

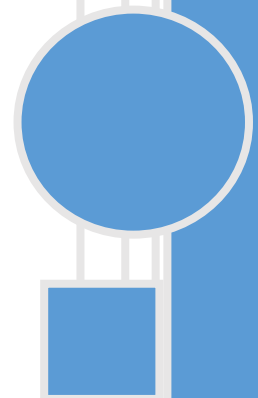
# PHASE II

## APPENDIX 3

### *Structural Modifications and Cost Analysis*

HORSETOOTH ENGINEERING, LLC

7/17/2015



School: Barton

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	2	Opening and roofing for relief hood. 18"x18" curb; 120 lbs.	Angle framing around new opening for deck and curb support.	EA	14	\$300.00		\$4,200.00	\$5,000.00
S2	3	New RTU; 1410 lbs.	Existing roof structure in the anticipated area is 2x wood framing. Reinforce roof structure with steel channel attached back to load bearing masonry wall. Frame new openings for supply and return air through wood decking with 2x framing.	LF	30	\$30.00	\$250.00	\$1,250.00	\$8,000.00
	9	New RTU; 5400 lbs.	Existing roof structure in the anticipated area is open web steel joists. Reinforce existing steel joists for approximetly 10' each joist. Frame new opening for supply and return air through decking. Provide angle framing for curb support.	LF	80	\$45.00	\$2,460.00	\$6,060.00	
		New chiller.	Reinforced concrete pad foundation with turn down edges. (15x10)	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Reinforced concrete pad foundation with turn down edges. (15x6)	SF	100	\$25.00		\$2,500.00	

School: Bauder

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	8	Support RTU-1, 5,500lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "LH" series. Existing joist spacing is approx. 4'-0" o.c. Assume reinforce 8 additional joists. Provide new channels for curb support. Assume (2) new opening through deck.	LF	320	\$45.00	\$600.00	\$15,000.00	\$20,000.00
	9	Support RTU-2, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit over load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$600.00	\$1,320.00	
	10	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end to minimize joist reinforcing. Reinforce joists partial length for new loads. Provide new channels for curb support. Assume (2) new opening through deck.	LF	32	\$45.00	\$1,320.00	\$2,760.00	
S2	11	Support CU-1. 20 ton - 2 Locations	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit over load bearing walls. Provide new channels for curb support.	LF	48	\$30.00		\$1,440.00	\$3,000.00
	12	Support CU-2. 30 ton	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit over load bearing walls. Provide new channels for curb support.	LF	24	\$30.00		\$720.00	
	13	Support CU-3. 40 ton; 250lbs.; 7x8	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit on short span joists. Provide new channels for curb support.	LF	24	\$30.00		\$720.00	
		New chiller.		SF	150	\$25.00		\$3,750.00	

School: Beattie

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	1	Support RTU-1, 7,500lbs.; 34x6.5 - 2 Locations	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Center over beam line. Provide new channels for curb support. Assume (1) new opening through deck.	LF	144	\$30.00	\$600.00	\$4,920.00	\$18,000.00
	2	Support RTU-2, 5,500lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Center over beam line. Provide new channels for curb support. Assume (1) new opening through deck.	LF	60	\$30.00	\$300.00	\$2,100.00	
	3	Support RTU-3, 4,000lbs.; 29x4.5	Existing roof structure in the anticipated area is open web steel joist "K" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	64	\$30.00	\$300.00	\$2,220.00	
	4	Support RTU-4, 5,500lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "LH" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Reinforce joists for new load (assume 2 joists) Provide new channels for curb support. Assume (1) new opening through deck.	LF	100	\$45.00	\$2,100.00	\$6,600.00	
	5	Support RTU-5, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit over load bearing wall. Reinforce joists partial length for new loads. Provide new channels for curb support. Assume (2) new opening through deck.	LF	30	\$30.00	\$600.00	\$1,500.00	
		New chiller.		SF	150	\$25.00		\$3,750.00	

School: Bennett

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
M1	14	New MAU-1; 3'x6'; 750 lbs.	Provide steel channel in joist space to support MAU. Provide wood framed opening.	LF	18	\$30	\$200	\$740	\$1,000
S1	11	Opening for relief hood.; 500lbs.	Provide angle framing around opening	EA	4	\$300.00		\$1,200.00	\$2,000
S2	12	Support RTU-1; 1500 lbs; 6'x7'	1994 building addition - Existing roof structure in the anticipated area is 18" open web steel joists at 4'-0" o.c. Locate unit near the joist end and reinforce joists for partial length. Assume (2) additional openings.	LF	16	\$45.00	\$600.00	\$1,320.00	\$12,000.00
	12	Support RTU-1; 1500 lbs; 6'x7'	1962 building addition - Existing roof structure in the anticipated area is 14" open web steel joists at 2'-0" o.c. Locate unit near the joist end and reinforce joists for partial length. Assume (2) additional openings.	LF	18	\$45.00	\$600.00	\$1,410.00	
	13	Support RTU-2; 5000 lbs.; 29'x4'	1964 building addition - Existing roof structure in the anticipated area is 14" open web steel joists at 2'-0" o.c. Locate unit near the joist end and reinforce joists. Assume (2) additional openings.	LF	128	\$45.00	\$600.00	\$6,360.00	
	13	Support RTU-2; 5000 lbs.; 29'x4'	1994 building addition - Existing roof structure in the anticipated area is 24" open web steel joists at 4'-0" o.c. The existing joists appear to have enough capacity to support additional weight. Provide channel framing on top of deck for curb support. Assume (2) new opening for each unit.	LF	60	\$30.00	\$600.00	\$2,400.00	
S3	12	Support RTU-1; 1500 lbs; 6'x7'	Same as S2					\$2,730.00	\$15,000.00
	13	Support RTU-2; 5000 lbs.; 29'x4'	Same as S2					\$8,760.00	
	15	Support RTU-3; 5500 lbs.; 30'x5'	1964 building addition - Existing roof structure in the anticipated area is 28" open web steel joists at 4'-0" o.c. Provide channel for curb support. Assume (2) additional openings.	LF	64	\$30.00	\$600.00	\$2,520.00	
A1	2	OA Hood on Roof; 24" sq; 200 lbs.	Provide angle framing around opening	EA	2	\$300.00		\$600.00	\$1,000.00
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Concrete pad.	SF	150	\$25.00		\$3,750.00	

School: Blevins

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	10	Support and cut openings for duct in concrete roof structure for RTU-1,2,3,4	Existing roof structure in the anticipated area is precast double tees. Saw cut new duct openings in tee flange, leaving the stem undamaged. Locate unit close to bearing ends to eliminate the need for bending reinforcing of existing double tees. Assume (2) openings for each unit.	EA	8	\$500.00		\$4,000.00	\$4,000.00
S2	12	Support and cut openings for duct in concrete roof structure for RTU-1 through 7	Existing roof structure in the anticipated area is precast double tees. Saw cut new duct openings in tee flange, leaving the stem undamaged. Locate unit close to bearing ends to eliminate the need for bending reinforcing of existing double tees. Assume (2) openings per each unit.	EA	14	\$500.00		\$7,350.00	\$8,000.00
		New chiller.	Reinforced concrete pad foundation with turn down edges. (24x10)	SF	240	\$25.00		\$6,000.00	
		New cooling tower.	Reinforced concrete pad foundation with turn down edges. (20x15)	SF	300	\$25.00		\$7,500.00	

Totals  
 S1 \$4,000.00  
 S2 \$7,350.00

School: Boltz  
 Status: Needs updated

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	15	Support for RTU-1; 5000lbs; 30'x5'	Existing wood framed roof to be removed above existing mezzanine. Replace roof with steel joists spaced 4'-0" o.c. and metal decking. New structure to support new RTU. *DOES NOT INCLUDE DEMO COSTS*	SF	750	\$20.00		\$15,000.00	\$92,000.00
	16	Support for RTU-2; 5000lbs; 30'x5'	Existing wood framed roof to be removed above existing mezzanine. Replace roof with steel joists spaced 4'-0" o.c. and metal decking. New structure to support new RTU. *DOES NOT INCLUDE DEMO COSTS*	SF	750	\$20.00		\$15,000.00	
	17	Support for RTU-3; 6000lbs; 31'x6'	Existing wood framed roof to be removed above existing mezzanine. Replace roof with steel joists spaced 4'-0" o.c. and metal decking. New structure to support new RTU. *DOES NOT INCLUDE DEMO COSTS*	SF	875	\$20.00		\$17,500.00	
	18	Support for RTU-4; 2500lbs; 8'x5'	Supported off of new mechanical platform in item 20	*INCLUDED IN ITEM 20					
	19	NORTH Support for RTU-5; 7500lbs; 35'x7'	New mechanical platform	SF	300	\$35.00	\$400.00	\$10,900.00	
	19	Support for RTU-5; 7500lbs; 35'x7'	To be supported by existing mechanical platform over the roof. Modify existing platform to accept additional load and new unit dimensions.	EA	3	\$4,000.00		\$12,000.00	
	20	Support for RTU-6; 6000lbs; 31'x5'	New mechanical platform	SF	300	\$35.00	\$800.00	\$11,300.00	
	21	Support for RTU-7; 13000lbs; 40'x9'	To be supported by existing mechanical platform over the roof. Modify existing platform to accept additional load and new unit dimensions.	EA	1	\$4,000.00		\$4,000.00	
26	Support for MAU-1; 1500lbs; 8'x3'	New mechanical platform	SF	150	\$35.00	\$200.00	\$5,450.00		
S2	3	Remove and replace roof structure for existing RTU removal.	Part of item 15,16,17					\$47,500.00	\$48,000.00
S3	22	Support RTU-8	Demo existing RTU and replace with new in same location, supported off existing built-up trusses. Cut new openings in wood deck and support new curb with 2x framing. Assume (2) openings each unit.	EA	2	\$200.00		\$400.00	\$15,000.00
	23	Support RTU-9	Demo existing RTU and replace with new in same location, supported off existing built-up trusses. Cut new openings in wood deck and support new curb with 2x framing. Assume (2) openings each unit.	EA	2	\$200.00		\$400.00	
	24	Support ERV-1 & 2; 8000lbs; 23'x5'	New mechanical platform	SF	375	\$35.00	\$800.00	\$13,925.00	
S4	34	Support RTU-1A	See item 15					\$15,000.00	\$86,000.00
	35	Support RTU-2A	See item 16					\$15,000.00	
	36	Support RTU-3A	See item 17					\$17,500.00	
	37	Support RTU-4A	See item 18	LUDED IN ITEM 39				\$0.00	
	38	Support RTU-5A	See item 19					\$22,900.00	
	39	Support RTU-6A	See item 20					\$11,300.00	
	40	Support RTU-7A	See item 21					\$4,000.00	
		New chiller.	Reinforced concrete pad foundation with turn down edges. (24x10)	SF	240	\$25.00		\$6,000.00	
		New cooling tower.	Reinforced concrete pad foundation with turn down edges. (20x15)	SF	300	\$25.00		\$7,500.00	

Totals  
 S1 \$91,150.00  
 S2 \$47,500.00  
 S3 \$14,725.00  
 S4 \$85,700.00

School: Centennial

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	6	Support RTU-1, 6,000 CFM; 5,500lbs; 30x5	2004 building addition - Remove existing RTU and place new unit in same spot. Saw cut new opening through concrete deck. Assume (1) new openings.	EA	1	\$500.00		\$500.00	\$3,000.00
	7	Support RTU-2, 3,000 CFM; 5,000lbs.; 29x4.5	2004 building addition - Remove existing RTU and place new unit in same spot. Saw cut new opening through concrete deck. Assume (1) new openings.	EA	1	\$500.00		\$500.00	
	8	Support RTU-3, 6,000 CFM; 5,500lbs; 30x5	2004 building addition - Remove existing RTU and place new unit on existing KCS joists. Provide channel for curb support. Assume (2) new openings.	LF	36	\$30.00	\$600.00	\$1,680.00	
S1	7	Support RTU-4, 5,000lbs.; 29x5	2004 building addition - Remove existing RTU and place new unit on existing KCS joists. Provide channel for curb support. Assume (1) new openings.	LF	72	\$30.00	\$300.00	\$2,460.00	\$4,000.00
	8	Support RTU-5, 2,500lbs.; 8x8	2004 building addition - Remove existing RTU and place new unit on existing KCS joists. Provide channel for curb support. Assume (1) new openings.	LF	24	\$30.00	\$300.00	\$1,020.00	
S2	8	Support RTU-5, 2,500lbs.; 8x8	2004 building addition - Remove existing RTU and place new unit on existing KCS joists. Provide channel for curb support. Assume (1) new openings.	LF	24	\$30.00	\$300.00	\$1,020.00	\$2,000.00
		New chiller.		SF	150	\$25.00		\$3,750.00	
		New cooling tower.		SF	150	\$25.00		\$3,750.00	



School: CPL-E

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	11	Support RTU-1; 5000lbs; 30'x5'	Existing roof structure in the anticipated area is open web steel joist "J" series (adopted by SJI in 1961). Existing joist spacing is approx. 3'-0" o.c. along the corridor. The existing joists in this area have the additional capacity to support the new equipment and additional snow drift due to new equipment. Provide angle frame around duct opening to support deck edge. Provide structural RTU curb to span across joists. Small pipe to through Tectum room decking to support curb directly to existing steel joists.	EA	2	\$300.00	\$300.00	\$900.00	\$6,000.00
	12	Support RTU-2; 6500lbs; 31'x6'	Existing roof structure in the anticipated area is open web steel joist "K" series (adopted by SJI in 1985). Existing joist spacing is approx. 4'-0" o.c. The existing joists in this area have the capacity to support new equipment. Provide channel spanning across joists for curb support. Provide angle frame at duct penetrations.	LF	64	\$30.00	\$600.00	\$2,520.00	
	14	Support MAU-1; 2000lbs, 8x3	Existing roof structure in the anticipated area is open web steel joist "H" series (adopted by SJI in 1961). Existing joist spacing is approx. 3'-0" o.c. The existing joists in this area do not have the capacity to support new equipment. Locate unit near joist bearing end and reinforce joist for approximately 8'. Provide structural RTU curb to span across joists. Small pipe to through Tectum room decking to support curb directly to existing steel joists.	LF	32	\$45.00	\$420.00	\$1,860.00	
S2	11	Support RTU-1; 5000lbs; 30'x5'	See S1; item 11	EA	2	\$300.00	\$300.00	\$900.00	\$10,000.00
	12	Support RTU-2; 6500lbs; 31'x6'	See S1; item 12	LF	64	\$30.00	\$600.00	\$2,520.00	
	13	Support RTU-3; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "H" series (adopted by SJI in 1961). Existing joist spacing is approx. 3'-0" o.c. The existing joists in this area do not have the additional capacity to support any new equipment nor additional snow drift due to new equipment. Reinforce existing joist webs and chords for the additional load (entire length). Provide angle frame at duct penetrations. Small pipe to through Tectum room decking to support curb directly to existing steel joists.	LF	84	\$45.00	\$390.00	\$4,170.00	
	14	Support MAU-1; 2000lbs, 8x3	See S1; item 14	LF	32	\$45.00	\$420.00	\$1,860.00	
		New chiller. 150 ton	Reinforced concrete pad foundation with turn down edges. (15x10)	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Reinforced concrete pad foundation with turn down edges. (15x5)	SF	75	\$25.00		\$1,875.00	

Totals  
S1 \$5,280.00  
S2 \$9,450.00



Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	11	Support RTU-1; 5000lbs; 30'x5'	Existing roof structure in the anticipated area is open web steel joist "K" series. Joist spacing is approx. 4'-0" o.c. Existing RTU to be replaced with this unit. Relocate new unit on short span 10" joists. Existing joists have the additional capacity to support the unit. Provide channel for curb support and angle frame for duct penetrations (2 new).	LF	60	\$30.00	\$450.00	\$2,250.00	\$17,000.00
	12	Support RTU-2; 5000lbs; 29'x5'	Existing roof structure in the anticipated area is 16" open web steel joists "K" series. Joist spacing is approx. 4'-0" o.c. Place at same location as existing RTU. New unit appears to be larger than existing unit. Existing joists appear to have the additional capacity to support new equipment. Provide new angle frame around duct penetration. Provide channel curb support.	LF	60	\$30.00	\$300.00	\$2,100.00	
	13	Support RTU-3; 5500lbs; 30'x5'	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. The existing joists in this area have the additional capacity to support new equipment. Provide steel channel for curb support and provide angle frame at duct penetrations.	LF	60	\$30.00	\$450.00	\$2,250.00	
	14	Support RTU-4; 2250lbs; 8'x5'	Existing roof structure in the anticipated area is precast joists and 1 1/4" precast concrete deck. Saw cut new duct openings in deck and support deck edge with steel frame. Existing concrete joists do not have the capacity for additional loads (under-reinforced for todays code). Provide small mechanical platform/curb above roof supported off load bearing walls.	EA	1	\$4,000.00	\$150.00	\$4,150.00	
	15	Support RTU-5; 1500lbs; 7.5'x6'	Existing roof structure in the anticipated area is precast joists and 1 1/4" precast concrete deck. Saw cut new duct openings in deck and support deck edge with steel frame. Existing concrete joists do not have the capacity for additional loads (under-reinforced for todays code). Provide small mechanical platform/curb above roof supported off load bearing walls.	EA	1	\$4,000.00	\$150.00	\$4,150.00	
	25	MAU-1; 2000lbs, 8x3	Existing roof structure in the anticipated area is steel joists metal decking. Joist spacing is approx. 4'-0" o.c. Locate unit approx. 10' from bearing end. Reinforce existing joist for additional shear loads. Provide angle frame for duct penetrations.	LF	40	\$45.00	\$300.00	\$2,100.00	
S2	9	Opening and roofing fo relief hood; 120lbs. (18"x18" opening)	Existing roof structure in the anticipated area is wood joist and wood/tectum decking. Provide wood frame to support existing deck attaching back to wood joists.	EA	4	\$200.00		\$800.00	\$7,000.00
			Existing roof structure in the anticipated area is steel joists. Provide angle frame to support existing deck around opening.	EA	1	\$300.00		\$300.00	
			Existing roof structure in the anticipated area is precast joists and 1 1/4" precast concrete deck. Saw cut new duct openings in deck. Provide angle frame to support existing concrete deck.	EA	11	\$450.00		\$4,950.00	
S3	11	Support RTU-1; 7500lbs; 34'x7'	See S1	SF	60	\$30.00	\$450.00	\$2,250.00	\$26,000.00
	12	Support ERV-1; 9000 CFM; 11000lbs; 27'x9.5'	See S1	SF	60	\$30.00	\$300.00	\$2,100.00	
	13	Support RTU-3; 5500lbs; 30'x5'	See S1	LF	60	\$30.00	\$450.00	\$2,250.00	
	14	Support RTU-4; 7500lbs; 34'x7'	See S1	EA	1	\$4,000.00	\$150.00	\$4,150.00	
	15	Support RTU-5; 1500lbs; 7.5'x5.5'	See S1	EA	1	\$4,000.00	\$150.00	\$4,150.00	
	18	Support RTU-6; 1500lbs; 7.5'x5.5'	Place unit on low roof to minimize structure reinforcing. Existing roof structure in the anticipated area is precast joists and 1 1/4" precast concrete deck. Saw cut new duct openings in deck and support deck edge with steel frame. Existing concrete joists do not have the capacity for additional loads (under-reinforced for todays code). Provide small mechanical platform/curb above roof supported off load bearing walls.	SF	300	\$35.00	\$500.00	\$11,000.00	
		New chiller.	Reinforced concrete pad foundation with turn down edges. (15x10)	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Reinforced concrete pad foundation with turn down edges. (15x5)	SF	75	\$25.00		\$1,875.00	

School: Dunn

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	Sums
S1	11	Support RTU-1; 2500 lbs; 8'x8'	1992 Addition - Demo existing RTU and place new unit at the same spot. Assume (1) addition opening.	EA	1	\$300.00		\$300.00	\$29,000.00
	12	Support RTU-2; 5500 lbs.; 30'x5'	1948 building - Existing roof structure in the anticipated area is 24" open web steel joists at 4'-0" o.c. Reinforce joists the full length for new equipment support. Assume (2) additional openings (wood framed).	LF	300	\$45.00	\$400.00	\$13,900.00	
	13	Support RTU-3; 5000 lbs.; 29'x4'	1987 Addition - Existing roof structure in the anticipated area is open web steel joist "H" series ). Existing joist spacing is approx. 4'-0" o.c. The existing joists in this area do not have the additional capacity to support any new equipment nor additional snow drift due to new equipment. Reinforce existing joist webs and chords for the additional load (entire length). Provide angle frame at duct penetrations.	LF	300	\$45.00	\$600.00	\$14,100.00	
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Concrete pad.	SF	150	\$25.00		\$3,750.00	

Totals  
 S1 #REF!  
 S2 #REF!  
 S3 \$28,300.00

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	14	Support for RTU-1; 7500lbs; 34'x6.5'	1972 building addition - Remove existing RTU and place in same place. Provide channel for curb support. Assume (1) new opening.	LF	72	\$30.00	\$300.00	\$2,460.00	\$34,000.00
	14	Support for RTU-1; 7500lbs; 34'x6.5'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads full length. (6 joists assumed) Assume (2) opening for each unit.	LF	168	\$45.00	\$600.00	\$8,160.00	
	14	Support for RTU-1; 7500lbs; 34'x6.5'	2002 building addition - Remove existing RTU and concrete pad and place with new unit across existing joists. New unit is larger than existing units. Reinforce existing joists that did not support an existing unit (approx. 2 joists). Assume (2) additional openings.	LF	45	\$45.00	\$600.00	\$2,625.00	
	15	Support for RTU-2; 5000lbs; 29'x 5'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads full length. (6 joists assumed) Assume (2) opening for each unit.	LF	168	\$45.00	\$600.00	\$8,160.00	
	16	Support for RTU-3; 2500lbs; 8'x 8'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads full length. (3 joists assumed) Assume (2) opening for each unit.	LF	84	\$45.00	\$600.00	\$4,380.00	
	17	Support for RTU-4; 5500lbs; 30'x 5'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads. (3 joists assumed) Assume (2) opening for each unit.	LF	150	\$45.00	\$600.00	\$7,350.00	
	18	Support for MAU-1; 7500lbs; 3'x5'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Locate unit near existing column. Provide channel for curb support. Assume (1) opening for each unit.	LF	12	\$30.00	\$300.00	\$660.00	
S2	19	Support for RTU-1; 7500lbs; 34'x6.5'	1972 building addition - Remove existing RTU and place in same place. Provide channel for curb support. Assume (1) new opening.	LF	72	\$30.00	\$300.00	\$2,460.00	\$32,000.00
	19	Support for RTU-2; 5000lbs; 29'x 5'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads full length. (6 joists assumed) Assume (2) opening for each unit.	LF	168	\$45.00	\$600.00	\$8,160.00	
	15	Support for RTU-2; 5000lbs; 29'x 5'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads full length. (6 joists assumed) Assume (2) opening for each unit.	LF	168	\$45.00	\$600.00	\$8,160.00	
	16	Support for RTU-3; 2500lbs; 8'x 8'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads full length. (3 joists assumed) Assume (2) opening for each unit.	LF	84	\$45.00	\$600.00	\$4,380.00	
	17	Support for RTU-4; 5500lbs; 30'x 5'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads. (3 joists assumed) Assume (2) opening for each unit.	LF	150	\$45.00	\$600.00	\$7,350.00	
	18	Support for MAU-1; 7500lbs; 3'x5'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Locate unit near existing column. Provide channel for curb support. Assume (1) opening for each unit.	LF	12	\$30.00	\$300.00	\$660.00	
S3	20	Support for RTU-1A; 7500lbs; 22'x8'	1972 building addition - Remove existing RTU and place in same place. Provide channel for curb support. Assume (1) new opening.	LF	48	\$30.00	\$300.00	\$1,740.00	\$21,000.00
	20	Support for RTU-1A; 7500lbs; 22'x8'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads full length. (5 joists assumed) Assume (2) opening for each unit.	LF	140	\$45.00	\$600.00	\$6,900.00	
	20	Support for RTU-1A; 7500lbs; 22'x8'	2002 building addition - Remove existing RTU and concrete pad and place with new unit across existing joists. New unit is larger than existing units. Reinforce existing joists that did not support an existing unit (approx. 2 joists). Assume (2) additional openings.	LF	45	\$45.00	\$600.00	\$2,625.00	
	21	Support for RTU-2A; 2500lbs; 8'x8'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads full length. (2 joists assumed) Assume (1) opening for each unit.	LF	56	\$45.00	\$300.00	\$2,820.00	
	16	Support for RTU-3; 2500lbs; 8'x 8'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Reinforce existing joists for the additional loads full length. (3 joists assumed) Assume (2) opening for each unit.	LF	84	\$45.00	\$600.00	\$4,380.00	
	22	Support for RTU-4A; 2500lbs; 8'x8'	1972 building addition - Remove existing RTU and concrete pad and place with new unit across existing joists. Assume (1) additional opening.	EA	1	\$500.00		\$500.00	
	18	Support for MAU-1; 7500lbs; 3'x5'	1972 building addition - Existing roof structure in the anticipated area is open web steel joists at 6'-0" o.c. Locate unit near existing column. Provide channel for curbs support. Assume (1) opening for each unit.	LF	12	\$30.00	\$300.00	\$660.00	
	23	Support for CU-1; 2000lbs; 5'x8'	1988 building addition - Existing roof structure in the anticipated area is open web steel joists at 4'-0" o.c. Locate unit over load bearing wall. Provide channel for curb support.	LF	16	\$30.00		\$480.00	
	24	Support for CU-2; 2500lbs; 7'x8'	1988 building addition - Existing roof structure in the anticipated area is open web steel joists at 4'-0" o.c. Locate unit over girder beam and column. Provide channel for curb support.	LF	16	\$30.00		\$480.00	

School: Fullana

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	5	Access platform for indoor AHU-1	Composite steel mezzanine	SF	200	\$30.00		\$6,000.00	\$6,000.00
S2	6	Support RTU-2; 2500 lbs.; 8'x8'	Existing roof structure is unknown. It is anticipated that the framing is open web steel joists at 4'-0" o.c. Reinforce joists the full length for new equipment support. Assume (2) additional openings.	LF	120	\$45.00	\$600.00	\$6,000.00	\$6,000.00
	7	Support CU-1; 300 lbs.	Existing framing appears to be adequate to support new equipment. Support new CU on existing supports/pad.					\$0.00	

School: Harris

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	5	OA Hood on roof; 24"x24"	Existing roof assumed to be wood framed. Provide framing around opening.	EA	1	\$200.00		\$200.00	\$1,000.00
S2	9	Support RTU-1, 1,500lbs.; 7x5.5	Existing roof assumed to be steel joists with wood framed decking. Reinforce existing steel joists and provide framing around new opening.	LF	90	\$45.00	\$200.00	\$4,250.00	\$5,000.00
	10	Support RTU-2, 5,500lbs.; 30x5	2002 building addition - Remove existing RTU and place new unit on existing structure. Assume (1) new openings.	EA	1	\$500.00		\$500.00	
S3	9	Support RTU-1, 1,500lbs.; 7x5.5	Existing roof assumed to be steel joists with wood framed decking. Reinforce existing steel joists and provide framing around new opening.	LF	90	\$45.00	\$200.00	\$4,250.00	\$5,000.00
		New chiller.		SF	150	\$25.00		\$3,750.00	
		New cooling tower.		SF	150	\$25.00		\$3,750.00	

School: Irish

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	9	Support RTU-1, 7,500lbs.; 34x6.5 - 2 Locations	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	144	\$30.00	\$600.00	\$4,920.00	\$17,000.00
	10	Support RTU-2, 5,500lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit on short span joists. Provide new channels for curb support. Assume (2) new opening through deck.	LF	64	\$30.00	\$600.00	\$2,520.00	
	11	Support RTU-3, 5,500lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "LH" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Assume reinforce 2 additional joists. Provide new channels for curb support. Assume (1) new opening through deck.	LF	64	\$30.00	\$3,900.00	\$5,820.00	
	12	Support RTU-4, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	16	\$30.00	\$300.00	\$780.00	
	13	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end to minimize joist reinforcing. Reinforce joists partial length for new loads. Provide new channels for curb support. Assume (2) new opening through deck.	LF	32	\$45.00	\$1,320.00	\$2,760.00	
		New chiller.		SF	200	\$25.00		\$5,000.00	

School: Johnson

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	12	Support RTU-1; 10000lbs; 37'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	80	\$30.00	\$600.00	\$3,000.00	\$14,000.00
	13	Support RTU-2; 13000lbs; 40'x9'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Locate unit at joist end. Provide new channels for curb support and reinforce end of existing joist to support new weight. Assume (2) new opening through deck.	LF	80	\$75.00	\$600.00	\$6,600.00	
	14	Support RTU-3; 5000lbs; 29'x5	Existing roof structure in the anticipated area is open web steel joist "LH" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end, as close as possible. Provide new channels for curb support. Assume (2) new opening through deck.	LF	60	\$30.00	\$600.00	\$2,400.00	
	15	Support RTU-4; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit over load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$600.00	\$1,320.00	
S2	16	Support CU-1; 2000lbs; 6'x9'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit as close as possible to the joist end. Provide new channels for curb support.	LF	24	\$30.00		\$720.00	\$4,000.00
	17	Support CU-2; 2000lbs; 6'x9'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit as close as possible to the joist end on lower roof. Due to snow drift, reinforce joists for the additional load. Reinforce joist for partial length. Provide new channels for curb support.	LF	32	\$75.00		\$2,400.00	
S3	19	Support RTU-1A; 8500lbs; 27'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	56	\$30.00	\$600.00	\$2,280.00	\$11,000.00
	20	Support RTU-2A; 12000lbs ; 33'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Locate unit at joist end. Provide new channels for curb support and reinforce end of existing joist to support new weight. Assume (2) new opening through deck.	LF	72	\$75.00	\$600.00	\$6,000.00	
	21	Support RTU-3A; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "LH" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end, as close as possible. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$600.00	\$1,320.00	
	15	Support RTU-4; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$0.00	\$720.00	
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Concrete pad.	SF	100	\$25.00		\$2,500.00	



School: Kruse

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	3	Support RTU-1; 1500lbs; 5'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce existing joist webs and chords for the additional load (partial length) for additional shear load. Provide angle frame at duct penetrations and channels for curb support.	LF	24	\$45.00	\$780.00	\$1,860.00	<b>\$2,000.00</b>
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	

School: Lab/Polaris

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	13	Opening and roofing for relief hood; 120lbs.	Provide angle framing around opening	EA	16	\$300.00		\$4,800.00	\$5,000.00
S2	21	Support for RTU-1; 1500lbs; 8'x7'	1992 building addition - Remove existing RTU and replace with new in the same spot. Assume (1) additional opening.	EA	1	\$300.00		\$300.00	\$16,000.00
	22	Support for RTU-2; 1500lbs; 8'x 7'	1987 building addition - Existing roof structure in the anticipated area is open web steel joists at 4'-0" o.c. The existing joists appear to have enough capacity to support additional weight. Assume (2) new opening for each unit. And provide channel for curb support.	LF	16	\$30.00	\$600.00	\$1,080.00	
	23	Support for RTU-3; 5500lbs; 30'x 5'	1956 original building - Existing roof structure in the anticipated area is long span open web steel joists at 4'-0" o.c. Reinforce existing joists for the additional loads. Assume (2) opening for each unit.	LF	180	\$45.00	\$600.00	\$8,700.00	
	24	Support for RTU-4; 5500lbs; 30'x 5'	1987 building addition - Existing roof structure in the anticipated area is open web steel joists at 4'-0" o.c. Reinforce existing joists for the additional loads. Locate unit near joist bearing end to minimize amount of reinforcing. Assume (2) opening for each unit.	LF	64	\$30.00	\$600.00	\$2,520.00	
	25	Support for MAU-1; 1000lbs; 3'x5'	1958 building addition - Existing roof structure in the anticipated area is open web steel joists at 2'-0" o.c. Reinforce existing joists for the additional loads. Locate unit near joist bearing end to minimize amount of reinforcing. Assume (2) opening for each unit.	LF	50	\$45.00	\$600.00	\$2,850.00	
A1	7	OA Hood on Roof; 24" sq; 200 lbs.	Provide angle framing around opening	EA	2	\$300.00		\$600.00	\$1,000.00
A5	19	Relief hood opening; 36'x48"; 500 lbs	Provide angle framing around opening	EA	3	\$300.00		\$900.00	\$1,000.00
		New chiller.		SF	200	\$25.00		\$5,000.00	
		New cooling tower.		SF	150	\$25.00		\$3,750.00	

Totals  
S1 \$4,800.00  
S2 #REF!  
S3 \$16,050.00

School: Laurel

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	3	Support RTU-1; 1500lbs; 5'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce existing joist webs and chords for the additional load (partial length) for additional shear load. Provide angle frame at duct penetrations and channels for curb support.	LF	24	\$45.00	\$780.00	\$1,860.00	\$2,000.00
S2	5	Support MAU-1; 3'x6'; 750 lbs.	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Existing structure appears to have the capacity to support the new unit. Provide angle frame at duct penetrations and channels for curb support.	LF	12	\$30.00	\$300.00	\$660.00	\$1,000.00
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	

School: Lesher

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	10	Support RTU-2; 6500lbs; 30'x6'	Existing roof structure in the anticipated area is fabricated deep trusses and long span steel decking. Truss spacing is approx. 17'-9" o.c. Propose providing a mechanical platform above the existing roof with posts located at existing truss locations. Reinforce truss web and chords for additional loads for partial length.	SF	700	\$35.00	\$5,240.00	\$29,740.00	\$45,000.00
	11	Support RTU-3; 5000lbs; 29'x5'	Place on same frame as RTU-2					\$0.00	
	12	Support RTU-6; 6000lbs; 30'x5'	Existing roof structure in the anticipated area is tube steel joist/beams and steel decking. Beam spacing is approx. 4'-0" o.c. Provide flat channels on top of existing deck for curb support. Provide angle framing for duct penetrations	LF	64	\$30.00	\$600.00	\$2,520.00	
	13	Support RTU-7; 7500lbs; 34'x7'	Existing roof structure in the anticipated area is open web steel joist "S" series (adopted by SJI in 1959). Existing joist spacing is approx. 4'-0" o.c. The existing joists in this area do not have the additional capacity to support any new equipment nor additional snow drift due to new equipment. Propose provide a mechanical platform above the existing roof with posts located at existing column locations. Provide angle frame at duct penetrations. Reinforce steel girder beam for additional load.	SF	250	\$35.00	\$1,850.00	\$10,600.00	
	14	Support RTU-5; 1500lbs; 7.5'x5.5'	Existing roof structure in the anticipated area is steel joists gypsum decking. Joist spacing is approx. 4'-0" o.c. Locate unit near existing column. Reinforce existing joist for additional shear loads. Provide angle frame for duct penetrations.	LF	20	\$45.00	\$1,100.00	\$2,000.00	
S2	15	Support RTU-1; 7500lbs; 34'x7'	Existing roof structure in the anticipated area is fabricated deep trusses and long span steel decking. Truss spacing is approx. 17'-9" o.c. Propose providing a mechanical platform above the existing roof with posts located at existing truss locations. Reinforce truss web for additional loads for partial length.	SF	250	\$35.00	\$3,695.00	\$12,445.00	\$39,000.00
	16	Support ERV-1; 9000 CFM; 11000lbs; 27'x9.5'	Existing roof structure in the anticipated area is open web steel joist "H" series (adopted by SJI in 1974). Existing joist spacing is approx. 4'-0" o.c. The existing joists in this area do not have the additional capacity to support any new equipment nor additional snow drift due to new equipment. Propose provide a mechanical platform above the existing roof with posts located at existing column locations. Provide angle frame at duct penetrations.	SF	360	\$35.00	\$1,400.00	\$14,000.00	
	17	Support RTU-4; 5500lbs; 30'x5'	Existing roof structure in the anticipated area is open web steel joist "H" series (adopted by SJI in 1974). Existing joist spacing is approx. 6'-0" o.c. The existing joists in this area do not have the additional capacity to support any new equipment. Reinforce existing joist chords and webs. Provide channel across top of existing deck for curb support. Provide angle frame at duct penetrations.	LF	240	\$45.00	\$1,400.00	\$12,200.00	
		New chiller. 150 ton	Reinforced concrete pad foundation with turn down edges. (24x10)	SF	240	\$25.00		\$6,000.00	
		New cooling tower. Similar to Preston	Reinforced concrete pad foundation with turn down edges. (20x15)	SF	300	\$25.00		\$7,500.00	

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	15	Support RTU-1; 5000lbs; 30'x5'	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Provide new opening in metal deck and concrete for duct penetration and support new deck edge with angle frame. Provide additional concrete curb under unit	EA	1	\$650.00	\$450.00	\$1,100.00	\$19,000.00
	16	Support RTU-2; 5000lbs; 30'x5'	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Reinforce existing steel beam with flat plate attached to bottom flange. Provide new opening in metal deck for duct penetration and support new deck edge with angle frame.	EA	1	\$650.00		\$650.00	
	17	Support RTU-3; 5000lbs; 30'x5'	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Reinforce existing steel beam with flat plate attached to bottom flange. Provide new opening in metal deck for duct penetration and support new deck edge with angle frame.	EA	1	\$650.00		\$650.00	
	18	Support RTU-4; 7500lbs; 34.5'x6.5' (5 locations supported off existing RTU framing)	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Provide new opening in metal deck and concrete for duct penetration and support new deck edge with angle frame. Extend concrete pad under new units footprint.	EA	5	\$650.00	\$1,125.00	\$4,375.00	
	18	Support RTU-4; 7500lbs; 34.5'x6.5' (2 locations supported on new framing)	Existing roof structure in the anticipated area is open web steel joist "H" series (adopted by SII in 1972). Existing joist spacing is approx. 5'-0" o.c. The existing joists in this area do not have the additional capacity to support any new equipment nor additional snow drift due to new equipment. Propose reinforcing existing joists for additional load for approximately 8', ea. joist. Provide angle frame at duct penetrations. Reinforce existing steel beam for additional load (middle 2/3) Provide channel curb support over deck.	LF	128	\$45.00	\$5,400.00	\$11,160.00	
S2	19	Support RTU-5; 2500lbs; 7.5'x8'	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Reinforce existing steel beam with flat plate attached to bottom flange. Provide new opening in metal deck for duct penetration and support new deck edge with angle frame.	EA	1	\$650.00		\$650.00	
	20	Support RTU-6; 7500lbs; 35'x8'	Existing roof structure in the anticipated area is open web steel joist "LH" series (adopted by SII in 1971). Existing joist spacing is approx. 6'-0" o.c. Propose reinforcing existing joists for additional SHEAR load. Provide angle frame at duct penetrations. Provide channel curb support over deck.	LF	80	\$22.50	\$4,500.00	\$6,300.00	
	21	Support RTU-7; 5000lbs; 30'x5'	Existing roof structure in the anticipated area is open web steel joist "H" series (adopted by SII in 1972). Existing joist spacing is approx. 5'-0" o.c. The existing joists in this area do not have the additional capacity to support any new equipment nor additional snow drift due to new equipment. Propose reinforcing existing joists for additional load. Provide angle frame at duct penetrations. Provide channel curb support over deck.	LF	125	\$45.00	\$2,400.00	\$8,025.00	
	22	Support ERV-1; 4500lbs; 15'x6' TWO LOCATIONS	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Reinforce existing steel beam with flat plate attached to bottom flange. Provide new opening in metal deck for duct penetration. Provide channel curb support over deck.	LF	45	\$25.00	\$500.00	\$3,250.00	
S3	19	Support RTU-5; 2500lbs; 7.5'x8'	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Reinforce existing steel beam with flat plate attached to bottom flange. Provide new opening in metal deck for duct penetration and support new deck edge with angle frame.	EA	1	\$650.00		\$650.00	
	23	Support RTU-1a; 1500lbs; 6'x8'	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Provide new opening in metal deck and concrete for duct penetration and support new deck edge with angle frame. Provide additional concrete curb under unit	EA	1	\$650.00	\$450.00	\$1,100.00	
	24	Support RTU-2a; 2500lbs; 8'x9'	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Reinforce existing steel beam with flat plate attached to bottom flange. Provide new opening in metal deck for duct penetration and support new deck edge with angle frame.	EA	1	\$650.00		\$650.00	
	25	Support RTU-3a; 2500lbs; 8'x9'	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Reinforce existing steel beam with flat plate attached to bottom flange. Provide new opening in metal deck for duct penetration and support new deck edge with angle frame.	EA	1	\$650.00		\$650.00	
	26	Support RTU-4a; 7500lbs; 23'x8'	Remove existing RTU. New unit to be placed in same spot. The anticipated structure appears to be wide flange steel frame roof structure. Provide new opening in metal deck and concrete for duct penetration and support new deck edge with angle frame. Extend concrete pad under new units footprint.	EA	5	\$650.00	\$1,125.00	\$4,375.00	
	26	Support RTU-4a; 7500lbs; 23'x8'	Existing roof structure in the anticipated area is open web steel joist "H" series (adopted by SII in 1972). Existing joist spacing is approx. 5'-0" o.c. The existing joists in this area do not have the additional capacity to support any new equipment nor additional snow drift due to new equipment. Propose reinforcing existing joists for additional load for approximately 8', ea. joist. Provide angle frame at duct penetrations. Reinforce existing steel beam for additional load (middle 2/3) Provide channel curb support over deck.	LF	112	\$45.00	\$4,800.00	\$9,840.00	

School: Livermore

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	6	Opening for new exhaust duct (24" sq.)	Provide new wood curb and frame new opening	EA	1	\$300.00		\$300.00	\$1,000.00
S2	7	Support for AHU-1; 800 lbs; 6.5'x4.5'	Reinforce existing joists to support equipment weight	LF	24	\$45.00		\$1,080.00	\$2,000.00

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	21	Support RTU-1, 10,000lbs.; 38x8 - 2 locations	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end and load bearing wall. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	180	\$45.00	\$6,000.00	\$14,100.00	\$46,000.00
	22	Support RTU-2, 1,500lbs.; 5.5x7.5 - 2 locations	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	32	\$45.00	\$2,160.00	\$3,600.00	
	23	Support RTU-3, 7,500lbs.; 34x6.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end and load bearing wall. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	56	\$45.00	\$2,400.00	\$4,920.00	
	24	Support RTU-4, 4,500lbs.; 29X4.5	Existing roof structure in the anticipated area is open web steel joist "10K" series . Existing joist spacing is approx. 5'-4" o.c. Locate new unit on short span joists. Provide new channels for curb support. Assume (2) new opening through deck.	LF	60	\$30.00	\$600.00	\$2,400.00	
	25	Support RTU-5, 5,000lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "LH" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce joists for new unit (assume 8 joists). Assume (2) new opening through deck.	LF	280	\$45.00	\$2,400.00	\$15,000.00	
	26	Support RTU-6, 5,500lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "10H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end and load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	48	\$30.00	\$600.00	\$2,040.00	
	27	Support RTU-7, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$45.00	\$1,080.00	\$2,160.00	
	28	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end and load bearing wall. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	16	\$45.00	\$840.00	\$1,560.00	
S2	25	Support RTU-5, 5,000lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "LH" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce joists for new unit (assume 8 joists). Assume (2) new opening through deck.	LF	280	\$45.00	\$2,400.00	\$15,000.00	\$23,000.00
	26	Support RTU-6, 5,500lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "10H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end and load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	48	\$30.00	\$600.00	\$2,040.00	
	27	Support RTU-7, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$45.00	\$1,080.00	\$2,160.00	
	28	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end and load bearing wall. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	16	\$45.00	\$840.00	\$1,560.00	
	29	Support CU-1, 2,000lbs.; 5x8 - 3 locations	Locate new unit over existing column. Provide new channels for curb support.	LF	48	\$30.00		\$1,440.00	
S3	30	Support RTU-1a, 8,500lbs.; 27x8 - 2 locations	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end and load bearing wall. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	120	\$45.00	\$4,800.00	\$10,200.00	\$31,000.00
	22	Support RTU-2, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	32	\$45.00	\$2,160.00	\$3,600.00	
	31	Support RTU-3a, 7,000lbs.; 22X8	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end and load bearing wall. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	40	\$45.00	\$2,040.00	\$3,840.00	
	32	Support RTU-4a, 2,500lbs.; 7.5X8	Existing roof structure in the anticipated area is open web steel joist "10K" series . Existing joist spacing is approx. 5'-4" o.c. Locate new unit on short span joists. Provide new channels for curb support. Assume (2) new opening through deck.	LF	16	\$30.00	\$600.00	\$1,080.00	
	33	Support RTU-5a, 2,500lbs.; 8x7.5	Existing roof structure in the anticipated area is open web steel joist "LH" series . Existing joist spacing is approx. 4'-0" o.c. Assume reinforce 3 additional joists. Provide new channels for curb support. Assume (2) new opening through deck.	LF	100	\$45.00	\$1,080.00	\$5,580.00	
	34	Support RTU-6a, 7,000lbs.; 22x8	Existing roof structure in the anticipated area is open web steel joist "10H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end and load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	64	\$30.00	\$600.00	\$2,520.00	
	27	Support RTU-7, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$45.00	\$1,080.00	\$2,160.00	
	28	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end and load bearing wall. Reinforce joists for partial length Provide new channels for curb support. Assume (2) new opening through deck.	LF	16	\$45.00	\$840.00	\$1,560.00	
		New cooling tower		SF	150	\$25.00		\$3,750.00	
		New chiller.		SF	150	\$25.00		\$3,750.00	

School: McGraw

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	3	Support RTU-1; 1500lbs; 5'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce existing joist webs and chords for the additional load (partial length) for additional shear load. Provide angle frame at duct penetrations and channels for curb support.	LF	24	\$45.00	\$780.00	\$1,860.00	<b>\$2,000.00</b>
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	



School: Mountain View

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	8	Support RTU-1; 1500lbs; 5'x8'	Provide new wood curb and frame new opening. Reinforce existing structure with new steel channel.	LF	45	\$45.00	\$600.00	\$2,625.00	\$3,000.00
S2	7	Support Exhaust Fan (48" sq.; 350 lbs.)	Provide new wood curb and framing for new opening.	EA	1	\$200.00		\$200.00	\$1,000.00

School: O'Dea

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	11	QA Hood on Roof: 24" sq; 200 lbs.	Provide angle framing around opening	EA	11	\$300.00		\$3,300.00	\$4,000.00
	8	Opening for 36"x48" relief hood. 500lbs.	Provide angle framing around opening	EA	2	\$300.00		\$600.00	
S2	12	Support RTU-1; 1500 lbs; 6'x7'	1962 building addition - Existing roof structure in the anticipated area is 14" open web steel joists at 2'-0" o.c. Locate unit near the joist end and reinforce joists for partial length. Assume (2) additional openings.	LF	18	\$45.00	\$600.00	\$1,410.00	\$6,000.00
	13	Support RTU-2; 5000 lbs.; 30'x5'	1962 building addition - Existing roof structure in the anticipated area is 28" open web steel joists at 4'-0" o.c. Provide channel for curb support. Assume (2) additional openings.	LF	64	\$30.00	\$600.00	\$2,520.00	
	14	New MAU-1; 3'x6'; 750 lbs.	1962 building addition - Existing roof structure in the anticipated area is 14" open web steel joists at 2'-0" o.c. Locate unit near the joist end and reinforce joists for partial length. Assume (2) additional openings.	LF	18	\$45.00	\$300.00	\$1,110.00	
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Concrete pad.	SF	150	\$25.00		\$3,750.00	

Totals  
S1 #REF!  
S2 #REF!  
S3 \$5,040.00

School: Olander

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	12	Support RTU-1; 10000lbs; 37'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	80	\$30.00	\$300.00	\$2,700.00	\$9,000.00
	13	Support RTU-1; 10000lbs; 37'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	80	\$30.00	\$300.00	\$2,700.00	
	14	Support RTU-3; 5000lbs; 29'x5	Existing roof structure in the anticipated area is open web steel joist "24K7" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	60	\$30.00	\$600.00	\$2,400.00	
	15	Support RTU-4; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$300.00	\$1,020.00	
S2	16	Support CU-1; 2000lbs; 6'x9'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit as close as possible to the joist end. Provide new channels for curb support.	LF	24	\$30.00		\$720.00	\$3,000.00
	16	Support CU-1; 2000lbs; 6'x9'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit as close as possible to the joist end. Provide new channels for curb support.	LF	24	\$30.00		\$720.00	
	17	Support CU-2; 2000lbs; 6'x9'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit as close as possible to the joist end. Provide new channels for curb support.	LF	24	\$30.00		\$720.00	
S3	19	Support RTU-1A; 8500lbs; 27'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	56	\$30.00	\$300.00	\$1,980.00	\$7,000.00
	20	Support RTU-1A; 8500lbs; 27'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	56	\$30.00	\$300.00	\$1,980.00	
	21	Support RTU-3A; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$600.00	\$1,320.00	
	15	Support RTU-4; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$600.00	\$1,320.00	
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Concrete pad.	SF	100	\$25.00		\$2,500.00	

Totals  
S1 \$2,700.00

School: Preston

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	7	Support RTU-1; 7,500lbs.; 34x6.5	Existing roof assumed to be steel joists and metal decking. Place unit near beam line to minimize reinforcing. Reinforce the ends of joists. Provide channel for curb support. Assume (2) new opening.	LF	40	\$45.00	\$2,700.00	\$4,500.00	\$5,000.00
S2	8	Support MAU-1; 1500lbs.; 11'x3'	Existing roof assumed to be steel joists and metal decking. Remove existing RTU and place new unit in same spot. Provide channel for curb support. Assume (1) new opening.	LF	30	\$30.00	\$300.00	\$1,200.00	\$2,000.00
S3	9	Support ERV-1; 4,500lbs. ; 15'x5.5'	Existing roof assumed to be steel joists and metal decking. Place unit near joist end to minimize reinforcing. Reinforce the ends of joists. Provide channel for curb support. Assume (2) new opening.	LF	40	\$45.00	\$2,400.00	\$4,200.00	\$5,000.00
		New chiller.		SF	200	\$25.00		\$5,000.00	

School: Putnam

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	8	New relief hood through roof.	Provide angle frame around opening.	EA	8	\$300.00		\$2,400.00	\$3,000.00
S2	15	Support for MAU-1; 1000lbs.; 3'x5'	Locate unit on existing 2x8 framing. Provide additional 2x to support new unit.	LF	20	\$30.00	\$200.00	\$800.00	\$1,000.00
A1	6	OA Hood opening; 200lbs	Provide angle frame around opening.	EA	3	\$300.00		\$900.00	\$1,000.00
A5	12	Opening for relief hood; 120lbs; 18"x18"	Provide angle frame around opening.	EA	14	\$300.00		\$4,200.00	\$6,000.00
	13	Opening for relief hood; 500lbs; 36"x48"	Provide angle frame around opening.	EA	4	\$300.00		\$1,200.00	
		New chiller.		SF	150	\$25.00		\$3,750.00	
		New cooling tower.		SF	100	\$25.00		\$2,500.00	

School: Red Feather

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	1	Louver opening (24" sq.)	Provide new steel angle header.	EA	1	\$500.00		\$500.00	\$1,000.00
S2	5	Opening for new exhaust duct (24" sq.)	Provide new wood curb and frame new opening	EA	1	\$200.00		\$200.00	\$1,000.00
S3	5	Opening for new exhaust duct (24" sq.)	Provide new wood curb and frame new opening	EA	1	\$200.00		\$200.00	\$1,000.00
	6	Opening for new exhaust duct (18" sq.)	Provide new wood curb and frame new opening	EA	1	\$300.00		\$300.00	

School: Riffenburgh

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	9	Support RTU-1, 7,500lbs.; 34x6.5 - 2 Locations	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	144	\$30.00	\$600.00	\$4,920.00	<b>\$17,000.00</b>
	10	Support RTU-2, 5,500lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit on short span joists. Provide new channels for curb support. Assume (2) new opening through deck.	LF	64	\$30.00	\$600.00	\$2,520.00	
	11	Support RTU-3, 5,500lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "LH" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Reinforce 2 additional joists. Assume (1) new opening through deck.	LF	64	\$30.00	\$3,900.00	\$5,820.00	
	12	Support RTU-4, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	16	\$30.00	\$300.00	\$780.00	
	13	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "H" series. Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end to minimize joist reinforcing. Reinforce joists partial length for new loads. Provide new channels for curb support. Assume (2) new opening through deck.	LF	32	\$45.00	\$1,320.00	\$2,760.00	
S2	14	Support chiller on roof. 4500lbs.; 12x7	Existing roof structure in the anticipated area is open web steel joist "LH" series. Existing joist spacing is approx. 5'-0" o.c. Provide new channels for curb support. Reinforce joists under unit.	LF	30	\$75.00		\$2,250.00	<b>\$3,000.00</b>

School: Rocky

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	4	Support RTU-1; 7500lbs; 34'x6.5' - 1 Location	Remove existing RTU on mechanical mezzanine. New unit to be placed in same spot. Existing structure can support new unit. Reuse existing duct penetrations. Replace Demo'd CMU Wall	SF	100	\$10.00		\$1,000.00	\$30,000.00
		Support RTU-1; 7500lbs; 34'x6.5' - 4 Locations	1971 building - Remove existing RTU. New unit to be placed in same spot. Modify existing structural curb to support new unit. Provide a single duct penetration.	LF	272	\$30.00	\$2,000.00	\$10,160.00	
		Support RTU-1; 7500lbs; 34'x6.5' - 2 Locations	1994 addition - Remove existing RTU. New unit to be placed in same spot. Provide 4" concrete curb addition. Provide a single duct penetration.	SF	100	\$5.00	\$600.00	\$1,100.00	
		Support RTU-1; 7500lbs; 34'x6.5' - 2 Locations	1994 addition - Existing roof structure in the anticipated area is open web steel joist "K" series. Joist spacing is approx. 4'-0" o.c. Existing joists have the additional capacity to support the unit located near joist bearing end. Provide channel for curb support and angle frame for duct penetrations (2 new).	LF	144	\$30.00	\$1,200.00	\$5,520.00	
		Support RTU-1; 7500lbs; 34'x6.5' - 1 Location	1971 building - Existing roof structure in the anticipated area is precast double tees. Saw cut new duct openings in tee flange, leaving the stem undamaged. Locate unit near bearing end to minimize shear and moment increases. Assume (2) opening for each unit.	EA	2	\$500.00		\$1,000.00	
	5	Support RTU-2; 5000lbs; 30'x5'	1971 building - Existing roof structure in the anticipated area is precast double tees. Saw cut new duct openings in tee flange, leaving the stem undamaged. Locate unit near bearing end to minimize shear and moment increases. Assume (2) opening for each unit.	EA	2	\$500.00		\$1,000.00	
			Existing roof structure in the anticipated area is open web steel joist "K" series. Joist spacing is approx. 4'-0" o.c. Existing joists have the additional capacity to support the unit. Provide channel for curb support and angle frame for duct penetrations (2 new).	LF	64	\$30.00	\$600.00	\$2,520.00	
	6	Support RTU-3; 4,500 lbs; 29'x4.5'	1994 addition - Remove existing RTU. New unit to be placed in same spot. Provide 4" concrete curb addition. Provide a single duct penetration.	SF	50	\$5.00	\$300.00	\$550.00	
	7	Support RTU-4; 13,000lbs; 40'x8.5'	1994 addition - Remove existing RTU. New unit to be placed in same spot. Provide 4" concrete curb. Provide a single duct penetration.	SF	96	\$5.00	\$300.00	\$780.00	
	8	Support RTU-5; 1500lbs; 7.5'x5.5' - 3 Locations	1994 addition - Remove existing RTU. New unit to be placed in same spot. Provide channel for new curb support. Reuse openings.	LF	48	\$30.00		\$1,440.00	
			1971 building - Remove existing RTU. New unit to be placed in same spot. Reuse openings.						
			1971 building - Existing roof structure in the anticipated area is precast double tees. Saw cut new duct openings in tee flange, leaving the stem undamaged. Locate unit close to bearing ends to eliminate the need for bending reinforcing of existing double tees. Assume (1) opening for each unit.	EA	3	\$500.00		\$1,500.00	
	9	Support RTU-6; 5000lbs; 29'x5'	1994 addition - Remove existing RTU. New unit to be placed in same spot. Provide 4" concrete curb addition. Provide a single duct penetration.	SF	50	\$5.00	\$300.00	\$550.00	
	10	Support RTU-7; 6000lbs; 31'x6'	1971 building - Existing roof structure in the anticipated area is precast double tees. Saw cut new duct openings in tee flange, leaving the stem undamaged. Locate unit close to bearing ends to eliminate the need for bending reinforcing of existing double tees. Assume (2) opening for each unit.	EA	2	\$500.00		\$1,000.00	
11	Support RTU-8; 2,500lbs; 8'x8'	1994 addition - Remove existing RTU. New unit to be placed in same spot. Provide channel for new curb support. Reuse openings.	LF	24	\$30.00		\$720.00		
		1971 building - Existing roof structure in the anticipated area is precast double tees. Saw cut new duct openings in tee flange, leaving the stem undamaged. Locate unit close to bearing ends to eliminate the need for bending reinforcing of existing double tees. Assume (1) opening for each unit.	EA	1	\$500.00		\$500.00		
S2	3	Remove Louvers so indoor AHU can be removed.	Replace non-load bearing CMU wall	SF	200	\$10.00		\$2,000.00	\$2,000.00
S3	13	Support RTU-4; 13,000lbs; 40'x8.5'	1971 building - Remove existing RTU. New unit to be placed in same spot. Modify existing structural curb to support new unit. Provide a single duct penetration.	LF	80	\$30.00	\$300.00	\$2,700.00	\$9,000.00
	14	Support ERV-1; 4,500lbs; 15'x5.5' - 2 locations	1971 building - Existing roof structure in the anticipated area is precast double tees. Saw cut new duct openings in tee flange, leaving the stem undamaged. Locate unit close to bearing ends to eliminate the need for bending reinforcing of existing double tees. Assume (1) opening for each unit.	EA	2	\$500.00		\$1,000.00	
	15	Support RTU-1; 7500lbs; 34'x6.5'	1971 building - Remove existing RTU. New unit to be placed in same spot. Modify existing structural curb to support new unit. Provide a single duct penetration.	LF	72	\$30.00	\$300.00	\$2,460.00	
	16	Support RTU-2; 5000lbs; 30'x5'	1971 building - Remove existing RTU. New unit to be placed in same spot. Modify existing structural curb to support new unit. Provide a single duct penetration.	LF	64	\$30.00	\$300.00	\$2,220.00	
S4	18	Support RTU-1a; 7500lbs; 22'x8'	Same as S1 item 4					\$18,780.00	\$30,000.00
	19	Support RTU-2a; 2500lbs; 7.5'x8'	Same as S1 item 5					\$3,520.00	
	20	Support RTU-3a; 7000lbs; 22'x8'	Same as S1 item 6					\$550.00	
	21	Support RTU-4a; 11500lbs; 32'x8'	Same as S1 item 7					\$780.00	
	8	Support RTU-5; 1500lbs; 7.5'x5.5' - 3 Locations	See S1					\$2,940.00	
	22	Support RTU-2a; 2500lbs; 7.5'x8'	Same as S1 item 9					\$550.00	
	23	Support RTU-3a; 7000lbs; 23'x8'	Same as S1 item 10					\$1,000.00	
11	Support RTU-8; 2,500lbs; 8'x8'	See S1					\$1,220.00		
		New chiller.		SF	200	\$25.00		\$5,000.00	
		New cooling tower.		SF	250	\$25.00		\$6,250.00	



Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	17	Support RTU-1, 7,500lbs.; 34x6.5 - 3 Locations	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end and load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	216	\$30.00	\$1,800.00	\$8,280.00	\$18,000.00
	18	Support RTU-2, 4,500lbs.; 29x4.5	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	64	\$30.00	\$600.00	\$2,520.00	
	19	Support RTU-3, 5,000lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (1) new opening through deck.	LF	64	\$30.00	\$600.00	\$2,520.00	
	20	Support RTU-4, 5,500lbs.; 30X5	Existing roof structure in the anticipated area is open web steel joist "10H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end and load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	64	\$30.00	\$600.00	\$2,520.00	
	21	Support RTU-5, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	16	\$30.00	\$600.00	\$1,080.00	
	22	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (1) new opening through deck.	LF	24	\$30.00	\$300.00	\$1,020.00	
S2	20	Support RTU-4, 5,500lbs.; 30X5	Existing roof structure in the anticipated area is open web steel joist "10H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end and load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	64	\$30.00	\$600.00	\$2,520.00	\$22,000.00
	21	Support RTU-5, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	16	\$30.00	\$600.00	\$1,080.00	
	22	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (1) new opening through deck.	LF	24	\$30.00	\$300.00	\$1,020.00	
	23	Support RTU-6, 5,000lbs.; 30x5	Existing roof structure in the anticipated area is open web steel joist "LH" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce joists for new unit (assume 8 joists). Assume (2) new opening through deck.	LF	280	\$45.00	\$2,400.00	\$15,000.00	
	24	Support CU-1. 2000lbs; 5x8 - 3 Locations	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end and load bearing wall. Provide new channels for curb support.	LF	48	\$30.00		\$1,440.00	
S3	25	Support RTU-1a, 7,500lbs.; 22x8 - 3 Locations	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end and load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	144	\$30.00	\$1,800.00	\$6,120.00	\$14,000.00
	26	Support RTU-2a, 2,500lbs.; 7.5x8	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	16	\$30.00	\$600.00	\$1,080.00	
	27	Support RTU-3a, 2,500lbs.; 7.5X8	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (1) new opening through deck.	LF	64	\$30.00	\$600.00	\$2,520.00	
	28	Support RTU-4a, 7,000lbs.; 22X8	Existing roof structure in the anticipated area is open web steel joist "10H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end and load bearing wall. Provide new channels for curb support. Assume (2) new opening through deck.	LF	48	\$30.00	\$600.00	\$2,040.00	
	21	Support RTU-5, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	16	\$30.00	\$600.00	\$1,080.00	
	22	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "16H" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (1) new opening through deck.	LF	24	\$30.00	\$300.00	\$1,020.00	
		New cooling tower		SF	150	\$25.00		\$3,750.00	
		New chiller.		SF	150	\$25.00		\$3,750.00	

School: Stove Prairie

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	1	Opening for 24" sq. louver though wall	Provide new steel angle header.	EA	1	\$500.00		\$500.00	\$2,000.00
	2	Opening for 24" intake hood on roof	Frame out new opening in existing framing. Assumed to be wood framed structure.	EA	4	\$200.00		\$800.00	
S2	4	24" curb and opening for exhaust fan on roof	Provide new wood curb and frame new opening	EA	5	\$200.00		\$1,000.00	\$1,000.00
S3	4	24" curb and opening for exhaust fan on roof	Provide new wood curb and frame new opening	EA	5	\$200.00		\$1,000.00	\$2,000.00
	5	Curb for new exhaust fan 18"x18"	Provide new wood curb and frame new opening	EA	1	\$200.00		\$200.00	

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	13	Support RTU-1, 10,000lbs.; 38x8	Remove existing RTU and place new unit on existing frame. Modify existing platform to support larger unit. Assume (1) additional opening.	EA	1	\$4,000.00	\$300.00	\$4,300.00	\$32,000.00
	14	Support RTU-2, 7,500lbs.; 34x6.5	Remove existing RTU and place new unit on existing frame. Modify existing platform to support larger unit. Assume (1) additional opening.	EA	1	\$4,000.00	\$300.00	\$4,300.00	
	15	Support RTU-3, 10,000lbs.; 38x8	Remove existing RTU and place new unit on existing frame. Modify existing platform to support larger unit. Assume (1) additional opening.	EA	1	\$4,000.00	\$300.00	\$4,300.00	
	16	Support RTU-4, 5,000lbs.; 30X5	Existing roof structure in the anticipated area is open web steel joist "LH" series . Existing joist spacing is approx. 4'-0" o.c. Assume reinforce 8 additional joists. Provide new channels for curb support. Assume (2) new opening through deck.	LF	320	\$45.00	\$600.00	\$15,000.00	
	17	Support RTU-5, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "H" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	16	\$30.00	\$300.00	\$780.00	
	18	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end to minimize joist reinforcing. Reinforce joists partial length for new loads. Provide new channels for curb support. Assume (2) new opening through deck.	LF	32	\$45.00	\$1,320.00	\$2,760.00	
S2	19	Support CU-1, 2,00lbs.; 8X5 - 3 locations	Provide mechanical platform support off existing load bearing walls.	SF	150	\$35.00		\$5,250.00	\$24,000.00
	16	Support RTU-4, 5,000lbs.; 30X5	Existing roof structure in the anticipated area is open web steel joist "LH" series . Existing joist spacing is approx. 4'-0" o.c. Assume reinforce 8 additional joists. Provide new channels for curb support. Assume (2) new opening through deck.	LF	320	\$45.00	\$600.00	\$15,000.00	
	17	Support RTU-5, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "H" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	16	\$30.00	\$300.00	\$780.00	
	18	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end to minimize joist reinforcing. Reinforce joists partial length for new loads. Provide new channels for curb support. Assume (2) new opening through deck.	LF	32	\$45.00	\$1,320.00	\$2,760.00	
S3	20	Support RTU-1a, 8,500lbs.; 27x8	Remove existing RTU and place new unit on existing frame. Modify existing platform to support larger unit. Assume (1) additional opening.	EA	1	\$4,000.00	\$300.00	\$4,300.00	\$22,000.00
	21	Support RTU-2a, 7,500lbs.; 23x8	Remove existing RTU and place new unit on existing frame. Modify existing platform to support larger unit. Assume (1) additional opening.	EA	1	\$4,000.00	\$300.00	\$4,300.00	
	22	Support RTU-3a, 8,500lbs.; 27X8	Remove existing RTU and place new unit on existing frame. Modify existing platform to support larger unit. Assume (1) additional opening.	EA	1	\$4,000.00	\$300.00	\$4,300.00	
	23	Support RTU-4a, 2,500lbs.; 7.5X8	Existing roof structure in the anticipated area is open web steel joist "LH" series . Existing joist spacing is approx. 4'-0" o.c. Assume reinforce 3 additional joists. Provide new channels for curb support. Assume (2) new opening through deck.	LF	100	\$45.00	\$600.00	\$5,100.00	
	17	Support RTU-5, 1,500lbs.; 5.5x7.5	Existing roof structure in the anticipated area is open web steel joist "H" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	16	\$30.00	\$300.00	\$780.00	
	18	Support MAU-1, 1,500lbs.; 3x11.5	Existing roof structure in the anticipated area is open web steel joist "H" series . Existing joist spacing is approx. 4'-0" o.c. Locate new unit near joist end to minimize joist reinforcing. Reinforce joists partial length for new loads. Provide new channels for curb support. Assume (2) new opening through deck.	LF	32	\$45.00	\$1,320.00	\$2,760.00	

School: Timnath

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	4	Support for RTU-1; 5000lbs	Existing roof structure in the anticipated area is open web steel joists. Reinforce reinforce joists ends for shear. Ducts to go through existing opening. Channel laying flat for curb support.	LF	40	\$30.00	\$1,800.00	\$3,000.00	<b>\$3,000.00</b>
		New chiller.	Reinforced concrete pad foundation with turn down edges. (15x10)	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Reinforced concrete pad foundation with turn down edges. (15x6)	SF	100	\$25.00		\$2,500.00	

School: Traut

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	3	Support RTU-1; 1500lbs; 5'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Reinforce existing joist webs and chords for the additional load (partial length) for additional shear load. Locate unit near load bearing wall. Provide angle frame at duct penetrations and channels for curb support.	LF	24	\$45.00	\$780.00	\$1,860.00	\$2,000.00
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	

Totals  
S1 \$1,860.00

School: Webber

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	12	Support RTU-1; 1500lbs; 6'x7'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 5'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	12	\$30.00	\$300.00	\$660.00	\$1,000.00
		New chiller.	Concrete pad.	SF	250	\$25.00		\$6,250.00	
		New cooling tower.	Concrete pad.	SF	300	\$25.00		\$7,500.00	



School: Werner

Item	Section	Description	Structural Requirements	UNITS	QUANTITY	COST/UNIT	ADDITIONAL FRAMING	TOTAL	SUMS
S1	12	Support RTU-1; 1000lbs; 37'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	80	\$30.00	\$300.00	\$2,700.00	\$9,000.00
	13	Support RTU-1; 1000lbs; 37'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	80	\$30.00	\$300.00	\$2,700.00	
	14	Support RTU-3; 5000lbs; 29'x5	Existing roof structure in the anticipated area is open web steel joist "24K7" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	60	\$30.00	\$600.00	\$2,400.00	
	15	Support RTU-4; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$300.00	\$1,020.00	
S2	16	Support CU-1; 2000lbs; 6'x9'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit as close as possible to the joist end. Provide new channels for curb support. .	LF	24	\$30.00		\$720.00	\$3,000.00
	16	Support CU-1; 2000lbs; 6'x9'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit as close as possible to the joist end. Provide new channels for curb support.	LF	24	\$30.00		\$720.00	
	17	Support CU-2; 2000lbs; 6'x9'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit as close as possible to the joist end. Provide new channels for curb support.	LF	24	\$30.00		\$720.00	
S3	19	Support RTU-1A; 8500lbs; 27'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	56	\$30.00	\$300.00	\$1,980.00	\$7,000.00
	20	Support RTU-1A; 8500lbs; 27'x8'	Existing roof structure in the anticipated area is open web steel joist "K" series . Existing joist spacing is approx. 4'-0" o.c. Remove existing RTU and place new unit in same spot. Provide new channels for curb support. Assume (1) new opening through deck.	LF	56	\$30.00	\$300.00	\$1,980.00	
	21	Support RTU-3A; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$600.00	\$1,320.00	
	15	Support RTU-4; 2500lbs; 8'x8'	Existing roof structure in the anticipated area is open web steel joist "24K" series . Existing joist spacing is approx. 4'-0" o.c. Existing joists appear to have the capacity to support new equipment. Locate new unit near joist end. Provide new channels for curb support. Assume (2) new opening through deck.	LF	24	\$30.00	\$600.00	\$1,320.00	
		New chiller.	Concrete pad.	SF	150	\$25.00		\$3,750.00	
		New cooling tower.	Concrete pad.	SF	100	\$25.00		\$2,500.00	



ITEM	UNITS	COST
ANGLE FRAME FOR NEW OPENINGS THROUGH METAL DECK (6' OPENINGS)	EACH	\$700
2X WOOD FRAMED OPENING THROUGH PLYWOOD DECK	EACH	\$200
STEEL JOIST REINFORCING (CHORDS, WEBS, ENDS)	LF	\$45
FRAMING ABOVE THE METAL ROOF DECK TO TRANSFER LOADS	LF	\$30
FOUNDATION/SLAB FOR CHILLER/COOLING TOWER	SF	\$25
MODIFY EXISTING MECHANIC STRUCTURE	EACH	\$4,000
MECHANICAL PLATFORM ABOVE ROOF	SF	\$35
STEEL REINFORCING CHANNEL JOIST UNDER RTU AT EXISTING 2X WOOD JOISTS	LF	\$30
REINFORCE STEEL BEAM	LF	\$25
STEEL ANGLE CURB/DECK SUPPORT	LF	\$30
ANGLE FRAME FOR NEW OPENINGS THROUGH METAL DECK (2' OPENINGS)	EACH	\$300
SAW CUT NEW DUCT OPENING THROUGH CONCRETE (4' square)	EACH	\$500
NEW ROOF JOISTS AND DECKING	SF	\$20
SAW CUT NEW DUCT OPENING THROUGH CONCRETE (2' square)	EACH	\$150
SMALL PLATFORM FOR DX UNITS - CLP	EACH	\$4,000
REPLACE CMU WALL	SF	\$10
4" SLAB ON DECK FOR CURB	SF	\$5
MEZZANINE - COMPOSITE SLAB	SF	\$30

TYPICAL PLATFORM LBS STEEL

Beams	3000
Posts	350
Braces	1000
Beam rein:	150
Frame sq. f	380