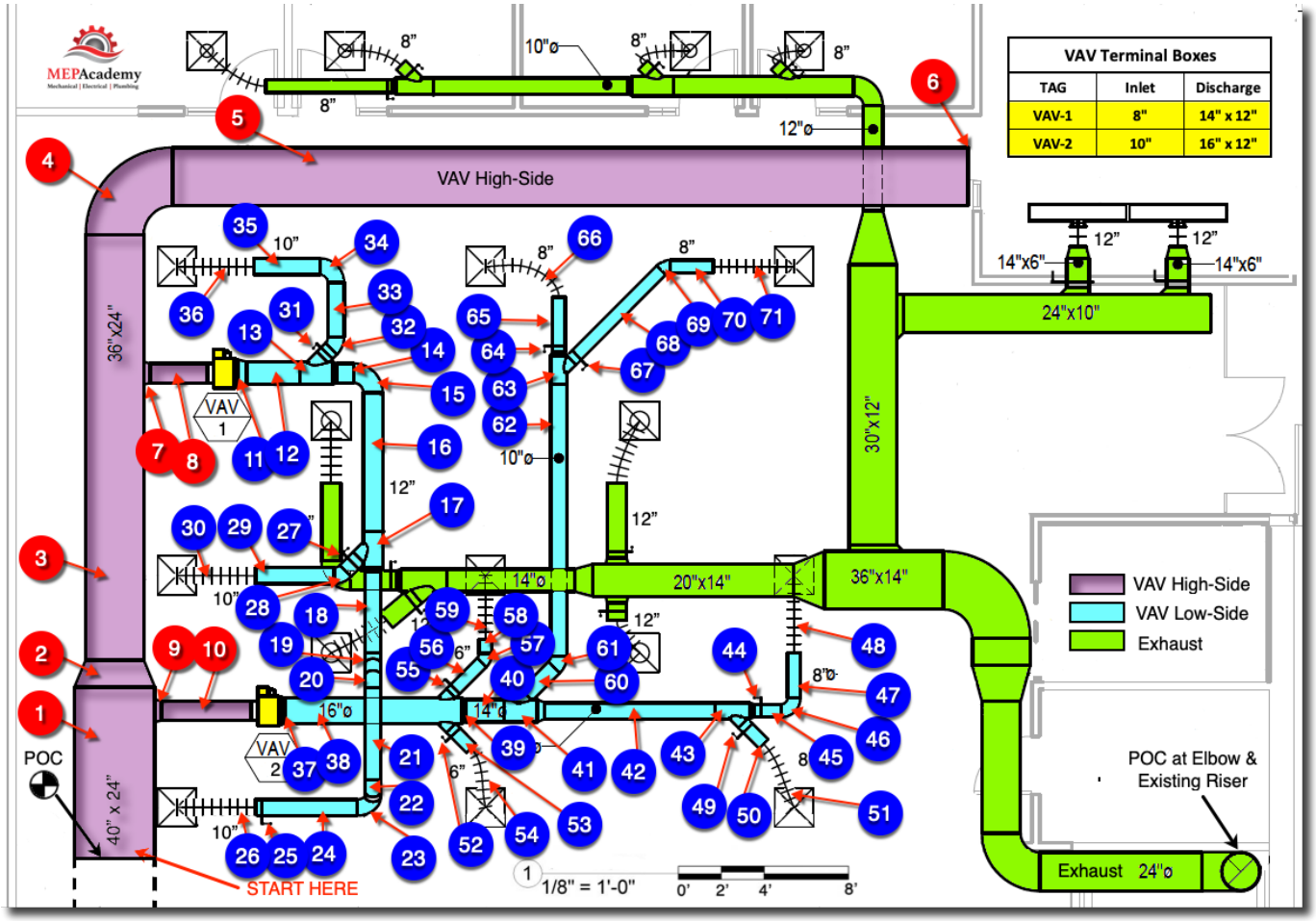
Air Conditioning Unit Ductwork – Takeoff #1 – Test #3				
Letter	**Item #**	**Duct or Fitting Description**	**Size**	**Qty or Length**
G	37	End Cap	20” x 20”	1
H	38	Start Collar (Spin-in)	12”	1
	39	Volume Damper	12”	1
	40	Round Duct	12”	6’-6”
	41	90-Degree Elbow	12”	1
	42	Round Duct	12”	2’-0”
	43	Flexible Duct Connector	12”	1
I	44	Start Collar (Spin-in)	12”	1
	45	Volume Damper	12”	1
	46	Round Duct	12”	7’-0”
	47	90-Degree Elbow	12”	1
	48	Round Duct	12”	2’-0”
	49	Flexible Duct Connector	12”	1
J	50	Start Collar (Spin-in)	12”	1
	51	Volume Damper	12”	1
	52	Round Duct	12”	3’-9”
	53	90-Degree Elbow	12”	1
	54	Flexible Duct Connector	12”	1
K	55	Start Collar (Spin-in)	12”	1
	56	Volume Damper	12”	1
	57	Round Duct	12”	7’-0”
	58	90-Degree Elbow	12”	1
	59	Flexible Duct Connector	12”	1

Exhaust Answers Continued below

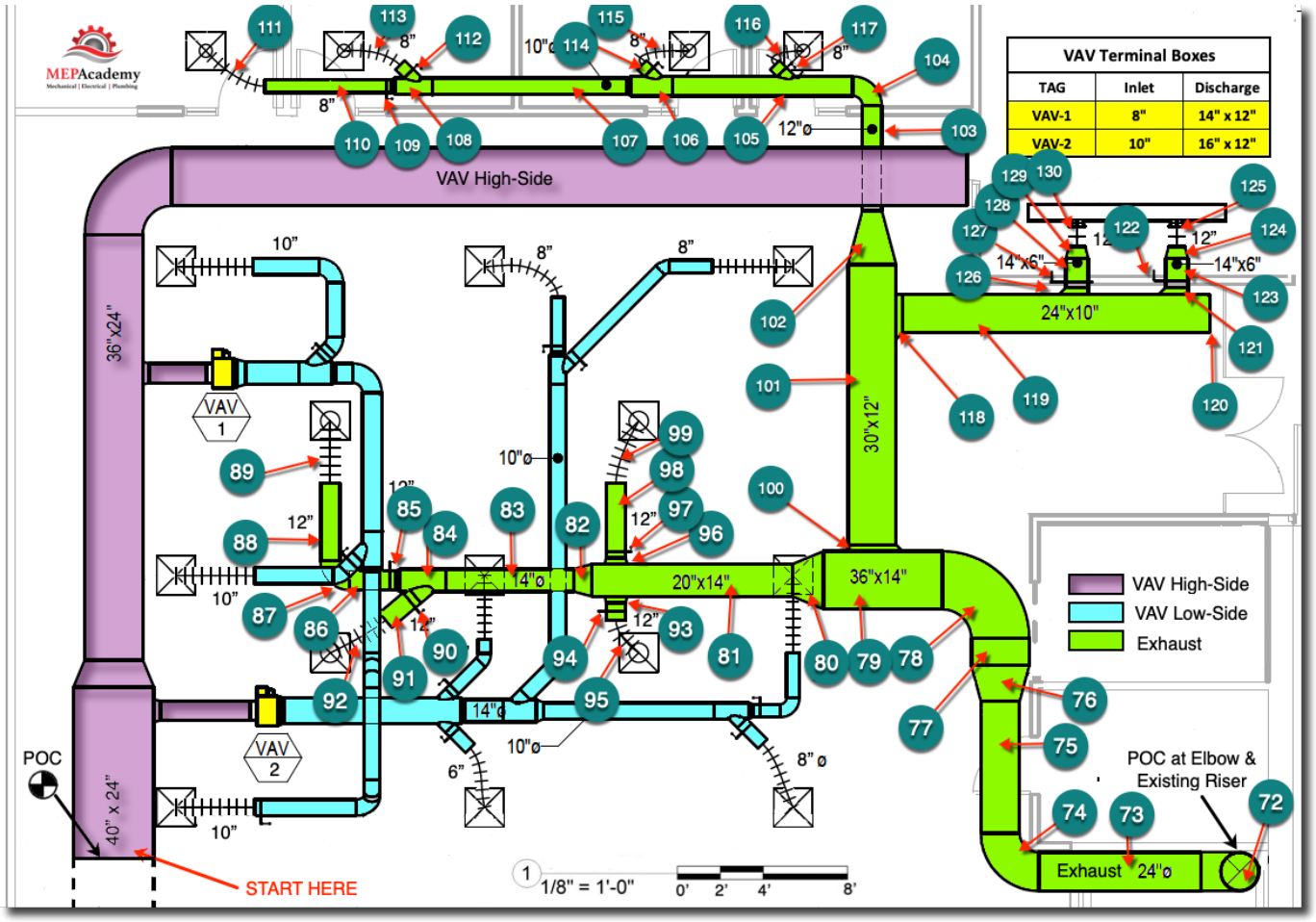
Air Conditioning Unit Ductwork – Takeoff #1 – Test #3				
Letter	**Item #**	**Duct or Fitting Description**	**Size**	**Qty or Length**
L	60	Equipment Flexible Duct Connector	22” x 22”	1
	61	Rectangular Duct	22” x 22”	5’-0”
	62	End Cap	22” x 22”	1
	63	Tap	18” x 18”	1
	64	Rectangular Duct	18” x 18”	6’-0”
	65	90 Degree Square Elbow	18” x 18”	1
	66	Rectangular Duct	18” x 18”	5’-6”
	67	Transition	18” x 18” to 14” x 14”	1
	68	Volume Damper	14” x 14”	1
	69	Rectangular Duct	14” x 14”	12’-0”
	70	90 Degree Square Elbow	14” x 14”	1
	71	Rectangular Duct	14” x 14”	6’-6”
M	72	90 Degree Square Elbow	14” x 14”	1
N	73	Tap	14” x 14”	1
	74	Volume Damper	14” x 14”	1
	75	Rectangular Duct	14” x 14”	6’-6”
	76	90 Degree Square Elbow	14” x 14”	1
O	77	Tap	12” x 12”	1
	78	Volume Damper	12” x 12”	1
	79	Rectangular Duct	12” x 12”	11’-0”
	80	90 Degree Square Elbow	12” x 12”	1

VAV High and Low Side Ductwork & Exhaust - Takeoff #2

Answers to the VAV High & Low Side Portion. See below for the answers to the exhaust portion of the test.



Answers to Exhaust Portion of test shown below.


VAV Terminal Boxes
TAG | Inlet | Discharge
VAV-1 | 8" | 14" x 12"
VAV-2 | 10" | 16" x 12"
VAV High-Side
VAV Low-Side
Exhaust
POC
START HERE
POC at Elbow & Existing Riser
Exhaust 24"ø
VAV 1
VAV 2
36"x24"
40" x 24"
30"x12"
24"x10"
20"x14"
36"x14"
14"x6"
1/8" = 1'-0"
0' 2' 4' 8'

VAV High & Low Side Ductwork & Exhaust - Takeoff #2 – Test #3 - Answer				
Letter	**Item #**	**Duct or Fitting Description**	**Size**	**Qty or Length**
A	1	Rectangular Duct	40” x 24”	10’-6”
	2	Transition	40” x 24” to 36” x 24”	1
	3	Rectangular Duct	36” x 24”	26’-4”
	4	90 Degree Radius Elbow	36” x 24”	1
	5	Rectangular Duct	36” x 24”	49’-6”
B	6	End Cap	36” x 24”	1
C	7	Start Collar	8” (See VAV Chart)	1
	8	Round Duct	8”	4’-0”
D	9	Start Collar	10” (See VAV Chart)	1
	10	Round Duct	10”	6’-0”
E	11	Square to Round (VAV Chart)	14” x 12” to 14”	1
	12	Round Duct	14”	3’-3”
	13	Reducing Tee-Wye	14” x 12” x 10”	1
	14	Round Duct	12”	1’-0”
	15	90-Degree Elbow	12”	1
	16	Round Duct	12”	8’-6”
	17	Reducing Tee-Wye	12” x 10” x 10”	1
	18	Round Duct	10”	5’-0”
	19	45 Degree Elbow	10”	1
	20	45 Degree Elbow	10”	1
	21	Round Duct	10”	5’-9”
	22	45 Degree Elbow	10”	1
	23	90 Degree Elbow	10”	1
	24	Round Duct	10”	6’-0”
	25	Volume Damper	10”	1
F	26	Flexible Duct Connector	10”	1
G	27	Volume Damper	10”	1
	28	45 Degree Elbow	10”	1
	29	Round Duct	10”	4’-6”
	30	Flexible Duct Connector	10”	1
H	31	Volume Damper	10”	1
	32	45 Degree Elbow	10”	1
	33	Round Duct	10”	3’-3”
	34	90 Degree Elbow	10”	1
	35	Round Duct	10”	4’-0”
	36	Flexible Duct Connector	10”	1
I	37	Square to Round (VAV Chart)	16” x 12” to 16”	1
	38	Round Duct	16”	11’-0”
	39	Reducer	16” to 14”	1
	40	Round Duct	14”	2’-6”
	41	Reducing Tee-Wye	14” x 10” x 10”	1
	42	Round Duct	10”	10’-6”
	43	Reducing Tee-Wye	10” x 8” x 8”	1
	44	Volume Damper	8”	1
	45	Round Duct	8”	1’-6”

	46	90 Degree Elbow	8”	1
	47	Round Duct	8”	2’-9”
J	48	Flexible Duct Connector	8”	1
K	49	Volume Damper	8”	1
↓	50	Round Duct	8”	1’-6”
↓	51	Flexible Duct Connector	8”	1
L	52	Saddle Tap w/Volume Damper	6”	1
↓	53	Round Duct	6”	1’-6”
↓	54	Flexible Duct Connector	6”	1
M	55	Saddle Tap w/Volume Damper	6”	1
↓	56	Round Duct	6”	2’-6”
↓	57	90 Degree Elbow	6”	1
↓	58	Round Duct	6”	1’-0”
↓	59	Flexible Duct Connector	6”	1
N	60	Round Duct	10”	2’-4”
↓	61	45 Degree Elbow	10”	1
↓	62	Round Duct	10”	16’-9”
↓	63	Reducing Tee-Wye	10” x 8” x 8”	1
↓	64	Volume Damper	8”	1
↓	65	Round Duct	8”	3’-3”
↓	66	Flexible Duct Connector	8”	1
↓	67	Volume Damper	8”	1
↓	68	Round Duct	8”	8’-0”
↓	69	45 Degree Elbow	8”	1
↓	70	Round Duct	8”	2’-6”
↓	71	Flexible Duct Connector	8”	1

VAV High & Low Side Ductwork & Exhaust - Takeoff #2 – Test #3 - Answer				
Letter	**Item #**	**Duct or Fitting Description**	**Size**	**Qty or Length**
O	72	90 Degree Elbow	24”	1
	73	Round Duct	24”	10’-0”
	74	90 Degree Elbow	24”	1
	75	Round Duct	24”	8’-2”
	76	Square to Round	36” x 14” to 24”	1
	77	Rectangular Duct	36” x 14”	1’-9”
	78	90 Degree Radius Elbow	36” x 14”	1
	79	Rectangular Duct	36” x 14”	7’-3”
	80	Transition	36” x 14” to 20” x 14”	1
	81	Rectangular Duct	20” x 14”	12’-3”
	82	Square to Round	20” x 14” to 14”	1
	83	Round Duct	14”	8’- 0”
	84	Reducing Tee-Wye	14” x 12” x 12”	1
	85	Volume Damper	12”	1
	86	Round Duct	12”	2’-9”
	87	90 Degree Elbow	12”	1
	88	Round Duct	12”	5’-0”
P	89	Flexible Duct Connector	12”	1
Q	90	Volume Damper	12”	1
	91	Round Duct	12”	2’-0”
	92	Flexible Duct Connector	12”	1
R	93	Start Collar (Spin-in)	12”	1
	94	Volume Damper	12”	1
	95	Flexible Duct Connector	12”	1
S	96	Start Collar (Spin-in)	12”	1
	97	Volume Damper	12”	1
	98	Round Duct	12”	5’-0”
	99	Flexible Duct Connector	12”	1
T	100	Tap	30” x 12”	1
	101	Rectangular Duct	30” x 12”	18’-0”
	102	Square to Round	30” x 12” to 12”	1
	103	Round Duct	12”	6’-6”
	104	90 Degree Elbow	12”	1
	105	Round Duct	12”	11’-2”
	106	Reducing Tee-Wye	12” x 10” x 8”	1
	107	Round Duct	10”	12’-0”
	108	Reducing Tee-Wye	10” x 8” x 8”	1
	109	Volume Damper	8”	1
	110	Round Duct	8”	8’-0”

U	111	Flexible Duct Connector	8”	1
V	112	Volume Damper	8”	1
	113	Flexible Duct Connector	8”	1
W	114	Volume Damper	8”	1
	115	Flexible Duct Connector	8”	1
X	116	Flexible Duct Connector	8”	1
	117	Volume Damper	8”	1
Y	118	Tap	24” x 10”	1
	119	Rectangular Duct	24” x 10”	19’-6”
	120	End Cap	24” x 10”	1
	121	Tap	14” x 6”	1
	122	Volume Damper	14” x 6”	1
	123	Rectangular Duct	14” x 6”	2’-0”
	124	Square to Round	14” x 6” to 12”	1
	125	Flexible Duct Connector	12”	1
	126	Tap	14” x 6”	1
	127	Volume Damper	14” x 6”	1
	128	Rectangular Duct	14” x 6”	2’-0”
	129	Square to Round	14” x 6” to 12”	1
	130	Flexible Duct Connector	12”	1