Town of Fairfield, CT

April 27, 2022

Agenda

I. Performance review
II. Economic outlook
III. Fund pages

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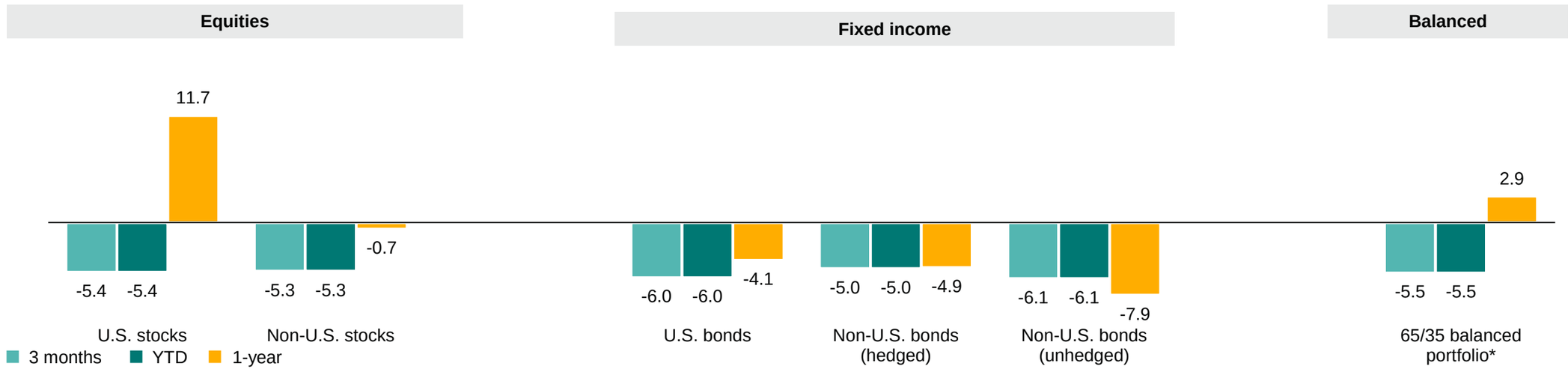
Slide ID #: S058559

Performance review

Geopolitical risk and its ripples come to the fore

- Weeks after becoming the focus of geopolitical attention, tensions intensified in February as Russian forces invaded Ukraine, with the West responding through a barrage of new sanctions on Russia.
- Across all sectors of the market, the first quarter saw large swings in volatility sparked by interest rate rises and the war in Ukraine.
- The Fed approved the first .25% interest rate rise since 2018, while outlining a path for aggressive rate hikes in the coming year.

Global market returns as of March 31, 2021 (%)

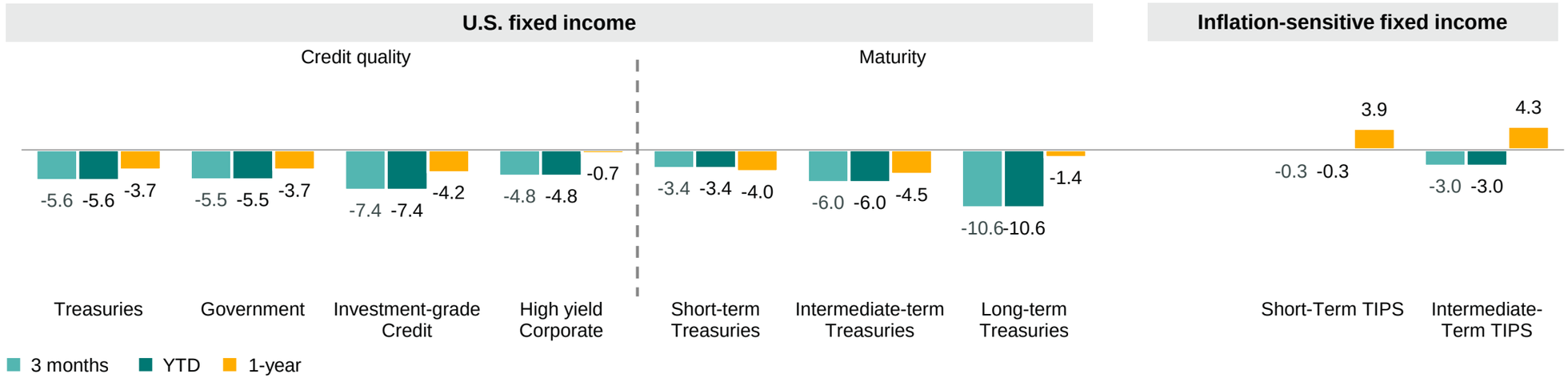


Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.
Sources: Bloomberg, CRSP, and FTSE.
U.S. stocks (CRSP U.S. Total Market Index), non-U.S. stocks (FTSE Global All-Cap ex-U.S. Index), U.S. bonds (Bloomberg U.S. Aggregate Float Adjusted Index), non-U.S. bonds hedged (Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index hedged), non-U.S. bonds unhedged (Bloomberg Global Aggregate Index ex USD).
* 65/35 balanced portfolio Static Composite (39% U.S. stocks, 26% international stocks, and 24.5% investment-grade U.S. bonds, 10.5% investment-grade international bonds).

Inflation continues to be top of mind for investor

- Data released in March showed U.S. inflation continued to climb upward and hit another four-decade high in February, climbing to a 7.9% annual rate, marking its highest level since January 1982.
- The Commerce Department reported in March that U.S. consumer spending fell 0.4% from the prior month as individuals decreased spending in response to continued inflationary pressure.
- Two-year treasuries climbed to their highest point since 2019, while the gap between 2 and 10-year bond yields remained inverted.

Domestic fixed income market returns as of March 31, 2021 (%)

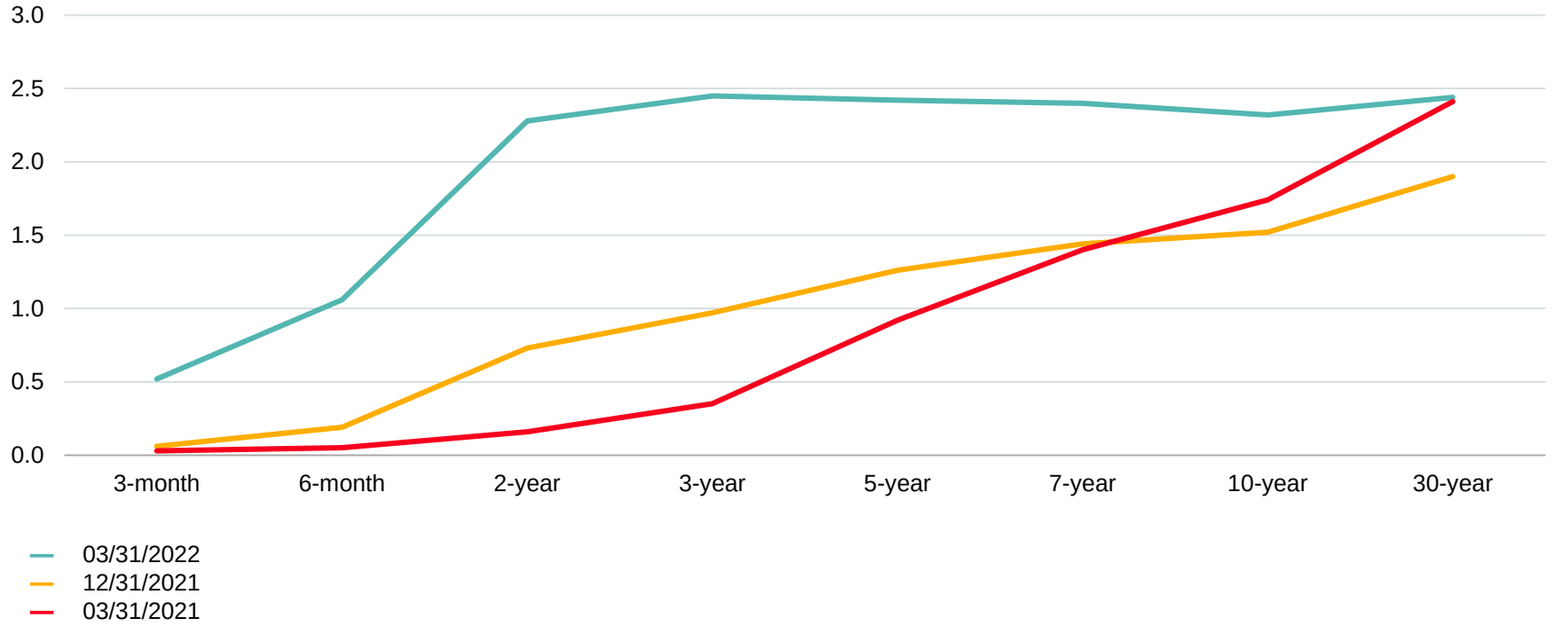


Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.
Source: Bloomberg.
Treasuries, government, investment-grade credit; high-yield (Bloomberg U.S. Treasury/Government/Credit/Corporate High-Yield Indices); short-inter-long-term Treasuries (Bloomberg U.S. 1–5/5–10/Long Treasury Indices); short-term TIPS (Bloomberg U.S. Treasury 0–5 Year Inflation-Protected Index); intermediate-term TIPS (Bloomberg U.S. Treasury Inflation-Protected Index).

Slide ID #: S056799 Tracking #: 2126174 Expiration date: 10/20/2023

U. S. Treasury yield curve– Yields rise for maturities six months and greater

Yield (%) and change (bps)	3-month	6-month	2-year	3-year	5-year	7-year	10-year	30-year
Current yield (%)	0.52	1.06	2.28	2.45	2.42	2.40	2.32	2.44
3 mo. Δ	46	87	155	148	116	96	80	54
12 mo. Δ	49	101	212	210	150	100	58	3

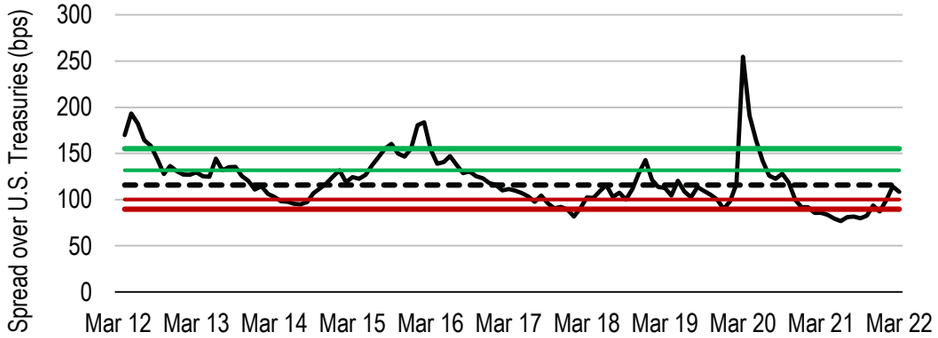


Source: Morningstar.

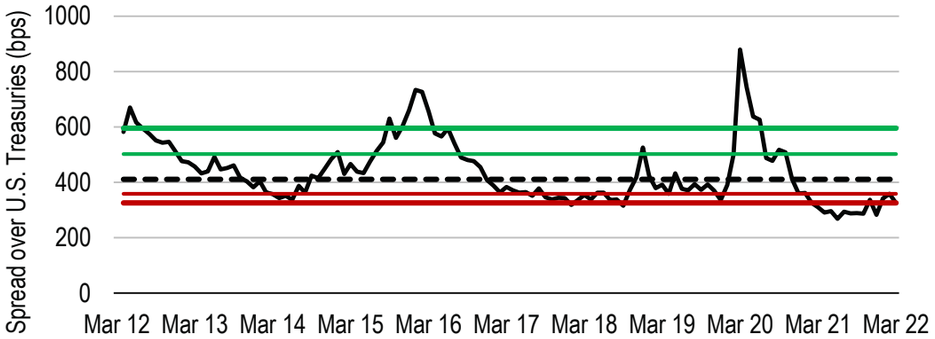
Credit spread environment – March 2022

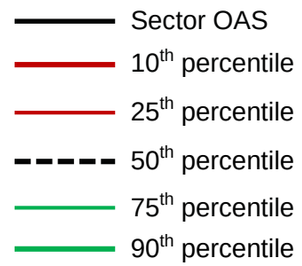
Market Index	U.S. Credit	U.S. Credit Aaa	U.S. Credit Aa	U.S. Credit A	U.S. Credit Baa	U.S. Corporate High Yield	Sovereign EM	U.S. Securitized
Current spread	108	19	67	94	142	325	340	28
Long run average	120	24	74	103	166	439	325	39
Bps off average	–12	–5	–8	–9	–24	–114	16	–11
Long run percentile (%)	37	28	40	40	29	9	66	22
Off minimum	32	7	20	31	39	57	99	17

U.S Credit

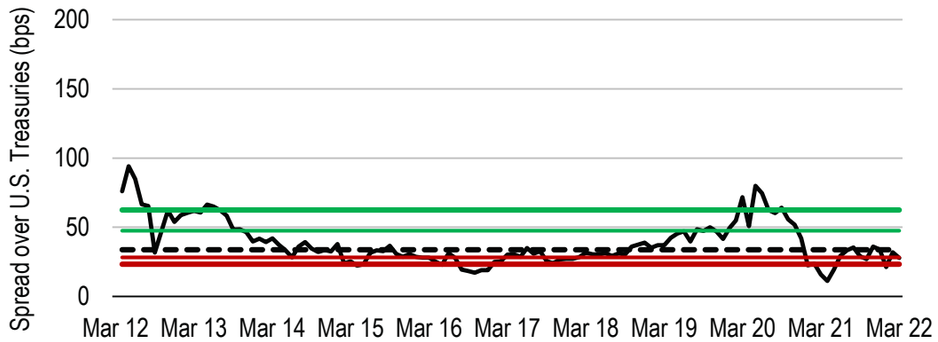


U.S. Corporate High Yield

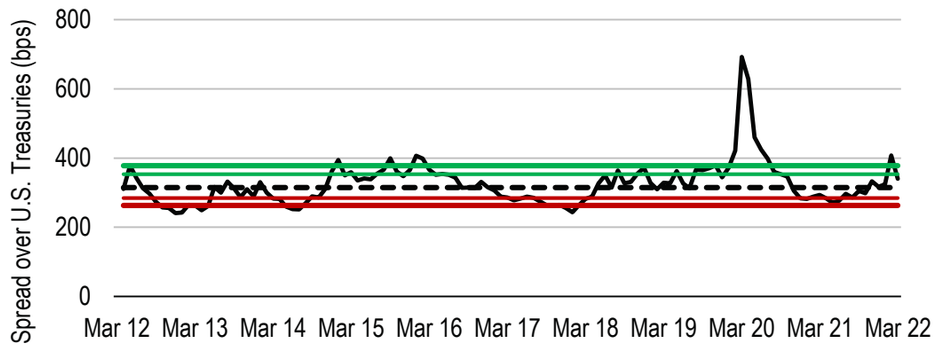




U.S. Securitized



Sovereign Emerging Markets (USD)



Source: Bloomberg, Vanguard calculations as of March 31, 2022.
Spread over Treasuries is measured using option adjusted spread over U.S. Treasuries. Percentile ranks are calculated using the range of option adjust spreads at each month-end over the last 10 years as of March 31, 2022.

Indexing is a powerful approach: 2021 SPIVA® U.S. Scorecard

Percentage of U.S. equity funds underperforming their benchmarks						
Fund category	**Comparison index**	**1-year (%)**	**3-year (%)**	**5-year (%)**	**10-year (%)**	**20-year (%)**
All large-cap funds	S&P 500	85.1	67.9	74.1	83.1	94.1
All mid-cap funds	S&P MidCap 400	61.9	52.9	59.2	72.5	91.7
All small-cap funds	S&P SmallCap 600	70.5	51.5	63.3	79.2	93.4
Percentage of international equity funds underperforming their benchmarks						
Fund category	**Comparison index**	**1-year (%)**	**3-year (%)**	**5-year (%)**	**10-year (%)**	**20-year (%)**
Global funds	S&P Global 1200	84.1	65.6	69.2	84.8	85.3
International funds	S&P 700	49.7	60.2	68.9	78.1	90.4
International small cap funds	S&P Developed Ex US Small Cap	31.1	55.4	57.7	60.4	87.9
Emerging markets funds	S&P/IFCI Composite	64.6	56.3	74.7	79.8	93.4
Percentage of fixed income funds underperforming their benchmarks						
Fund category	**Comparison index**	**1-year (%)**	**3-year (%)**	**5-year (%)**	**10-year (%)**	**15-year (%)**
Investment-grade long funds	Barclays US Government/Credit Long	9.4	95.2	96.7	98.3	97.1
Investment-grade intermediate funds	Barclays US Government/Credit Intermediate	36.7	36.2	44.8	49.2	67.0
Investment-grade short funds	Barclays US Government/Credit (1-3 Year)	23.3	38.8	39.4	36.8	76.1
High-yield funds	Barclays US Corporate High Yield	64.3	84.9	91.1	94.2	98.6
Global income funds	Barclays Global Aggregate	41.8	45.2	66.4	55.1	64.6
Emerging markets debt funds (hedged)	Barclays Emerging Markets	79.7	70.9	84.1	97.9	94.7

Lowest (%) of benchmark outperformance

Highest (%) of benchmark outperformance

Source: S&P Dow Jones Indices 2021 SPIVA® U.S. Scorecard. Data as of 12/31/2021.

Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

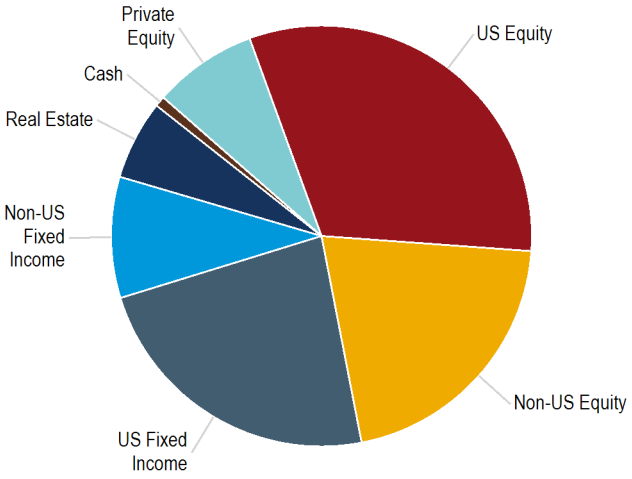
Total Portfolio Performance & Asset Allocation

Performance Summary ending March 31, 2022

	Market Value ($)	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Town of Fairfield Pension (Net)	**465,113,860**	**1.01**	**-4.01**	**0.62**	**6.90**	**9.33**	**8.14**	**7.47**	**17.47**	**Mar-20**
Composite Benchmark		1.10	-4.03	-0.65	4.26	9.16	8.11	7.32	15.70	Mar-20

- Composite Benchmark = 33% Russell 3000 / 22% MSCI ACWI ex USA / 25% Bloomberg US Aggregate TR / 10% Bloomberg Global Aggregate Hedged TR / 5% NCREIF-ODCE QUARTER LAG / 5% Russell 3000 Index + 3% Quarter LagQE

Current Allocation as of March 31, 2022



	Current $	Current %	Policy	Difference*
US Equity	$147,504,630	31.7%	33.0%	-1.3%
Non-US Equity	$96,866,319	20.8%	22.0%	-1.2%
US Fixed Income	$108,365,090	23.3%	25.0%	-1.7%
Non-US Fixed Income	$43,475,251	9.3%	10.0%	-0.7%
Real Estate	$28,209,391	6.1%	5.0%	1.1%
Cash	$3,535,219	0.8%	--	0.8%
Private Equity **	$37,157,960	8.0%	5.0%	3.0%
Total	**$465,113,860**	**100.0%**	**100.0%**	

*Difference between Policy and Current Allocation

* Private Equity target is 10%

Net of Fee returns reflect the deduction of fund expense ratios, any purchase or redemption fees, and VIAS advisory fee applied to the client portfolio.
Returns greater than one year represent annualized returns. Returns less than one year represent cumulative returns.

Performance Summary (Net) ending March 31, 2022

	Market Value ($)	% of Portfolio	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Town of Fairfield Pension	**465,113,860**	**100.00**	**1.01**	**-4.01**	**0.62**	**6.90**	**9.33**	**8.14**	**7.47**	**17.47**	**Mar-20**
Composite Benchmark			1.10	-4.03	-0.65	4.26	9.16	8.11	7.32	15.70	Mar-20
Total Equity	**244,370,949**	**52.54**	**1.79**	**-5.69**	**-0.95**	**6.18**	**11.35**	**9.87**	**9.84**	**30.35**	**Mar-20**
Equity Domestic	**147,504,630**	**31.71**	**3.24**	**-5.45**	**3.14**	**11.69**	**13.21**	**11.60**	**--**	**34.91**	**Mar-20**
Russell 3000			3.24	-5.28	3.40	11.92	18.24	15.40	14.28	34.87	Mar-20
Vanguard® Total Stock Market Index Institutional Plus Shares	147,504,630	31.71	3.24	-5.45	3.14	11.69	18.17	15.38	--	25.54	Jun-20
CRSP US Total Market TR USD			3.25	-5.44	3.16	11.71	18.17	15.38	14.26	25.55	Jun-20
Equity International	**96,866,319**	**20.83**	**-0.38**	**-6.07**	**-6.95**	**-1.80**	**8.39**	**7.35**	**6.59**	**23.78**	**Mar-20**
MSCI AC World ex-US Total Return Index			0.16	-5.44	-6.60	-1.48	7.51	6.76	5.55	21.32	Mar-20
Vanguard® Total International Stock Index Institutional Plus Shares	96,866,319	20.83	-0.38	-6.07	-6.95	-1.80	7.80	6.82	5.84	1.88	Jan-21
Spliced Total International Stock Index			0.35	-5.30	-6.05	-0.72	8.21	7.08	5.97	2.48	Jan-21
Total Fixed Income	**151,840,341**	**32.65**	**-2.66**	**-5.70**	**-5.72**	**-4.22**	**0.89**	**1.62**	**2.17**	**-1.55**	**Mar-20**
Fixed Income Domestic	**108,365,090**	**23.30**	**-2.81**	**-5.98**	**-5.95**	**-4.07**	**1.57**	**1.98**	**2.26**	**-2.62**	**Mar-20**
Spliced Bloomberg Barclays US Aggregate Float Adjusted Index			-2.79	-6.01	-5.92	-4.08	1.75	2.19	2.27	-1.71	Mar-20
Vanguard® Total Bond Market Index Fund Institutional Plus Shares	108,365,090	23.30	-2.81	-5.98	-5.95	-4.07	1.71	2.14	2.22	-6.07	Dec-20
Spliced Bloomberg Barclays US Aggregate Float Adjusted Index			-2.79	-6.01	-5.92	-4.08	1.75	2.19	2.27	-6.04	Dec-20
Fixed Income International	**43,475,251**	**9.35**	**-2.26**	**-4.98**	**-5.13**	**-4.59**	**--**	**--**	**--**	**-2.75**	**Jun-20**
Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged			-2.09	-5.04	-5.17	-4.93	0.68	2.17	--	-2.91	Jun-20
Vanguard® Total International Bond Index Fund Institutional Shares	43,475,251	9.35	-2.26	-4.98	-5.13	-4.59	0.67	2.10	--	-2.75	Jun-20
Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged			-2.09	-5.04	-5.17	-4.93	0.68	2.17	--	-2.91	Jun-20
Private Equity	**37,157,960**	**7.99**	**4.51**	**4.51**	**28.99**	**57.65**	**37.56**	**29.66**	**20.02**	**47.41**	**Mar-20**
Russell 3000 Index + 3% Quarter LagQE			10.06	10.06	13.77	21.87	26.95	20.02	19.04	23.16	Mar-20

Performance Summary (Net) ending March 31, 2022

	Market Value ($)	% of Portfolio	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Mesirow Financial Private Equity Partnership Fund VI	23,439,910	5.04	3.77	3.77	33.52	60.25	44.71	33.64	--	52.64	Mar-20
Russell 3000 Index + 3% Quarter LagQE			10.06	10.06	13.77	21.87	26.95	20.02	19.04	23.16	Mar-20
Lexington Middle Market Investment Fund III	5,379,340	1.16	5.93	5.93	23.18	57.87	25.73	23.29	--	39.67	Mar-20
Russell 3000 Index + 3% Quarter LagQE			10.06	10.06	13.77	21.87	26.95	20.02	19.04	23.16	Mar-20
Mesirow Financial Private Equity Fund VII-A	4,668,170	1.00	4.29	4.29	28.03	44.10	24.54	--	--	37.35	Mar-20
Russell 3000 Index + 3% Quarter LagQE			10.06	10.06	13.77	21.87	26.95	20.02	19.04	23.16	Mar-20
Lexington Middle Market Investment Fund IV	2,304,803	0.50	7.51	7.51	8.67	56.32	18.84	--	--	31.31	Mar-20
Russell 3000 Index + 3% Quarter LagQE			10.06	10.06	13.77	21.87	26.95	20.02	19.04	23.16	Mar-20
Lexington Middle Market Investment Fund II	1,215,737	0.26	8.47	8.47	17.04	59.23	32.76	27.17	20.01	42.40	Mar-20
Russell 3000 Index + 3% Quarter LagQE			10.06	10.06	13.77	21.87	26.95	20.02	19.04	23.16	Mar-20
HarbourVest 2021 Private Equity Feeder Fund LP	150,000	0.03	0.00	0.00	--	--	--	--	--	0.00	Nov-21
Real Estate	**28,209,391**	**6.07**	**10.46**	**10.46**	**21.86**	**25.98**	**10.71**	**10.13**	**--**	**12.69**	**Mar-20**
NCREIF-ODCE QUARTER LAG			7.97	7.97	19.65	22.17	9.20	8.71	10.45	11.19	Mar-20
Principal Enhanced Property Fund, L.P	28,209,391	6.07	10.46	10.46	21.86	25.98	10.71	10.19	--	12.69	Mar-20
NCREIF-ODCE QUARTER LAG			7.97	7.97	19.65	22.17	9.20	8.71	10.45	11.19	Mar-20
NCREIF NFI-ODCE Equal Weight Quarter Lag			7.70	7.70	20.24	22.95	9.79	9.08	10.63	11.73	Mar-20
Total Short Term Reserves	**3,535,219**	**0.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.64**	**0.95**	**0.39**	**0.05**	**Mar-20**
91 Day T-Bills			0.03	0.04	0.07	0.06	0.66	1.06	0.59	0.07	Mar-20
Cash- Town Employees	1,588,702	0.34	0.00	0.00	0.00	0.00	0.60	0.92	0.53	0.03	Mar-20
91 Day T-Bills			0.03	0.04	0.07	0.06	0.66	1.06	0.59	0.07	Mar-20
Cash- Fire and Police	1,408,880	0.30	0.00	0.00	0.00	0.00	0.58	0.90	0.53	0.00	Mar-20
91 Day T-Bills			0.03	0.04	0.07	0.06	0.66	1.06	0.59	0.07	Mar-20
Cash	537,637	0.12	0.00	0.00	0.01	0.01	0.72	1.00	-0.11	0.10	Mar-20
91 Day T-Bills			0.03	0.04	0.07	0.06	0.66	1.06	0.59	0.07	Mar-20

Portfolio Non-Marketable Strategies as of December 31, 2021

Town of Fairfield

Alternative Strategies

Investment	Investment Type	Commitment Year	Capital Committed	Capital Contributed	% Funded	Remaining Commitment	Returned Capital	Market Value	Net Growth of Portfolio	DPI Multiple	TVPI Multiple	IRR	Valuation Date
Mesirow VI	Private Equity	2012	15,000,000.00	12,975,000.00	86.5%	2,025,000.00	10,795,867.00	23,551,574.00	21,372,441.00	0.8	2.8	26.7%	**9/30/2021**
Mesirow VII-A	Private Equity	2017	4,000,000.00	2,600,000.00	65.0%	1,400,000.00	60,000.00	3,410,392.00	870,392.00	0.0	1.7	32.9%	**9/30/2021**
Lexington II	Private Equity	2009	5,000,000.00	4,886,862.00	97.7%	113,138.00	7,683,902.00	1,406,012.00	4,203,052.00	1.6	1.9	15.5%	**9/30/2021**
Lexington III	Private Equity	2013	10,000,000.00	8,172,272.00	81.7%	1,827,728.00	8,682,041.00	5,239,593.00	5,749,362.00	1.1	1.7	19.6%	**9/30/2021**
Lexington IV	Private Equity	2017	3,000,000.00	1,634,436.00	54.5%	1,365,564.00	435,946.00	1,780,259.00	581,769.00	0.3	1.4	39.7%	**9/30/2021**
HarbourVest	Private Equity	2021	30,000,000.00	150,000.00	0.5%	29,850,000.00	-	150,000.00	-	0.0	0.0	0.0%	
Total Portfolio			**$ 67,000,000.00**	**$ 30,418,570.00**	**45.4%**			**$35,537,830.00**	**$ 32,777,016.00**				

Market values are reported in arrears as of the most recent valuation date.

Capital Contributed = Capital Calls + Recallable Capital + Expenses
% Funded = Capital Contributed / Capital Committed
Remaining Commitment = Capital Commitment - Capital Contributed
Returned Capital = sum of all distributions
Market Value = ending market value
Net Growth of Portfolio = Market Value - Capital Contribution + Returned Capital
DPI Multiple = Distributions-to-Paid-in-Capital is a measure of realized returns; equals Returned Capital / Capital Contributions
TVPI Multiple = Total Value-to- Paid-in-Capital is a measure of total returns; equals (Market Value + Returned Capital) / Capital Contributions
IRR = Internal Rate of Return is calculated from inception to valuation date

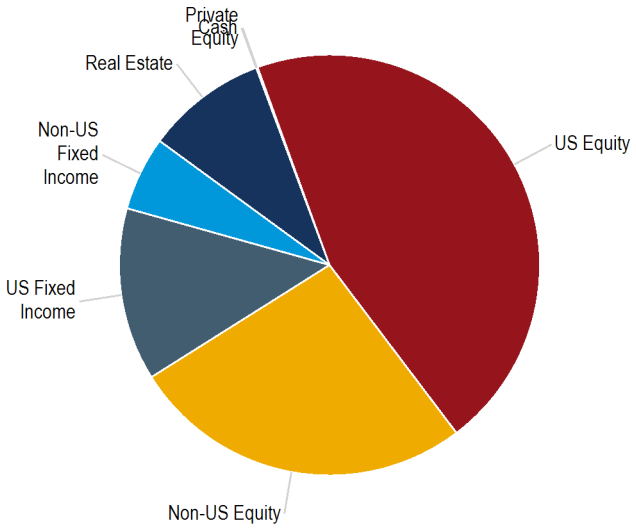
Total Portfolio Performance & Asset Allocation

Performance Summary ending March 31, 2022

	Market Value ($)	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Town of Fairfield OPEB (Net)	**76,208,337**	**1.76**	**-4.31**	**0.04**	**5.91**	**11.40**	**9.53**	**7.56**	**21.91**	**Mar-20**
Composite Benchmark		1.75	-3.98	0.54	5.99	11.17	9.61	7.69	21.12	Mar-20

- Composite Benchmark = 42% Russell 3000 / 28% MSCI ACWI ex USA / 20% Bloomberg Barclays Global Aggregate Index Hedged USD / 10% NCREIF NFI-ODCE Equal Weight Quarter Lag

Current Allocation as of March 31, 2022



	Current $	Current %	Policy	Difference*
US Equity	$34,494,899	45.3%	42.0%	3.3%
Non-US Equity	$20,117,728	26.4%	28.0%	-1.6%
US Fixed Income	$10,101,636	13.3%	14.0%	-0.7%
Non-US Fixed Income	$4,364,780	5.7%	6.0%	-0.3%
Real Estate	$7,077,566	9.3%	10.0%	-0.7%
Cash	$11,728	0.0%	--	0.0%
Private Equity **	$40,000	0.1%	--	0.1%
Total	**$76,208,337**	**100.0%**	**100.0%**	

*Difference between Policy and Current Allocation

** Private Equity target is 10%

Net of Fee returns reflect the deduction of fund expense ratios, any purchase or redemption fees, and VIAS advisory fee applied to the client portfolio.
Returns greater than one year represent annualized returns. Returns less than one year represent cumulative returns.

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Composite Benchmark			1.75	-3.98	0.54	5.99	11.17	9.61	7.69	21.12	Mar-20
Total Equity	**54,612,627**	**71.66**	**1.87**	**-5.68**	**-0.81**	**6.35**	**14.07**	**12.02**	**--**	**30.00**	**Mar-20**
Equity Domestic	**34,494,899**	**45.26**	**3.24**	**-5.45**	**3.14**	**11.69**	**18.17**	**15.37**	**--**	**34.82**	**Mar-20**
Russell 3000			3.24	-5.28	3.40	11.92	18.24	15.40	14.28	34.87	Mar-20
Vanguard® Total Stock Market Index Institutional Plus Shares	34,494,899	45.26	3.24	-5.45	3.14	11.69	18.17	15.38	--	25.54	Jun-20
Spliced Total Stock Market Index			3.25	-5.44	3.16	11.71	18.17	15.38	14.26	25.55	Jun-20
Multi-Cap Core Funds Average			2.51	-5.85	1.51	9.04	15.30	12.51	11.72	23.21	Jun-20
Equity International	**20,117,728**	**26.40**	**-0.38**	**-6.07**	**-6.95**	**-1.80**	**7.79**	**6.81**	**--**	**22.50**	**Mar-20**
MSCI AC World ex-US Total Return Index			0.16	-5.44	-6.60	-1.48	7.51	6.76	5.55	21.32	Mar-20
Vanguard® Total International Stock Index Institutional Plus Shares	20,117,728	26.40	-0.38	-6.07	-6.95	-1.80	7.80	6.82	5.84	1.88	Jan-21
Spliced Total International Stock Index			0.35	-5.30	-6.05	-0.72	8.21	7.08	5.97	2.48	Jan-21
International Funds Average			-0.61	-8.31	-7.95	-2.94	7.71	6.53	5.79	1.09	Jan-21
Total Fixed Income	**14,466,416**	**18.98**	**-2.65**	**-5.68**	**-5.71**	**-4.22**	**1.80**	**1.74**	**--**	**2.09**	**Mar-20**
Fixed Income Domestic	**10,101,636**	**13.26**	**-2.81**	**-5.98**	**-5.95**	**-4.07**	**--**	**--**	**--**	**-3.97**	**Jan-21**
Spliced Bloomberg Barclays US Aggregate Float Adjusted Index			-2.79	-6.01	-5.92	-4.08	1.75	2.19	2.27	-5.82	Jan-21
Vanguard® Total Bond Market Index Fund Institutional Plus Shares	10,101,636	13.26	-2.81	-5.98	-5.95	-4.07	1.71	2.14	2.22	-5.86	Jan-21
Spliced Bloomberg Barclays US Aggregate Float Adjusted Index			-2.79	-6.01	-5.92	-4.08	1.75	2.19	2.27	-5.82	Jan-21
Fixed Income International	**4,364,780**	**5.73**	**-2.26**	**-4.98**	**-5.13**	**-4.59**	**--**	**--**	**--**	**-3.79**	**Jan-21**
Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged			-2.09	-5.04	-5.17	-4.93	0.68	2.17	--	-5.68	Jan-21
Vanguard® Total International Bond Index Fund Institutional Shares	4,364,780	5.73	-2.26	-4.98	-5.13	-4.87	0.57	2.04	--	-5.72	Jan-21
Bloomberg Barclays Global Aggregate ex-USD Float Adjusted RIC Capped Hedged			-2.09	-5.04	-5.17	-4.93	0.68	2.17	--	-5.68	Jan-21

Performance Summary (Net) ending March 31, 2022

	Market Value ($)	% of Portfolio	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Private Equity	**40,000**	**0.05**	**0.00**	**0.00**	**--**	**--**	**--**	**--**	**--**	**0.00**	**Nov-21**
HarbourVest 2021 Private Equity Feeder Fund LP	**40,000**	**0.05**	**0.00**	**0.00**	**--**	**--**	**--**	**--**	**--**	**0.00**	**Nov-21**
HarbourVest 2021 Private Equity Feeder Fund LP - Fire and Police	20,000	0.03	0.00	0.00	--	--	--	--	--	0.00	Nov-21
HarbourVest 2021 Private Equity Feeder Fund LP - Town Employees	20,000	0.03	0.00	0.00	--	--	--	--	--	0.00	Nov-21
Real Estate	**7,077,566**	**9.29**	**10.46**	**10.46**	**21.86**	**25.98**	**--**	**--**	**--**	**12.69**	**Mar-20**
NCREIF-ODCE QUARTER LAG			7.97	7.97	19.65	22.17	9.20	8.71	10.45	11.19	Mar-20
Principal Enhanced Property Fund, L.P	7,077,566	9.29	10.46	10.46	21.86	25.98	--	--	--	12.69	Mar-20
NCREIF-ODCE QUARTER LAG			7.97	7.97	19.65	22.17	9.20	8.71	10.45	11.19	Mar-20
NCREIF NFI-ODCE Equal Weight Quarter Lag			7.70	7.70	20.24	22.95	9.79	9.08	10.63	11.73	Mar-20
Total Short Term Reserves	**11,728**	**0.02**	**0.00**	**0.01**	**0.01**	**0.01**	**0.76**	**1.04**	**--**	**0.15**	**Mar-20**
91 Day T-Bills			0.03	0.04	0.07	0.06	0.66	1.06	0.59	0.07	Mar-20
Cash	11,728	0.02	0.00	0.01	0.01	0.01	0.76	1.04	--	0.15	Mar-20
91 Day T-Bills			0.03	0.04	0.07	0.06	0.66	1.06	0.59	0.07	Mar-20

Market Performance as of March 31, 2022

Name	Mar-22	Last 3 Months	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
US Equity							
CRSP US Total Market TR USD	3.3	-5.4	3.2	11.7	18.2	15.4	14.3
S&P 500	3.7	-4.6	6.5	15.6	18.9	16.0	14.6
S&P 400 MidCap	1.4	-4.9	0.9	4.6	14.1	11.1	12.2
S&P 600 SmallCap	0.4	-5.6	-3.1	1.2	13.6	10.9	12.6
International Equity							
MSCI Emerging Markets	-2.3	-7.0	-15.6	-11.4	4.9	6.0	3.4
MSCI Emerging Markets NR LCL	-2.1	-6.1	-13.2	-9.9	6.3	7.5	6.3
MSCI EAFE	0.6	-5.9	-3.8	1.2	7.8	6.7	6.3
MSCI EAFE NR LCL	2.1	-3.7	1.4	6.2	8.2	6.6	8.6
MSCI ACWI ex USA	0.2	-5.4	-6.6	-1.5	7.5	6.8	5.6
Fixed Income Domestic							
Bloomberg US Aggregate TR	-2.8	-5.9	-5.9	-4.2	1.7	2.1	2.2
Bloomberg US Corporate 1-5 Years TR	-1.8	-3.7	-4.3	-3.6	1.7	2.1	2.3
Bloomberg US Credit/Corp 5-10 Yr TR	-3.1	-7.0	-7.4	-4.7	2.9	3.3	3.8
Bloomberg US Corporate Long TR	-2.8	-11.4	-10.2	-4.3	4.6	4.9	5.2
Bloomberg US Govt/Credit Long TR	-3.9	-11.0	-9.0	-3.1	4.2	4.6	4.7
Bloomberg US Treasury Strips 20-30 Yr Equal Parity TR	-6.5	-13.8	-9.1	-1.1	4.4	5.2	5.5
Bloomberg US High Yield TR	-1.1	-4.8	-3.3	-0.7	4.6	4.7	5.7
Bloomberg US Govt TR	-3.1	-5.5	-5.3	-3.7	1.4	1.8	1.7
Bloomberg US Credit TR	-2.5	-7.4	-7.2	-4.2	2.8	3.2	3.4
Bloomberg US Treasury 1-5 Yr TR	-2.0	-3.4	-4.1	-4.0	0.9	1.1	1.0
Bloomberg US Treasury 5-10 Yr TR	-3.7	-6.0	-6.3	-4.5	1.4	1.9	1.9
Bloomberg US Treasury Long TR	-5.3	-10.6	-7.4	-1.4	3.3	3.9	4.0
Bloomberg US Treasury TIPS 0-5 Yr TR	-0.8	-0.3	2.2	3.9	4.4	3.1	1.7
Bloomberg US TIPS TR	-1.9	-3.0	1.0	4.3	6.2	4.4	2.7
Fixed Income International							
Bloomberg Global Aggregate ex US Tres Hedged TR	-1.6	-4.1	-3.9	-3.6	0.9	2.3	3.2
Bloomberg Emerging Markets TR	-2.3	-9.2	-10.2	-7.5	0.7	1.9	3.6
REIT							
MSCI US REIT Gross	6.5	-4.1	12.7	26.2	11.1	9.6	9.7

Economic outlook

Macro policy takes center stage in 2022 and beyond

Growth | Inflation | Monetary policy

There is less unevenness in our cyclical growth outlook. Persistent above-trend growth is more likely in developed markets than in emerging markets.

Growth in 2022 is expected to slow but remain robust in China, the U.S., the U.K., Australia, and Europe. Emerging markets face more uncertainty.

Monetary and fiscal stimulus, pent-up demand, and global supply shortages all continue to push global inflation above trend.

Although inflation is a worldwide phenomenon, wage pressures—not CPI inflation—will dictate the pace of monetary tightening.

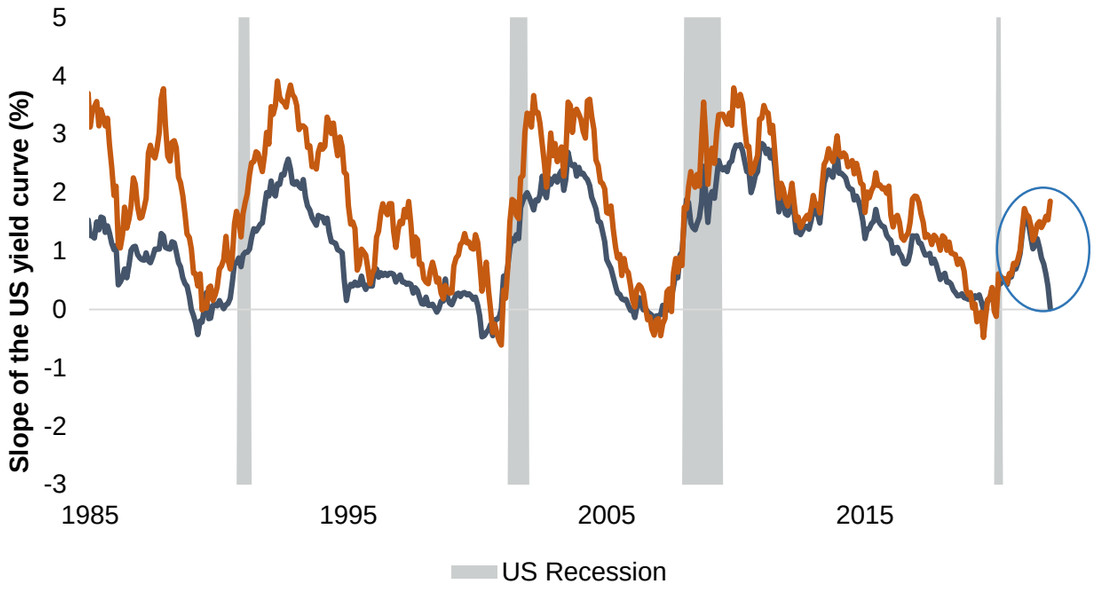
Policy has tightened some, but we expect it to remain easy. Local inflation and employment conditions will drive the timing and magnitude of decisions.

We expect monetary policy to tighten over the next 12–18 months. The BoE raised rates in Q4 2021; the ECB likely to raise rates this year, and the Fed is expected to reach ~1.75% by year-end 2022.

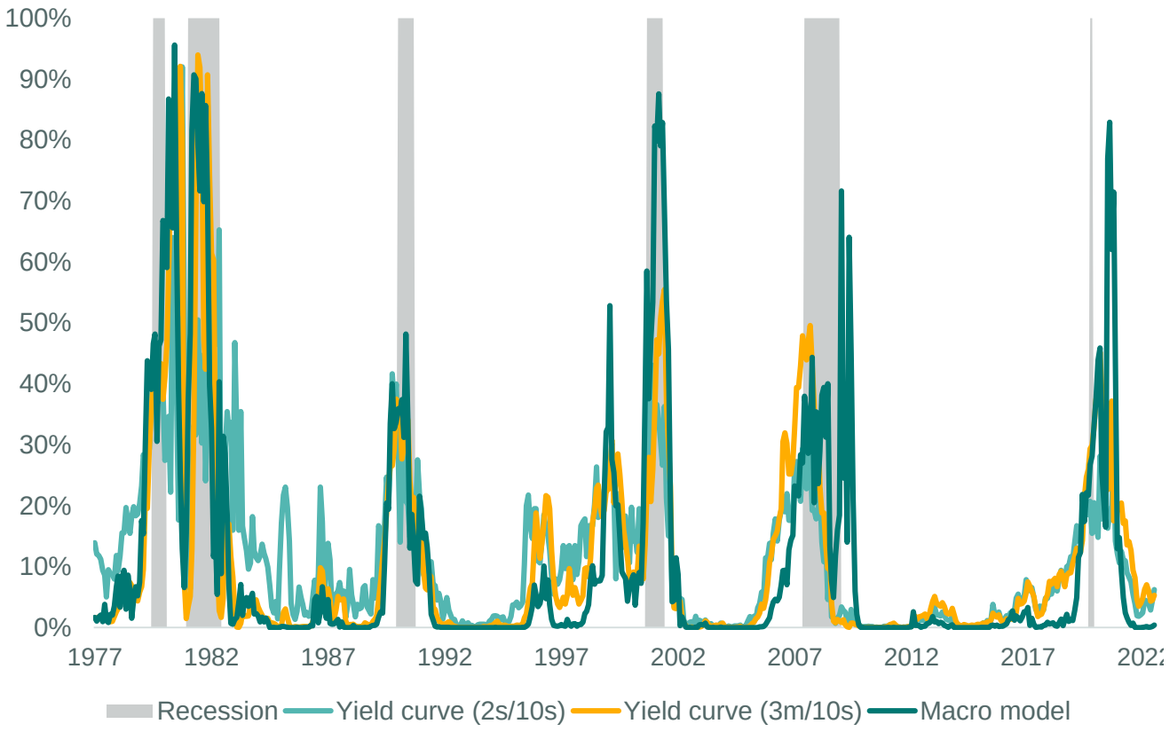
Source: Vanguard analysis as of December 31, 2021.

Strong economic fundamentals belie yield curve concerns

A divergence between 2yr – 10yr and 3m – 10yr spread



With only 50% of the yield curve inverted, US recession probabilities over the next 12 months are low



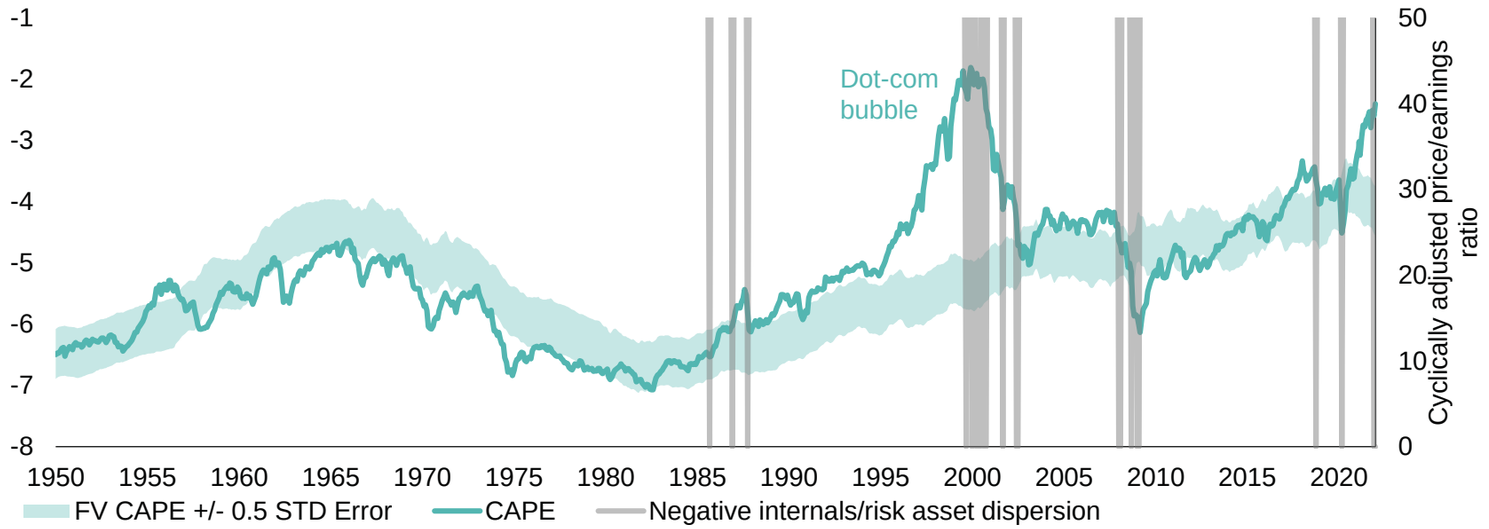
Notes: (LHS) Monthly yield data attained from Global Financial Data (GFD) and Bloomberg. US recessions as defined by NBER. Data as of 30 March 2022. (RHS) Macro model recession probability is based on results of a probit model accounting for credit default spread (AAA interest rates minus Baa interest rates), yield curve (10-year Treasury yield minus 3-month T-bill yield), proprietary economic growth and momentum indicators as included in VLEI, and Vanguard Financial Conditions Index. Yield curve implied probabilities are based on results of a probit model accounting for 10-year Treasury yield minus 3-month T-bill yield and 10-year Treasury yield minus 2-year yield.
Sources: Vanguard calculations based on data from Thomson Reuters, Bloomberg, BLS, and BEA.

U.S. equities have not been this overvalued since the dot-com bubble

Correction risk rises when valuations get stretched

- Cyclically adjusted price/earnings ratio (CAPE) is a proxy for the equity risk premium that corrects for the level of interest rates and inflation.
- The December 2021 CAPE was 46% above our estimate of fair value.
- Inflation and interest rates do not limit how far valuations can deviate from fair value.
- High dispersion in risk asset performance tends to precede market corrections historically.

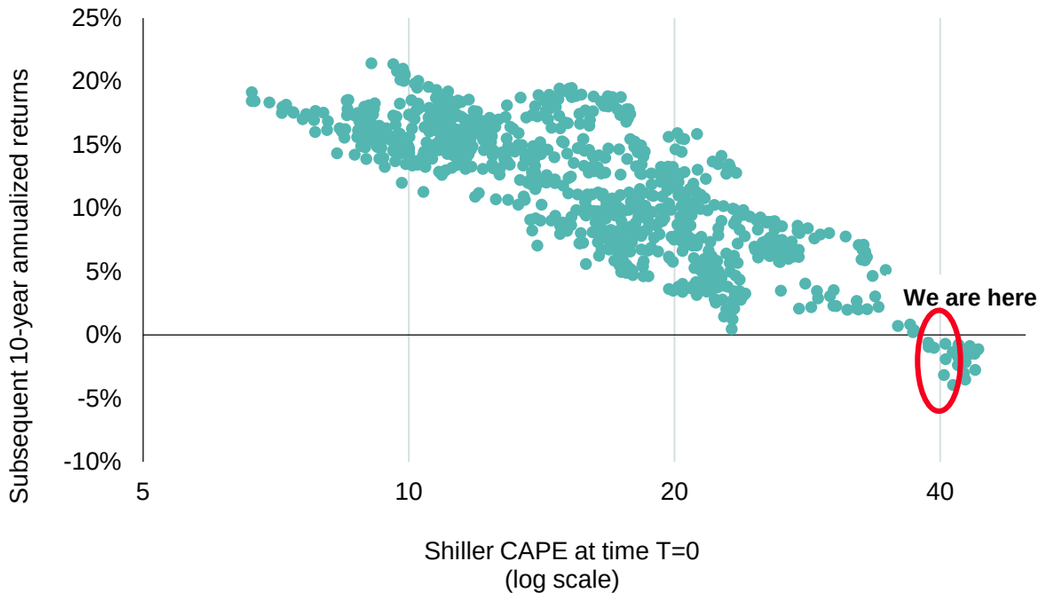
Stretched valuations and lopsided internals spell near-term risks for equities



Notes: The U.S. fair-value CAPE is based on a statistical model that corrects CAPE measures for the level of inflation and interest rates. The statistical model specification is a three-variable vector error correction, including equity-earnings yields, 10-year trailing inflation, and 10-year U.S. Treasury yields estimated over the period January 1940 to December 31, 2021. Details were published in the 2017 Vanguard research paper *Global Macro Matters: As U.S. Stock Prices Rise, the Risk-Return Tradeoff Gets Tricky.* A declining fair-value CAPE suggests that higher equity-risk premium (ERP) compensation is required, whereas a rising fair-value CAPE suggests that the ERP is compressing.
Negative internals/risk asset dispersion is a proprietary metric that extracts a signal from the measurement of dispersion in risk asset price behavior across the broad equity market, equity subsectors and styles, credit spreads, and the price behavior of index securities that make up the broad U.S. equity market.
Sources: Vanguard calculations, based on data from Robert Shiller's website, at aida.wss.yale.edu/~shiller/data.htm, the U.S. Bureau of Labor Statistics, the Federal Reserve Board, Refinitiv, Russell indexes, FactSet, Barclays Live, and Global Financial Data.

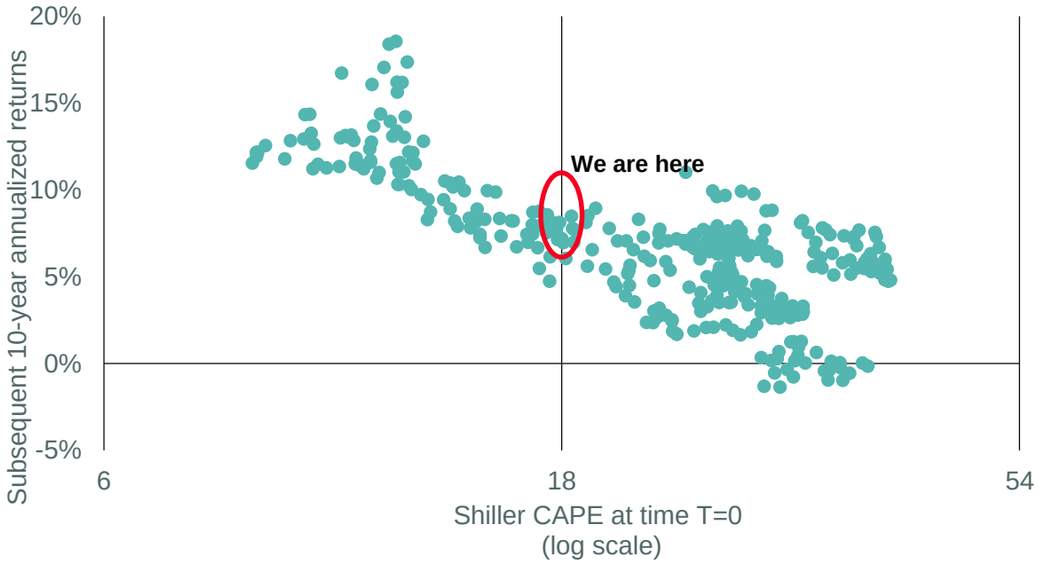
The relationship between valuations and returns supports our view on international and U.S. equities

U.S. equity valuations suggest the lowest returns



Notes: Data cover October 31, 1938, through December 31, 2021. Starting valuations are measured as the ratio of the broad U.S. equity market price to the 10-year rolling average of inflation-adjusted earnings (also known as the Shiller CAPE). "We are here" marks the valuation as of December 31, 2021, on the horizontal axis and the 10-year return for the decade ending December 31, 2031, on the vertical axis. U.S. equities are represented by the S&P Composite Index from 1938 to 1957 and the S&P 500 Index from 1957 through the end of 2021.
Sources: Vanguard calculations, based on data from Standard and Poor's and Robert Shiller's website, at aida.wss.yale.edu/~shiller/data.htm.

International developed markets are more fairly valued



Notes: Currency-adjusted returns are calculated by removing the effect of market-capitalization-weighted spot currency returns of USD relative to AUD, GBP, CAD, EUR, and JPY on MSCI World ex US Index returns through time. Market-capitalization weights are based on country composition of the MSCI World ex US index. "We are here" marks the valuation as of December 31, 2021, on the horizontal axis and the 10-year return for the decade ending December 31, 2031, on the vertical axis.
Sources: Vanguard calculations, based on MSCI ACWI ex US Index data, sourced through Refinitiv, and Robert Shiller's website, at aida.wss.yale.edu/~shiller/data.htm.

Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Fund pages

Vanguard Total Stock Market Index Fund (VSMPX)

Investment approach

- Seeks to track the performance of the CRSP US Total Market Index.
- Large, mid-, and small-cap equity diversified across growth and value styles.
- Passively managed, using index sampling.
- Fund remains fully invested.
- Low expenses minimize net tracking error.

Share of U.S. stock market (%)

100%	CRSP US Total Market Index

As measured by the MSCI US Broad Market Index.

Key facts

Expense ratio as of 04/29/2021 As reported in the most recent prospectus.	2 bps
Designation	Domestic large-cap blend
Fund inception date	04/27/1992
Institutional Plus Shares inception date	04/28/2015
Total net assets as of 03/31/2022 ($M)	$1,314,222
Net fund assets for VSMPX as of 03/31/2022 ($M)	$548,216
Holdings	4,124
Indexed to	CRSP US Total Market Index (CRSPTMT)
Turnover rate (fiscal year-end 12/31/2021)	4.0%
CUSIP	922908355
Investment manager	Vanguard Equity Index Group

Risk and volatility

	R^2	Beta
Primary benchmark	1.00	1.00
Broad-based benchmark	1.00	1.00

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
Broad-based benchmark: Dow Jones U.S. Total Stock Market Float Adjusted Index.

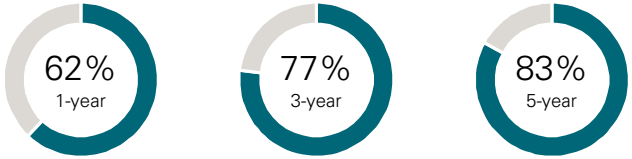
Performance

	Quarter-end	Year-to-date	Annualized 1-year	3-year	5-year	*Since inception
Fund	-5.45%	-5.45%	11.69%	18.17%	15.38%	13.19%
Benchmark	-5.44%	-5.44%	11.71%	18.17%	15.38%	13.18%
+/- Benchmark	-0.01%	-0.01%	-0.02%	0.00%	0.00%	0.01%

* Since fund's inception, April 28, 2015.

Performance versus competitors

Percentage of Multi-Cap Core Funds outperformed by **VSMPX**



Source: Lipper, a Thomson Reuters Company. Based on total returns as of March 31, 2022. Number of funds in category: 1-year, 564; 3-year, 521; 5-year, 482. Only funds with a minimum one-, three-, or five-year history, respectively, were included in the comparison. Results will vary for other time periods.

The performance data shown represent past performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Figures for periods of less than one year are cumulative returns. All other figures represent average annual returns. Performance figures include the reinvestment of all dividends and any capital gains distributions. All returns are net of expenses.

All data as of March 31, 2022, unless otherwise noted.

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Vanguard Total Stock Market Index Fund (VSMPX)

Equity characteristics

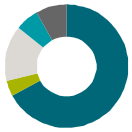
	VSMPX	Benchmark
Number of stocks	4,124	4,119
Median market cap	$133.8B	$133.8B
P/E ratio (trailing earnings)	21.2x	21.2x
P/B ratio	3.9x	3.9x
Return on equity (5-year average)	19.6%	19.6%
Earnings growth rate (5-year)	20.6%	20.6%
Equity yield (dividend)	1.3%	1.3%
Foreign holdings	0.1%	—
Turnover (fiscal year end)	4.0%	—
Short-term reserves	0.0%	N/A

Sector diversification as a % of common stock

Sector	VSMPX	Benchmark
Technology	27.6%	27.5%
Consumer Discretionary	15.3	15.3
Health Care	12.9	12.9
Industrials	12.6	12.7
Financials	11.3	11.3
Consumer Staples	5.0	5.0
Energy	4.1	4.0
Real Estate	3.6	3.6
Utilities	3.0	3.0
Telecommunications	2.5	2.5
Basic Materials	2.1	2.2

Sector categories are based on the Industry Classification Benchmark system ("ICB"), except for the "Other" category (if applicable), which includes securities that have not been provided an ICB classification as of the effective reporting period.

Market-cap breakdown



Market capitalization	VSMPX	Benchmark
More than $52	67.0%	67.1%
$42 to $52	4.0	4.0
$16 to $42	14.6	14.6
$7 to $16	6.1	6.1
Below $7	8.2	8.2

Risk and volatility

	R-squared	Beta	Alpha	Standard deviation	Sharpe ratio
VSMPX	N/A	N/A	0.00	18.47	0.94
Primary benchmark	1.00	1.00	N/A	18.47	0.94
Broad-based benchmark	1.00	1.00	N/A	18.50	0.94

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
Broad-based benchmark: Dow Jones U.S. Total Stock Market Float Adjusted Index.

Ten largest holdings

	% of total net assets
Apple Inc.	5.9%
Microsoft Corp.	5.1
Alphabet Inc.	3.5
Amazon.com Inc.	3.1
Tesla Inc.	2.0
NVIDIA Corp.	1.4
Berkshire Hathaway Inc.	1.4
Meta Platforms Inc.	1.1
UnitedHealth Group Inc.	1.1
Johnson & Johnson	1.0
Top ten as a % of total net assets	**25.6%**

The holdings listed exclude any temporary cash investments and equity index products.

All data as of March 31, 2022, unless otherwise noted.

Vanguard Total International Stock Index Fund (VTPSX)

Investment approach

- Seeks to track the performance of the FTSE Global All Cap ex US Index.
- Broad exposure across developed and emerging non-U.S. equity markets.
- Passively managed.
- Fund remains fully invested.
- Low expenses minimize net tracking error.

Regional diversification

39.5%	Europe
26.8	Pacific
25.2	Emerging Markets
8.0	North America
0.5	Middle East

Key facts

Expense ratio as of 02/25/2022 As reported in the most recent prospectus.	7 bps
Designation	International/global blend
Fund inception date	04/29/1996
Institutional Plus Shares inception date	11/30/2010
Total net assets as of 03/31/2022 ($M)	$386,717
Net fund assets for VTPSX as of 03/31/2022 ($M)	$31,370
Holdings	7,896
Indexed to	FTSE Global All Cap ex US Index (TGPVAN17)
Turnover rate (fiscal year-end 10/31/2021)	7.8%
CUSIP	921909776
Investment manager	Vanguard Equity Index Group

Risk and volatility

	R^2	Beta
Primary benchmark	0.99	1.00
Broad-based benchmark	0.99	1.00

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
Broad-based benchmark: FTSE Global All Cap ex US Index.

Performance

			Annualized			
	Quarter-end	Year-to-date	1-year	3-year	5-year	10-year
Fund	-6.07%	-6.07%	-1.80%	7.80%	6.82%	5.84%
Benchmark	-5.30%	-5.30%	-0.72%	8.21%	7.08%	5.97%
+/- Benchmark	-0.77%	-0.77%	-1.08%	-0.41%	-0.26%	-0.13%

Spliced Total International Stock Index: Total International Composite Index through August 31, 2006; MSCI EAFE + Emerging Markets Index through December 15, 2010; MSCI ACWI ex USA IMI Index through June 2, 2013; and FTSE Global All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.

Performance versus competitors

Percentage of International Funds outperformed by **VTPSX**

Source: Lipper, a Thomson Reuters Company. Based on total returns as of March 31, 2022. Number of funds in category: 1-year, 1501; 3-year, 1373; 5-year, 1210; 10-year, 797. Only funds with a minimum one-, three-, five-, or ten-year history, respectively, were included in the comparison. Results will vary for other time periods.

The performance data shown represent past performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Figures for periods of less than one year are cumulative returns. All other figures represent average annual returns. Performance figures include the reinvestment of all dividends and any capital gains distributions. All returns are net of expenses.

All data as of March 31, 2022, unless otherwise noted.

Vanguard's equity indexing process

A day in the life of a Vanguard portfolio manager

Cash-flow projection
- Net cash flow from investors
- Updates on large transactions

Index updates
- Index changes
- Corporate actions

Optimizer generates trade list

Pre-trade compliance engine

Execute trades
- Suite of cutting edge execution management systems

Monitor performance
- Performance attribution
- Overnight compliance reporting

Tracking differences

The fund seeks to track its benchmark, but tracking differences can occur. The main sources of these differences are:

Expense ratio

- The fund's expense ratio is an ongoing contributor to tracking differences.

Fair value pricing

- Price adjustments made to securities to account for market activity that occurs between the time that securities are valued at the close of business in their local market and the close of business in the U.S. (when the fund is valued).
- Can be a positive or negative adjustment.
- Tends to create tracking error in the short-term that dissipates over time.

Securities lending

- Vanguard operates a very conservative securities lending program.
- Funds selectively lend "specials," not general collateral.
- All net revenue (net of broker rebates, direct operating expenses, and agent fees) is returned to portfolios.
- Program has rigorous risk controls and invests collateral in a high quality money market fund.

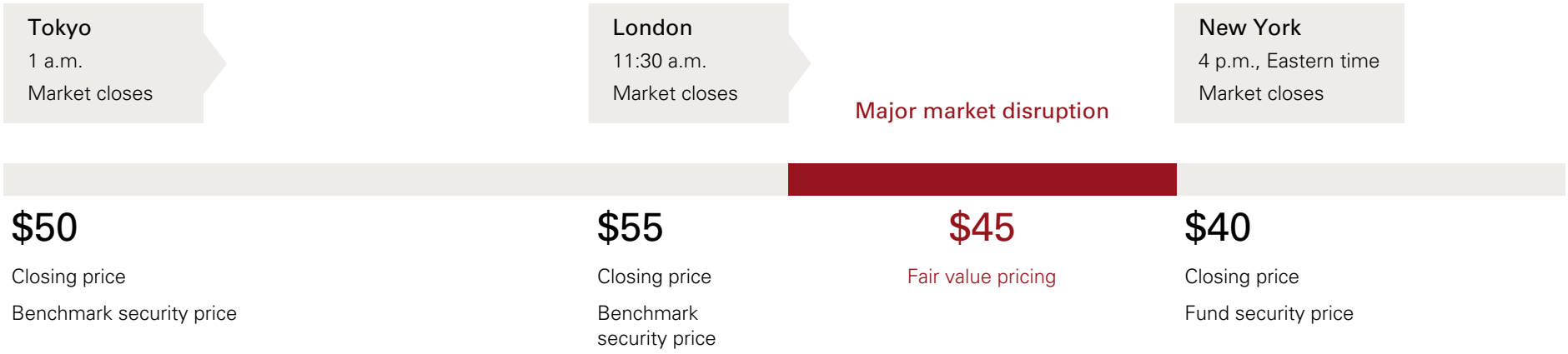
Other

- Index sampling differences.
- Use of futures.
- Index change management.
- Trading costs.
- Impact of NAV penny rounding.

Fair value pricing

Fair value pricing can cause temporary, but sometimes substantial, performance differences between international index funds and their benchmarks.

Much can happen in a few hours



Vanguard®

Vanguard Total International Stock Index Fund (VTPSX)

Equity characteristics

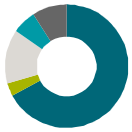
	VTPSX	Benchmark
Number of stocks	7,896	7,618
Median market cap	$32.7B	$32.1B
P/E ratio (trailing earnings)	12.9x	13.1x
P/B ratio	1.7x	1.8x
Return on equity (5-year average)	12.4%	12.5%
Earnings growth rate (5-year)	9.8%	9.8%
Equity yield (dividend)	2.7%	2.7%
Turnover (fiscal year end)	7.8%	—
Short-term reserves	0.0%	N/A

Sector diversification as a % of common stock

Sector	VTPSX	Benchmark
Financials	19.4%	19.3%
Industrials	14.2	14.2
Consumer Discretionary	13.0	13.0
Technology	12.7	12.8
Health Care	9.1	9.1
Basic Materials	8.3	8.3
Consumer Staples	7.2	7.2
Energy	5.5	5.5
Real Estate	3.8	3.8
Telecommunications	3.5	3.5
Utilities	3.3	3.3

Sector categories are based on the Industry Classification Benchmark system ("ICB"), except for the "Other" category (if applicable), which includes securities that have not been provided an ICB classification as of the effective reporting period.

Market-cap breakdown



Market capitalization	VTPSX	Benchmark
More than $15	67.0%	67.2%
$12 to $15	3.4	3.5
$5 to $12	14.3	14.4
$3 to $5	6.2	6.2
Below $3	9.0	8.7

Risk and volatility

	R-squared	Beta	Alpha	Standard deviation	Sharpe ratio
VTPSX	N/A	N/A	-0.03	17.26	0.41
Primary benchmark	0.99	1.00	N/A	17.17	0.43
Broad-based benchmark	0.99	1.00	N/A	17.17	0.43

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
Broad-based benchmark: FTSE Global All Cap ex US Index.

Market allocation

	% of common stock	
	VTPSX	Benchmark
Japan	14.9%	15.0%
United Kingdom	10.2	9.9
Canada	8.0	7.9
China	7.9	8.0
France	6.1	6.2
Switzerland	6.0	5.9
Australia	5.2	5.5
Germany	4.9	5.0
Taiwan	4.9	4.9
India	4.1	4.1
Other	27.8	27.6

Ten largest holdings

	% of total net assets
Taiwan Semiconductor Manufacturing Co. Ltd.	1.6%
Nestle SA	1.2
Samsung Electronics Co. Ltd.	1.0
Roche Holding AG	1.0
Tencent Holdings Ltd.	0.9
ASML Holding NV	0.8
Toyota Motor Corp.	0.7
Shell plc	0.7
AstraZeneca plc	0.7
BHP Group Ltd.	0.6
Top ten as a % of total net assets	**9.2%**

The holdings listed exclude any temporary cash investments and equity index products.

All data as of March 31, 2022, unless otherwise noted.

Vanguard Total Bond Market Index Fund (VBMPX)

Investment approach

- Seeks to track the performance of the Bloomberg U.S. Aggregate Float Adjusted Index.
- Broad exposure to the investment-grade U.S. bond market.
- Passively managed using index sampling.
- Intermediate-duration portfolio.
- Provides moderate current income with high credit quality.

Share of U.S. bond market (%)

100%	Bloomberg U.S. Aggregate Float Adjusted Index

As measured by the Bloomberg U.S. Aggregate Bond Index.

Key facts

Expense ratio as of 04/29/2021 As reported in the most recent prospectus.	3 bps
Designation	Treasury/agency/blend intermediate-term
Fund inception date	12/11/1986
Institutional Plus Shares inception date	02/05/2010
Total net assets as of 03/31/2022 ($M)	$297,886
Net fund assets for VBMPX as of 03/31/2022 ($M)	$33,148
Holdings	10,153
Indexed to	Bloomberg U.S. Aggregate Float Adjusted Index (I20984US)
Turnover rate (fiscal year-end 12/31/2021)	69.3%
CUSIP	921937785
Investment manager	Vanguard Fixed Income Group

Risk and volatility

	R^2	Beta
Primary benchmark	1.00	1.01
Broad-based benchmark	1.00	1.01

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
Broad-based benchmark: Spliced Bloomberg U.S. Aggregate Float Adjusted Index.

Performance**

			Annualized*			
	Quarter-end	Year-to-date	1-year	3-year	5-year	10-year
Fund	-5.98%	-5.98%	-4.07%	1.71%	2.14%	2.22%
Benchmark	-6.01%	-6.01%	-4.08%	1.75%	2.19%	2.27%
+/- Benchmark	0.03%	0.03%	0.01%	-0.04%	-0.05%	-0.05%

Spliced Bloomberg U.S. Aggregate Float Adjusted Index: Bloomberg U.S. Aggregate Bond Index through December 31, 2009; Bloomberg U.S. Aggregate Float Adjusted Index thereafter.

Performance versus competitors

Percentage of Core Bond Funds outperformed by VBMPX

Source: Lipper, a Thomson Reuters Company. Based on total returns as of March 31, 2022. Number of funds in category: 1-year, 490; 3-year, 469; 5-year, 430; 10-year, 340. Only funds with a minimum one-, three-, five-, or ten-year history, respectively, were included in the comparison. Results will vary for other time periods.

The performance data shown represent past performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Figures for periods of less than one year are cumulative returns. All other figures represent average annual returns. Performance figures include the reinvestment of all dividends and any capital gains distributions. All returns are net of expenses.

All data as of March 31, 2022, unless otherwise noted.

Vanguard Total Bond Market Index Fund (VBMPX)

Fixed income characteristics

	VBMPX	Benchmark
Number of bonds	10,153	12,538
Average duration	6.9 years	6.7 years
Average effective maturity	9.0 years	8.9 years
Turnover (fiscal year end)	69.3%	—
Short-term reserves	0.0%	N/A

Distribution by issuer type

	% of total net assets
Treasury/Agency	45.3%
Government Mortgage-Backed	19.9%
Industrial	16.8%
Finance	8.7%
Foreign	3.7%
Commercial Mortgage-Backed	2.2%
Utilities	2.2%
Other	0.8%
Asset-Backed	0.4%

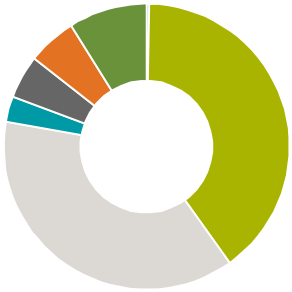
Hedged non-U.S. dollar-denominated bonds are included in the sector of issuer, not as part of the foreign category.

Risk and volatility

	R-squared	Beta	Alpha	Standard deviation	Sharpe ratio
VBMPX	N/A	N/A	-0.00	4.21	0.23
Primary benchmark	1.00	1.01	N/A	4.17	0.24
Broad-based benchmark	1.00	1.01	N/A	4.17	0.24

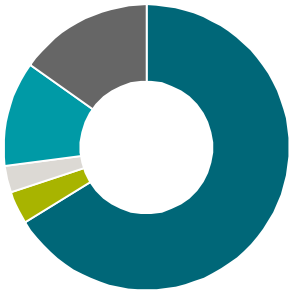
R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
Broad-based benchmark: Spliced Bloomberg U.S. Aggregate Float Adjusted Index.

Distribution by effective maturity as a % of funds



Under 1 Year	0.3%
1 - 5 Years	39.8
5 - 10 Years	37.7
10 - 15 Years	2.9
15 - 20 Years	4.9
20 - 25 Years	5.5
Over 25 Years	8.9

Distribution by credit quality as a % of funds



U.S. Government	66.2%
Aaa	3.7
Aa	3.0
A	11.9
Baa	15.2
Less than BBB	0.0
Not Rated	0.0

Credit-quality ratings are measured on a scale that generally ranges from AAA (highest) to D (lowest). "NR" is used to classify securities for which a rating is not available. NR securities may include a fund's investment in Vanguard Market Liquidity Fund or Vanguard Municipal Cash Management Fund, each of which invests in high-quality money market instruments and may serve as a cash management vehicle for the Vanguard funds, trusts, and accounts. U.S. Treasury, U.S. Agency, and U.S. Agency mortgage-backed securities appear under "U.S. Government." Credit-quality ratings for each issue are obtained from Bloomberg using ratings derived from Moody's Investors Service (Moody's), Fitch Ratings (Fitch), and Standard & Poor's (S&P). When ratings from all three agencies are available, the median rating is used. When ratings are available from two of the agencies, the lower rating is used. When one rating is available, that rating is used.

All data as of March 31, 2022, unless otherwise noted.

Vanguard Total International Bond Index Fund (VTIFX)

Investment approach

- Seeks to track the performance of the Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index (USD Hedged).
- Employs hedging strategies that seek to mitigate uncertainty in exchange rates.
- Passively managed, using index sampling.
- Fund remains fully invested.
- Broad exposure across major bond markets outside of the United States.
- Low expenses minimize net tracking error.

Key facts

Expense ratio as of 02/25/2022 As reported in the most recent prospectus.	7 bps
Designation	International/global intermediate-term
Fund inception date	05/31/2013
Institutional Shares inception date	05/31/2013
Total net assets as of 03/31/2022 ($M)	$91,864
Net fund assets for VTIFX as of 03/31/2022 ($M)	$12,196
Holdings	6,556
Indexed to	Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index (Hedged) (H28986US)
Turnover rate (fiscal year-end 10/31/2021)	25.0%
CUSIP	92203J209
Investment manager	Vanguard Fixed Income Group

Risk and volatility

	R^2	Beta
Primary benchmark	1.00	1.00
Broad-based benchmark	0.42	0.42

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
Broad-based benchmark: Bloomberg Global Aggregate Bond Index ex USD.

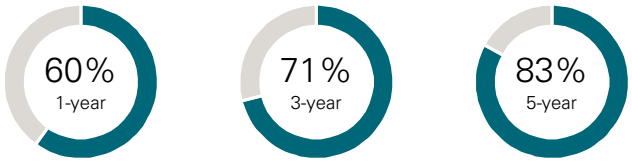
Performance

			Annualized			
	Quarter-end	Year-to-date	1-year	3-year	5-year	*Since inception
Fund	-4.98%	-4.98%	-4.87%	0.57%	2.04%	2.79%
Benchmark	-5.04%	-5.04%	-4.93%	0.68%	2.17%	2.96%
+/- Benchmark	0.06%	0.06%	0.06%	-0.11%	-0.13%	-0.17%

* Since fund's inception, May 31, 2013.

Performance versus competitors

Percentage of International Income Funds outperformed by VTIFX



Source: Lipper, a Thomson Reuters Company. Based on total returns as of March 31, 2022. Number of funds in category: 1-year, 94; 3-year, 88; 5-year, 77. Only funds with a minimum one-, three-, or five-year history, respectively, were included in the comparison. Results will vary for other time periods.

The performance data shown represent past performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Figures for periods of less than one year are cumulative returns. All other figures represent average annual returns. Performance figures include the reinvestment of all dividends and any capital gains distributions. All returns are net of expenses.

All data as of March 31, 2022, unless otherwise noted.

Vanguard Total International Bond Index Fund (VTIFX)

Fixed income characteristics

	VTIFX	Benchmark
Number of bonds	6,556	12,225
Average duration	8.2 years	8.2 years
Average effective maturity	9.5 years	9.6 years
Turnover (fiscal year end)	25.0%	—
Short-term reserves	0.0%	N/A

Distribution by issuer type

	% of total net assets
Foreign	80.1%
Industrial	6.5%
Finance	6.3%
Asset-Backed	4.9%
Utilities	1.4%
Other	0.8%

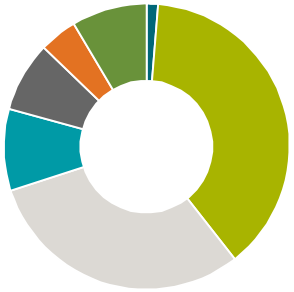
Hedged non-U.S. dollar-denominated bonds are included in the sector of issuer, not as part of the foreign category.

Risk and volatility

	R-squared	Beta	Alpha	Standard deviation	Sharpe ratio
VTIFX	N/A	N/A	-0.01	3.94	-0.05
Primary benchmark	1.00	1.00	N/A	3.93	-0.02
Broad-based benchmark	0.42	0.42	N/A	6.15	-0.15

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
Broad-based benchmark: Bloomberg Global Aggregate Bond Index ex USD.

Distribution by effective maturity as a % of funds



Under 1 Year	1.3%
1 - 5 Years	38.1
5 - 10 Years	30.6
10 - 15 Years	9.3
15 - 20 Years	7.9
20 - 25 Years	4.3
Over 25 Years	8.5

Distribution by credit quality as a % of funds

Aaa	23.5%
Aa	26.5
A	28.8
Baa	18.9
Less than BBB	1.5
Not Rated	0.8

Credit-quality ratings are measured on a scale that generally ranges from AAA (highest) to D (lowest). "NR" is used to classify securities for which a rating is not available. NR securities may include a fund's investment in Vanguard Market Liquidity Fund or Vanguard Municipal Cash Management Fund, each of which invests in high-quality money market instruments and may serve as a cash management vehicle for the Vanguard funds, trusts, and accounts. U.S. Treasury, U.S. Agency, and U.S. Agency mortgage-backed securities appear under "U.S. Government." Credit-quality ratings for each issue are obtained from Bloomberg using ratings derived from Moody's Investors Service (Moody's), Fitch Ratings (Fitch), and Standard & Poor's (S&P). When ratings from all three agencies are available, the median rating is used. When ratings are available from two of the agencies, the lower rating is used. When one rating is available, that rating is used.

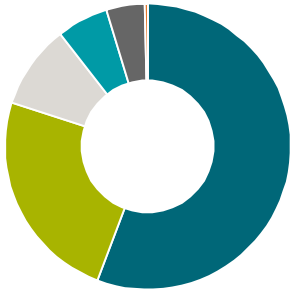
All data as of March 31, 2022, unless otherwise noted.

Vanguard Total International Bond Index Fund (VTIFX)

Market allocation

	% of bond
Japan	17.0%
France	11.9
Germany	10.9
Italy	7.5
United Kingdom	6.9
Canada	6.5
Spain	5.3
Supranational	4.0
Australia	3.5
United States	3.0
Other	23.5

Regional diversification



Europe	55.8%
Pacific	24.2
North America	9.5
Emerging Markets	5.8
Other	4.3
Middle East	0.4

All data as of March 31, 2022, unless otherwise noted.

Important information

IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® (VCMM) regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. VCMM results will vary with each use and over time.

The VCMM projections are based on a statistical analysis of historical data. Future returns may behave differently from the historical patterns captured in the VCMM. More importantly, the VCMM may be underestimating extreme negative scenarios unobserved in the historical period on which the model estimation is based.

The Vanguard Capital Markets Model® is a proprietary financial simulation tool developed and maintained by Vanguard's primary investment research and advice teams. The model forecasts distributions of future returns for a wide array of broad asset classes. Those asset classes include U.S. and international equity markets, several maturities of the U.S. Treasury and corporate fixed income markets, international fixed income markets, U.S. money markets, commodities, and certain alternative investment strategies. The theoretical and empirical foundation for the Vanguard Capital Markets Model is that the returns of various asset classes reflect the compensation investors require for bearing different types of systematic risk (beta). At the core of the model are estimates of the dynamic statistical relationship between risk factors and asset returns, obtained from statistical analysis based on available monthly financial and economic data from as early as 1960. Using a system of estimated equations, the model then applies a Monte Carlo simulation method to project the estimated interrelationships among risk factors and asset classes as well as uncertainty and randomness over time. The model generates a large set of simulated outcomes for each asset class over several time horizons. Forecasts are obtained by computing measures of central tendency in these simulations. Results produced by the tool will vary with each use and over time.

Important information

For more information about any fund, visit institutional.vanguard.com or call 866-499-8473 to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information are contained in the prospectus; read and consider it carefully before investing.

Vanguard ETF® Shares are not redeemable with the issuing fund other than in very large aggregations worth millions of dollars. Instead, investors must buy or sell Vanguard ETF Shares in the secondary market and hold those shares in a brokerage account. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling.

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Investments in bond funds are subject to the risk that an issuer will fail to make payments on time and that bond prices will decline because of rising interest rates or negative perceptions of an issuer's ability to make payments. High-yield bonds generally have medium- and lower-range credit quality ratings and are therefore subject to a higher level of credit risk than bonds with higher credit quality ratings. Although the income from a municipal bond fund is exempt from federal tax, you may owe taxes on any capital gains realized through the fund's trading or through your own redemption of shares. For some investors, a portion of the fund's income may be subject to state and local taxes, as well as to the federal Alternative Minimum Tax. Diversification does not ensure a profit or protect against a loss.

While U.S. Treasury or government agency securities provide substantial protection against credit risk, they do not protect investors against price changes due to changing interest rates. Unlike stocks and bonds, U.S. Treasury bills are guaranteed as to the timely payment of principal and interest.

Investments in Target Retirement Funds and Trusts are subject to the risks of their underlying funds. The year in the fund or trust name refers to the approximate year (the target date) when an investor in the fund or trust would retire and leave the workforce. The fund/trust will gradually shift its emphasis from more aggressive investments to more conservative ones based on its target date. The Income Trust/Fund and Income and Growth Trust have fixed investment allocations and are designed for investors who are already retired. An investment in a Target Retirement Fund or Trust is not guaranteed at any time, including on or after the target date.

Vanguard is responsible only for selecting the underlying funds and periodically rebalancing the holdings of target-date investments. The asset allocations Vanguard has selected for the Target Retirement Funds are based on our investment experience and are geared to the average investor. Investors should regularly check the asset mix of the option they choose to ensure it is appropriate for their current situation.

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Vanguard Marketing Corporation, Distributor of the Vanguard Funds. U.S. Patent Nos. 6,879,964.

Important information

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Important information

Rev_012022

Fairfield Board of Education
Proposed
Capital Project
2022-2023

Fairfield Warde High School Fitts House
HVAC RTU Replacement

Approved by the Board of Education on February 3, 2022

Fairfield Public Schools
2022-2023
Capital Projects

Table of Contents

Fairfield Warde High School

Fitts House HVAC RTU Replacement (3) Project $1,094,485

Background: The existing Fitts House building houses four large HVAC Rooftop units that were installed around 1991. Two are 40-ton units, and two are 30-ton units. One of the 40-ton units and both of the 30-ton units are beginning to fail, and we are experiencing trouble keeping the units running for the occupants of the school building. As we continue to repair the units, the cost of keeping them up and running is escalating. We have reached a point where the existing units cannot meet the requirements to provide mechanical means of fresh air, heating, and cooling for a portion of the Fitts House building. This request is for funding the removal of the existing rooftop equipment and the installation of new Trane Voyager rooftop HVAC units. The decision was made to replace all existing units because of their condition, and by completing the replacement of all three at the same time, we will streamline the process and save funding

Purpose & Justification: The existing HVAC rooftop units are deteriorating and failing on a regular basis. We can no longer obtain parts and circuit boards for replacement. These HVAC rooftop units are essential for the mechanical means of providing fresh air, heating, and cooling for portions of the Fitts House building where the school students and staff are located. Without this unit, the space temperature would be uncontrollable, making this area of the building unusable.

Detailed Description: This expenditure would cover the total cost of the project. This would include all labor and material, a 300-ton crane, roof work, controls, and start-up and testing. These funds would also cover the administrative construction costs for a licensed professional engineer and a contingency for unforeseen conditions that might arise during the construction activities.

Estimated Cost: The cost of this funding request is $1,094,485. This number is based on estimates provided by several professional licensed contractors and from a professional licensed engineering firm in CT.

Long Range Costs: These new HVAC rooftop units with more recent technology are expected to last 30 years. Long-range costs would only relate to general HVAC preventative maintenance.

Demand on Existing Facilities: This project would reduce maintenance costs with a new system performing better than the existing system, virtually no downtime, new equipment energy use techniques and efficiency, and the latest technology with up-to-date configurations.

Security, Safety, and Loss Control: This project would enhance safety and loss control by drastically reducing the risk of failure to the equipment and the overall use of the Fitts House building for all the students and staff. With the current pandemic, we realize the need for adequately running HVAC equipment to serve our students and staff.

Environmental Considerations: Not applicable.

Funding, Financing & SDE Reimbursement: This project would not proceed without funding approval. There are no State or Federal regulations that require this project to be undertaken. This project is not eligible for reimbursement through the State Department of Education, Bureau of School Facilities.

Schedule, Phasing & Timing: The schedule is to have all this work done in the summer of 2022 and completed for school to open for the new year in September of 2022.

Other Considerations: The work will be bid out by the Town Purchasing Department and will be performed by outside professional licensed contractors.

Alternates to the Request: The alternative to this request is to do nothing. This alternative will delay this needed replacement and further delay other similar projects scheduled in the BOE future planning. This could increase the risk of injury to students and staff that need this space for teaching and learning and may shut down the space for use.

General Information	
Initiation Date:	7/1/21
Project No:	**FWHS-003**
Project Name:	**Fitts House HVAC RTU#1,2&3 Replacement**
Non-Reoccurring Status	
Project Description:	1/20/21 increased amount
Status:	

Project Budget	
Design Budget:	$82,500
Construction Budget:	$825,000
Construction Escalation:	$67,320
Total Construction Budget:	$892,320
Estimated Construction Start:	7/1/2023
Miscellaneous Fees and Expenses:	
- State Permits (.0026%)	$2,320
- Testing & Inspections	$0
- Advertising	$0
Construction Admin	$8,923
Commissioning	$8,923
Other	$0
Subtotal Fees & Expenses:	$20,166
Project Subtotal	$994,986
Project Contingency 10%	$99,499
Total Budget	$1,094,485

OSCGR Eligible?

OSCGR Reimbursement

Action Items

1.00

Project Priority Ranking

- Security	
- Severity of Condition	0
- Code/Statutory	0
- Programmatic Need	0
- Constructability/Sequencing	0
	0

Town of Fairfield

Sullivan Independence Hall
725 Old Post Road

Fairfield, Connecticut 06824
Purchasing Department

(203) 256-3060
FAX (203) 256-3080

Award Resolution Recommendation

On Thursday, 20th January, 2022, the Purchasing Authority recommended an award of bid number 2022-102 to Sav-Mor Cooling & Heating, LLC Southington, CT to provide all materials, labor and equipment necessary for the rooftop HVAC unit replacement at Fairfield Warde High School, 755 Melville Avenue, Fairfield, Connecticut as specified in the contract documents prepared by Landmark Facilities Group, Inc..

Base Bid:	$1,026,000.00
Add Alternate:	$ 14,400.00
Total:	**$1,040,400.00**

Sav-Mor Cooling & Heating, LLC is the lowest responsible bidder for this service.

The award of the contract to Sav-Mor Cooling & Heating, LLC, to provide all materials, labor and equipment necessary for the rooftop HVAC unit replacement at Fairfield Warde High School may be subject to the review and approval of the Board of Selectmen.

Brenda L. Kupchick, First Selectwoman

Gerald J. Foley, Director of Purchasing

Town of Fairfield

Sullivan Independence Hall
725 Old Post Road

Fairfield, Connecticut 06824
Purchasing Department

(203) 256-3060
FAX (203) 256-3080

BID #2022-102
ROOFTOP HV UNIT REPLACEMENT
FAIRFIELD WARDE HIGH SCHOOL – CAFETERIA AREA (NEW) HVAC UNIT

TOWN OF FAIRFIELD
PURCHASING AUTHORITY
725 OLD POST ROAD
INDEPENDENCE HALL
FAIRFIELD, CT 06824.

Date Submitted January 5 2021 2022

SEALED BIDS are subject to the standard instructions set forth on the attached sheets. Any modifications must be specifically accepted by the Town of Fairfield, Purchasing Authority.

First Selectwoman

Director of Purchasing

12/09/2021
Date

Bidder:
SAV-MOR Cooling and Heating
Doing Business As (Trade Name)
231 Captain Lewis Drive
Address
Southington, CT 06489
Town, State, Zip
Mr. Troy Karwowski, President
(Mr. / Ms.) Name and Title, Printed
Signature
860-621-9959 Telephone
860-621-9919 Fax
troy@savmorct.com
E-mail

Sealed bids will be received by the Purchasing Authority at the office of the Director of Purchasing, First Floor, Independence Hall, 725 Old Post Road, Fairfield, Connecticut 06824, up to:

11:00 am, Tuesday, 28th December, 2021

To provide labor, materials, equipment and all else necessary to complete the rooftop HVAC unit replacement project at the Fairfield Warde High School as detailed in the attached specifications.

NOTES:

1. Bidders are to complete all requested data in the upper right corner of this page and must return this page and the Proposal page with their submission.
2. No bid shall be accepted from, or contracts awarded to, any person/company/affiliate or entity under common control who is in arrears to the Town of Fairfield upon debt, or contract or who has been within the prior five (5) years, a defaulter as surety or otherwise upon obligations to the Town of Fairfield, and shall be determined by the Town.
3. Bids are to be submitted in a sealed envelope and clearly marked "**BID #2022-102**" on the outside of the envelope, including all outer packaging, such as, DHL, FedEx, UPS, etc.
4. It is the sole responsibility of the bidder to see that the bid is received by the Fairfield Purchasing Department prior to the time and date noted above. Bids are not to be submitted via email or fax.
5. Bids are not to be submitted with plastic binders or covers, nor may the bid contain any plastic inserts or pages.

BID PROPOSAL FORM

PROPOSAL TO: Town of Fairfield, Purchasing Department
First Floor, Sullivan Independence Hall
725 Old Post Road, Fairfield, Connecticut 06824

I, Troy Karwowski *have received the following contract documents,*

1. BID Document *#2022-102*
2. Addenda 1 through 2 posted at www.fairfieldct.org/purchasing
3. Documents prepared by Landmark Facilities Group, Inc.

and have included their provisions in my proposal. I shall supply all labor, materials and equipment necessary in accordance with all of the contract documents as required for the rooftop HV unit replacement at Fairfield Warde High School, 755 Melville Avenue, Fairfield, Connecticut as specified.

BASE BID – TOTAL LUMP SUM

($ 1,026,000.00) /LS One Million Twenty Six Thousand *Dollars*
(Written Amount)

Lump Sum amount shall include the cost of all necessary labor, materials, equipment, disposal, delivery, mobilization, insurances, taxes (except taxes from which the Owner is exempt) and permits, including all overhead and profit, based on the total estimated hours to perform the work, per the specification documents prepared by Landmark Facilities Group, Inc.

ADD ALTERNATES:

ADD ALTERNATE #1 – Contractor shall furnish and install new steam fin tube radiation along north wall of cafeteria. Connect to existing steam supply at one end of unit ventilator row, and condensate return at other end. Provide new motorized steam control valve; refer to steam piping diagram for additional information. Fin tube radiation is based on model JA-14 by slant fin.

($ 14,400.00) /LS Fourteen Thousand Four Hundred *Dollars*
(Written Amount)

ADD ALTERNATE #2 – Furnish and install new 1.5 ton ceiling cassette fan coil unit for custodian office. Alternate shall include all equipment, piping, condensate pump, and controls. Alternate shall also include possible different piping layout and upsizing HP and BS unit.

($ N/A Per Addendum #2) /LS _____ *Dollars*
(Written Amount)

DEDUCT ALTERNATES:

DEDUCT ALTERNATE #1 – Provide "deduct alternate" to delete materials and labor for the following work:

- furnish and install new 1" LP condensate riser and branch piping
- furnish and install new F&T traps at MUA-1, DDAS B-1, BOAS B-2.

($ 5,100.00) /LS Five Thousand One Hundred *Dollars*
(Written Amount)

CHECKLIST

The following must be submitted with proposal:

- ☑ Cover page, completed and signed.
- ☑ Addenda acknowledged per Item 2 on Bid Proposal Form, or signed and submitted with modified pricing.
- ☑ Bid Bond or equal security for five (5) percent of the total estimated bid.
- ☑ List of references where projects performed within the past five years of comparable size and scope.
- ☑ Contractor and/or Subcontractor is a certified installer for all manufacturers stated in the bid document.
- ☑ List and details of all sub-contractors, identifying each trade, hourly rates and Tax ID numbers.
- ☑ Bid Proposal Form.

The Bidder hereby certifies that any and all defects, errors, inconsistencies or omissions of which he/she is aware, either directly or by notification from any sub-bidder or material supplier found in the Contract Documents are listed herewith in this Bid Form.

Troy Karwoski - President		1/5/22
Name and Title	*Signature*	*Date*

REFERENCES

Provide reference details of most recent similar scope projects performed.

REFERENCE #1:

Name of Company see attached Phone _____

Contact Person _____ Cell _____

Company Address _____ Email _____

Project, Location, & Date Completed _____

_____

REFERENCE #2:

Name of Company _____ Phone _____

Contact Person _____ Cell _____

Company Address _____ Email _____

Project, Location, & Date Completed _____

_____

REFERENCE #3:

Name of Company _____ Phone _____

Contact Person _____ Cell _____

Company Address _____ Email _____

Project, Location, & Date Completed _____

_____

REFERENCE #4:

Name of Company _____ Phone _____

Contact Person _____ Cell _____

Company Address _____ Email _____

Project, Location, & Date Completed _____

_____

REFERENCE #5:

Name of Company _____ Phone _____

Contact Person _____ Cell _____

Company Address _____ Email _____

Project, Location, & Date Completed _____

_____

SAV-MOR Cooling & Heating Inc.

Completed Major Projects Past 5 Years

NAME / Owner	JOB LOCATION	Completion Date	% of work performed by us	Contract Value	Representative	Phone Number	Email Address
	INSTALLATIONS FOR 2017						
Norwalk City Hall	125 East Avenue, Norwalk, CT 06851	1/14/2017	75.00%	$134,744.00	Dan Miller	(203) 854-7940	dmiller@norwalkct.org
Hartford Regional Center	71 Mountain Road, Newington, CT 06111	1/21/2017	90.00%	$202,902.00	John Massicotte	(860) 263-2486	John.Massicotte@ct.gob
Easter Seals	122 Avenue of Industries, Waterbury, CT 06708	2/10/2017	100.00%	$67,100.00	Jeff Raboin	(203) 754-5141	Jraboin@eswct.com
Enfield Housing Authority	301 Pearl Street, Enfield, CT	1/14/2017	85.00%	$698,476.57	Bill Dufour	(860) 745-7493	bdufour@enfieldha.org
Broad Brook Elementary School	14 Rye Street, Broad Brook, CT 06016	3/25/2017	85.00%	$182,329.46	Joseph Sauerhoefer	(860) 292-7073	Jsauerhoefer@eastwindsorct.com
Hubbell Elementary School	90 West Washington Street, Bristol, CT 06010	3/11/2017	95.00%	$162,853.25	Peter Fusco	(860) 584-7097	PeterFusco@ci.bristol.ct.us
Gemini Building	13 South Main Street, West Hartford, CT	4/8/2017	95.00%	$154,890.00	Mike Longo	(860) 561-7520	Mike.Longo@WestHartfordCT.gov
Alcott Elementary School	1488 Woodtick Road, Wolcott, CT 06716	3/18/2017	95.00%	$77,400.00	Wayne Natzel	(203) 879-8180	w.natzel@wolcottps.org
Skinner Road School	90 Skinner Road, Vernon, CT 06066	6/14/2017	100.00%	$63,000.00	Willlam Peluso	(860) 870-6000	wpeluso@vernon-ct.gov
Branford High School	185 East Main Street, Branford, CT 06405	4/17/2017	100.00%	$78,000.00	Joe Carbone	(203) 315-7803	jcarbone@branfordschools.org
Simsbury Schools	Tootin, Central, Squadron & Latimer Simsbury CT	8/18/2017	90.00%	$732,732.63	Steven Twitchell	(860) 408-5448	stwitchell@simsbury.k12.ct.us
Amity High School	25 Newton Road, Woodbridge, CT 06525	8/25/2017	75.00%	$514,400.00	Jim Saisa	(203) 397-4818	jim.saisa@reg5.k12.ct.us
Town of Middlebury/Shepardson	1172 Whittemore Rd. Middlebury, CT	10/24/2017	90.00%	$77,500.00	Paul Vaccarelli	(203) 577-4170	pvaccarelli@middlebury-ct.org.
City of Bristol/Chippens Hill	551 Peacedale Street Bristol, CT 06010	12/20/2017	90.00%	$1,086,306.68	Peter Fusco	(860) 584-7097	PeterFusco@ci.bristol.ct.us
Town of Bolton	Various Addresses Bolton, CT 06043	10/27/2017	90.00%	$63,700.00	John Butrymovich	(860) 646-8152	jbutrymovich@boltonct.org
	INSTALLATIONS FOR 2018						
Town of Hebron	Various Addresses Hebron, CT 06248	3/14/2018	90.00%	$555,004.04	Andrew Tierne	(860) 228-5971	atierney@hebronct.com
Dept. of Mental Health/Bridgeport MHC	1635 Central Ave. 1st Flr. Board Rm #120 Bridgeport, CT	3/9/2018	90.00%	$97,930.35	Lane Coppola	(203) 988-0733	lance.coppola@ct.gov
Dept. of Energy & Environ Prot.	Hammonasset Beach 1288 Boston Post Rd. Madison, CT	3/5/2018	90.00%	$66,700.00	Mark Sulik	(860) 424-3949	mark.sulik@ct.gov
City of Bristol Hubbell School	90 W. Washington St. Bristol, CT 06010	3/15/2018	90.00%	$117,107.53	Peter Fusco	(860) 584-7097	PeterFusco@ci.bristol.ct.us
Dept. of Energy & Environ Prot.	Hammonasset Beach 1288 Boston Post Rd. Madison, CT	3/6/2018	90.00%	$50,000.00	Mark Sulik	(860) 424-3949	mark.sulik@ct.gov
Reg. School Dist. 8/RHAM High Sch	85 Wall Street Hebron, CT 06033	3/9/2018	75.00%	$106,000.00	Michael Schlehofer	(860) 922-2941	Michael.schlehofer@rhamschools.org
Town of Tolland / Recreation Center	Post Road Tolland, CT 06084	3/9/2018	90.00%	$192,329.52	Scott Lappen	(860) 871-3690	slappen@tolland.org
Team Inc. /Slocum Building	25 Rmford Street Waterbury, CT	10/19/2018	90.00%	$429,780.00	Edward Leavy	(203) 929-0546	edwrdlvy@sbcglobal.net
City of Norwalk/ City Hall IT Rooms	125 East Ave. Norwalk, CT 06851	6/22/2018	75.00%	$158,514.63	Dan Miller	(203) 854-7940	dmiller@norwalkct.org
Department of Developmental Ser.	71 Mountain Road Newington, CT 06111	2/1/2019	95.00%	$53,900.00	David Elwell	(203) 805-7465	David.Elwell@ct.gov
	INSTALLATIONS FOR 2019						
Town of Mansfield	4 South Eagleville Rd., Mansfield, CT 06268	1/24/2019	75.00%	$51,700.00	Bill Trietch	(860) 234-1854	trietchwj@mansfieldct.org
Town of Woodbridge/Library	10 Newtown Road, Woodbridge, CT 06525	6/1/2019	75.00%	$174,400.00	Anthony Genovese	(203) 389-3482	agenovese@woodbridgect.org
City of Norwalk/Norwalk Historical	141 East Avenue, Norwalk, CT 06851	5/1/2019	95.00%	$47,489.00	Dan Miller	(203) 854-7940	dmiller@norwalkct.org
Newtown BOE/Hawley School	11 Queen Street, Newtown, CT 06470	5/1/2019	95.00%	$78,800.00	Rick Spreyer	(203) 270-6131	rick.spreyer@newtown-ct.gov
Town of Waterford	15 Rope Ferry & 200 Boston Post Rd. Waterford	5/31/2019	90.00%	$1,882,578.12	Abby Piersall	(860) 444-5813	apiersall@waterfordct.org
Town of Windsor	JFK 530 Park Avenue	4/10/2019	80.00%	$2,577,697.99	Whit Przech	(860) 285-1870	przech@townofwindsorct.com
Town of Windsor	Poquonock Elementary School	10/16/2019	90.00%	$1,523,217.47	Whit Przech	(860) 285-1870	przech@townofwindsorct.com
Town of Stratford/Eli Whitney Elem. School	1130 Huntington Rd. Stratford, CT 06614	9/13/2019	80.00%	$151,731.52	Brian Snyder	(203) 243-3346	brian@snyderarchitects.com
Town of Cheshire / Cheshire Fire Headquarters	250 Maple Avenue Cheshire, CT 06400	2/27/2020	80.00%	$133,800.00	George Noewatne	(203) 271-6650	gnoewatne@cheshirect.org
PAC Group/Parker School Elderly Housing	104 Old Post Road, Tolland, CT 06084	7/29/2019	95.00%	$746,000.00	Rome Santilli	(860) 485-9363	rsantilll@PACGROUPLLC.com
Town of Manchester/Manchester Fire House #2	75 Center Street, Manchester, CT 06040	12/9/2019	75.00%	$167,800.00	Scott Shanley	(860) 674-3123	sshanley@manchesterct.gov
Town of Tolland/Tolland Rec Center	104 Old Post Road, Tolland, CT 06084	1/21/2020	80.00%	$212,000.00	Scott Lappen	(860) 871-3694	slappen@tolland.org
Fischer Technologies	750 Marshall Phelps Road, Windsor, CT 06095	2/28/2020	95.00%	$257,000.00	Yves Oullette	(203) 537-7641	Y.Ouellette738@gmail.com
Town of Bristol-HA Cambridge Park	64 Davis Drive, Bristol, CT 06010	12/6/2020	80.00%	$197,700.00	Carl R. Johnson	(860) 585-2028	cjohnson@bristolhousing.org
Klingberg Family Centers	370 Linwood Street, New Britain, CT 06052	4/30/2020	95.00%	$110,000.00	Joseph M. Milke	(860) 832-5540	joem@klingberg.org
City of Norwalk/Norwalk Fire Dept. Station #4	180 Westport Avenue, Norwalk, CT 06851	11/22/2019	80.00%	$83,200.00	James Hines	(203) 858-7198	jim@jmkconstructiongroup.com
City of Norwalk/Norwalk Fire Dept. Station #1	90 New Canann Avenue, Norwalk, CT 06850	11/27/2019	80.00%	$70,900.00	James Hines	(203) 858-7198	jim@jmkconstructiongroup.com
Team Inc, Derby	30 Elizabeth Street, Derby, CT 06418	2/26/2020	100.00%	$48,000.00	Edward Leavy	(203)-736-5420	edwrdlvy@sbcglobal.net
Town of Southington / Southington High School	720 Pleasant Street Southington, CT 06489	8/28/2020	100.00%	$153,126.00	Peter Romano	(860)-628-3200	promano@southingtonschools.org

NAME / Owner	JOB LOCATION	Completion Date	% of work performed by us	Contract Value	Representative	Phone Number	Email Address
Town of Guilford / Abraham Baldwin	68 Bullard Drive Guilford, CT 06437	6/23/2020	100.00%	$1,665,503.60	Cliff Gurnham	(203)-458-0001	gurnhamc@guilfordschools.org
Town of West Hartford/Hall High School	975 North Main Street, West Hartford, CT 06107	5/20/2020	100.00%	$59,900.00	Mike Longo	860-538-7732	mike.longo@westhartfordct.gov
	INSTALLATIONS FOR 2020						
CT State Colleges / Three Rivers	574 New London Turnpike Norwich, CT 06360	9/2/2020	100.00%	$75,732.48	Yolanda Hacia	(860)-244-7732	yhacia@commnet.edu
Town of Farmington / West Woods Elementary	50 Judson Lane Farmington, CT 06032	7/30/2020	100.00%	$147,000.00	Tim Harris	(860)-673-8270x7050	harrist@fpsct.org
Town of Stratford / Lordship Fire Station	21 Prospect Dr. Stratford, CT	9/19/2020	100.00%	$94,615.69	Phil Ryan	(203)-385-4044	pryan@townofstratford.com
CT State Colleges /Norwalk Comm. College	188 Richards Ave. Norwalk, CT	8/31/2020	100.00%	$638,988.68	Yolanda Hacia	(860)-244-7732	yhacia@commnet.edu
New Britain Housing Authority	10 Grand Street, New Britain, CT 06051		100.00%	$69,350.00	Margaret Malinowski	860-826-3430	
New Britain Housing Authority/Arthur D'Amato A	40 Chestnut Street, New Britain, CT 06051	10/13/2020	100.00%	$73,900.00	John Hamilton		
DAS / Franklin Square - New Britain	10 Franklin Square, New Britain, CT 06051	12/4/2020	100.00%	$98,000.00	Nick Garcia	860-713-5678	Nicholas.Garcia@ct.gov
	INSTALLATIONS FOR 2021						
Town of Guilford / Melissa Jones	31 Park Street, Guilford, CT 06437	8/20/2020	80.00%	$1,414,147.46	Cliff Gurnham	203-458-0001	gurnhamc@guilfordschools.org
DAS / Rocky Hill Library for the Blind	198 West Street, Rocky Hill, CT 06067	7/28/2020	80.00%	$193,806.68	Steven Udeh	860-714-5730	
Town of Woodbridge / Amity Reg Sr High Schoo	25 Newton Road, Woodbridge, CT 06525-1598	10/21/2020	75.00%	$651,952.72	Steve Martoni	203-397-4818	
Town of Fairfield / Roger Sherman Elementary S	250 Fern Street, Fairfield, CT 06824	11/17/2020	80.00%	$947,222.33	Lee Flaherty		lflaherty@fairfieldct.org
Town of Newington / Indian Hill Country Club	11 Golf Street, Newington, CT 06111	12/2/2020	80.00%	$206,400.00	Keith Chapman	860-666-5447	
Town of Chester / Cherry Hill Apartments	218 Middlesex Turnpike, Chesire, CT 06412	3/31/2021	100.00%	$56,472.00	Doug Williams	869-526-9724	
City of Waterbury / Water Department	21 East Aurora Street, Waterbury, CT 06708	5/17/2021	80.00%	$64,750.00	Kevin McCaffery	203-5746740	
Town of Guilford/Abraham Baldwin Middle Scho	68 Bullard Drive Guilford, CT 06437	11/23/2021	100.00%	$1,483,000.00	Cliff Gurnham	203-458-0001	gurnhamc@guilfordschools.org
WSCU Suite Mechanical Renovations	181 White Street, Danbury, CT 06810	8/20/2021	100.00%	$298,000.00	Daniel Casinelli	203-837-8660	casinellid@wscu.edu
Washington Village / Dimeo	Various Addresses, Norwalk, CT	12/3/2021	80.00%	$1,013,500.00	Michael J Fuchs		
Stratford Housing Authority	75A Griffin Street, Stratford, CT 06615	10/25/2021	100.00%	$564,000.00	Nile Scala	203-375-4483	nscala@idamelia.com
Willimantic Housing Authority	Marcella Eastman Terrace, Willimantic, CT 06226	12/7/2021	100.00%	$590,859.66	Kim Haddad	860-456-1413	
New Horizons Village / CORE	37 Bliss Memorial Road, Unionville, CT 06085	10/31/2021	80.00%	$350,000.00	Nicholas Matarazzo	860-678-0663	
Toiwn of Coventry / Captain Nathan Hale Schoo	1776 Main Street, Coventry, CT 06238	11/19/2021	100.00%	$119,065.00	Joe Salamone	203-281-6895	
Sedgwick Middle School / Town of West Hartfor	128 Sedgwick Road, West Hartford, CT 06107	11/22/2021	100.00%	$344,800.00	Michael Longo	860-570-6500	
Town of Woodbridge / Amity Reg Sr High Schoo	25 Newton Road, Woodbridge, CT 06525-1598	10/25/2021	100.00%	$1,219,600.00	Lucian Dragulski	860-667-3233 x 113	
Town of Manchester/Manchester High School	134 East Middle Turnpike, Manchester, CT 06040	8/30/2021	100.00%	$72,000.00	Karen Clancy	860-647-3444	
Carl E Allgrove Elementary School	33 Turkey Hills Road, East Granby, CT	10/12/2021	100.00%	$86,400.00	Ray Carlson	860-653-2505	rayc@eastownhall.com

Document A310 ™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:
(Name, legal status and address)

Sav-Mor Cooling & Heating, Inc.
231 Captain Lewis Drive
Southington, CT 06489

SURETY:
(Name, legal status and principal place of business)

North American Specialty Insurance Company
1200 Main Street, Suite 800
Kansas City, MO 64105
Mailing Address for Notices

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

Town of Fairfield
Sullivan Independence Hall, 725 Old Post Road
Fairfield, CT 06824

BOND AMOUNT: 5% Five Percent of Amount Bid

PROJECT:
(Name, location or address, and Project number, if any)

Fairfield Warde High School Cafeteria - Rooftop HV Unit Replacement - Bid #2022-102

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 5th day of January, 2022.

Melissa A Johnson
(Witness)

Sav-Mor Cooling & Heating, Inc.
(Principal) *(Seal)*

By:
(Title) Troy Kerwowski - Pres.CMO

Ashley Alexis
(Witness) Ashley Alexis

North American Specialty Insurance Company
(Surety) *(Seal)*

By:
(Title) Craig H. Meeker, Attorney-in-Fact

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY

GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Overland Park, Kansas, and Washington International Insurance Company, a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Overland Park, Kansas, each does hereby make, constitute and appoint: **Craig H. Meeker**

Principal: Sav-Mor Cooling & Heating, Inc. **Bond Number:** Bid Bond

Obligee: Town of Fairfield **Bond Amount:** See Bond Form

Bond Description: Fairfield Warde High School Cafeteria - Rooftop HV Unit Replacement - Bid #2022-102

Its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:

FIFTY MILLION ($50,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of both North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on the 9th of May, 2012:

"RESOLVED, that any two of the Presidents, any Managing Director, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company & Senior Vice President of North American Specialty Insurance Company

By _____
Michael A. Ito, Senior Vice President of Washington International Insurance Company & Senior Vice President of North American Specialty Insurance Company

IN WITNESS WHEREOF, North American Specialty Insurance Company and Washington International Insurance Company have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this 14th day of December, 2021.

North American Specialty Insurance Company
Washington International Insurance Company

State of Illinois
County of Cook ss:

On this 14th day of December, 2021, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Michael A. Ito, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

YASMIN A. PATEL
OFFICIAL SEAL
Notary Public, State of Illinois
My Commission Expires
May 28, 2023

Yasmin A. Patel, Notary

I, Jeffrey Goldberg, the duly elected Assistant Secretary of North American Specialty Insurance Company and Washington International Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company and Washington International Insurance Company, which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 5th day of January, 2022.

Jeffrey Goldberg, Vice President & Assistant Secretary of
Washington International Insurance Company & North American Specialty Insurance Company

SUBCONTRACTORS
Provide subcontractor details if any are to be employed as part of this contract, including labor rates:

SUBCONTRACTOR #1:

Name of Company KMK Insulation Fed ID # 06-1289677

Contact Person Mike Visnic Title Vice President

Company Address 1907 Hartford Turnpke, North Haven, CT 06473 Phone 203-671-2553

Trade Mechanical Insulation Email mvisnic@kmkinsulation.com

Rates: Supervisor $ 135.00 /hr Foreman $ 116.75 /hr Journeyman $ 108.25 /hr Apprentice $ 108.25 /hr

SUBCONTRACTOR #2:

Name of Company Masotti Electric LLC Fed ID # 06-1404912

Contact Person Jim Doucette Jr. Title Project Manager

Company Address 120 Industrial Drive, Southington, CT 06489 Phone 860-276-0097

Trade Electrical Email jim@masottielectric.net

Rates: Supervisor $ 110.00 /hr Foreman $ 110.00 /hr Journeyman $ 107.00 /hr Apprentice $ 105.00 /hr

SUBCONTRACTOR #3:

Name of Company WWF LLC Fed ID # 83-2403734

Contact Person Jeff Tracey Title Owner

Company Address 424 Berlin Street, East Berlin, CT 06023 Phone 860-828-5496

Trade Division 5 Email jeff@wwwelding andfab.com

Rates: Supervisor $ 135.00 /hr Foreman $ 125.00 /hr Journeyman $ 175.00 /hr Apprentice $ 110.00 /hr

Inworker includes truck with engine drive

SUBCONTRACTOR #4:

Name of Company Automated Logic Corp. Fed ID # 82-0540614

Contact Person Leo Perritano Title Sales Engineer

Company Address 23 Village Lane, Wallingford, CT 06492 Phone 860-883-7867

Trade Instrumentation and controls for HVAC Email leo.perritano@carrier.com

Rates: Supervisor $ N/A /hr Project Manager Foreman $ 185.60 /hr Programmer Journeyman $ 175.00 /hr Technician Apprentice $ 161.00 /hr

NOTE: All sub-Contractors are subject to approval by the Town of Fairfield and are required to provide Fed ID #.

SUBCONTRACTORS
Provide subcontractor details if any are to be employed as part of this contract, including labor rates:

SUBCONTRACTOR #1:

Name of Company New England Masonry & Roofing Co, Fed ID # 06-081146

Contact Person John Ciaralli Title Vice President

Company Address 1146 Sheridan Drive, Naugatuck, CT 06770 Phone 203-729-2266

Trade Roofing Email jc@nemasonry.com

Rates: Supervisor $ 135.00 /hr Foreman $ 125.00 /hr Journeyman $ 115.00 /hr Apprentice $ 105.00 /hr

SUBCONTRACTOR #2:

Name of Company _____ Fed ID # _____

Contact Person _____ Title _____

Company Address _____ Phone _____

Trade _____ Email _____

Rates: Supervisor $_____/hr Foreman $_____/hr Journeyman $_____/hr Apprentice $_____/hr

SUBCONTRACTOR #3:

Name of Company _____ Fed ID # _____

Contact Person _____ Title _____

Company Address _____ Phone _____

Trade _____ Email _____

Rates: Supervisor $_____/hr Foreman $_____/hr Journeyman $_____/hr Apprentice $_____/hr

SUBCONTRACTOR #4:

Name of Company _____ Fed ID # _____

Contact Person _____ Title _____

Company Address _____ Phone _____

Trade _____ Email _____

Rates: Supervisor $_____/hr Foreman $_____/hr Journeyman $_____/hr Apprentice $_____/hr

NOTE: All sub-Contractors are subject to approval by the Town of Fairfield and are required to provide Fed ID #.

AIA® Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of
in the year 2022
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)
Town of Fairfield
725 Old Post Road
Fairfield CT 06824

and the Contractor:
(Name, legal status, address and other information)
SAV-MOR Cooling and Heating, Inc.
231 Captain Lewis Drive
Southington, CT 06489

for the following Project:
(Name, location and detailed description)
Fairfield Warde High School - Cafeteria Air Conditioning
755 Melville Avenue, Fairfield CT 06825

The Architect:
(Name, legal status, address and other information)
Landmark Facilities Group, Inc.
252 East Avenue
Norwalk CT 06855

The Owner and Contractor agree as follows.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement.

AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Init.
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TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

☐ The date of this Agreement.

☐ A date set forth in a notice to proceed issued by the Owner.

☑ Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

Fourteen (14) calendar days after receipt of Notice to Proceed or date of this contract, whichever comes first.

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

☐ Not later than ( ) calendar days from the date of commencement of the Work.

☑ By the following date: August 21, 2022

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date
(Table Deleted)	

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be One Million Twenty Six Thousand Dollars ($1,026,000), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price
Add Alternate #1 (New Steam Fin Tube Radiation)	$14,400.00

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.

(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

If the Contractor neglects, fails or refuses to achieve substantial completion by 11:59 pm by the date stipulated in the Contractor's bid form for each of the bid components requiring durations or deadlines, liquidated damages of One Thousand Dollars ($1,000.00) per day or part thereof shall be due for each bid component to the Owner and subtracted from the unpaid contract amount or bond held by the Owner. "Substantial completion" is as defined in the General Conditions of the Contract for Construction, AIA Document A201 included in this project manual. "Substantial completion" is further defined as the date at which the local authorities with jurisdiction over this project grant a temporary or permanent certificate of occupancy (if required for occupancy) for each project area.

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the 25th day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the last day of the folllowing month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than forty five (45) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201®–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

Retainage of five (5) %.

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

None

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

None.

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

If not agreed to by the Owner (Town).

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

0 %

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

none

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2017

☑ Litigation in a court of competent jurisdiction

☐ Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

None

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

Gerald Foley, Director of Purchasing

Town of Fairfield

725 Old Post Road

Fairfield CT 06824

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

Troy Karkowski, President

SAV-MOR Cooling and Heating, Inc.

231 Captain Lewis Drive

Southington CT 06489
860-621-9959
troy@savmorct.com

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Contractor shall purchase and maintain insurance as set forth in the Town's invitation to bid documents.

§ 8.5.2 The Contractor shall provide a performance and payment bond as set forth in the Town's invitation to bid documents.

§ 8.6 This section intentionally omitted.

§ 8.7 Other provisions:

None

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A201™–2017, General Conditions of the Contract for Construction

.3 Drawings

Number	Title	Date
Exhibit "B" drawings attached to this Agreement		
Town of Fairfield Invitation to Bid Document		
Landmark Facilities Group Drawings and Project Manual Prevailing		
Wage Rate Information		
Bid Addenda Documents		

.4 Specifications

Section	Title	Date	Pages
Exhibit "C" specifications attached			
to this Agreement			

.5 Addenda, if any:

Number	Date	Pages
#1	12/17/2021	1
#2	12/23/2021	3

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.6 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

☐ AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

☐ The Sustainability Plan:

Title	Date	Pages

☐ Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.7 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)*

AIA® Document A101® – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the 24th day of January in the year 2022
(In words, indicate day, month and year.)

for the following **PROJECT**:
(Name and location or address)

Fairfield Warde High School - Cafeteria Air Conditioning
755 Melville Avenue, Fairfield CT 06825

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A201®–2017, General Conditions of the Contract for Construction. Article 11 of A201–2017 contains additional insurance provisions.

THE OWNER:
(Name, legal status and address)

Town of Fairfield
725 Old Post Road
Fairfield CT 06824

THE CONTRACTOR:
(Name, legal status and address)

SAV-MOR Cooling and Heating, Inc.
231 Captain Lewis Drive
Southington, CT 06489

TABLE OF ARTICLES

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201®–2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

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§ A.2.3 Required Property Insurance

§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:
(Indicate below the cause of loss and any applicable sub-limit.)

Cause of Loss	Sub-Limit

§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:
(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

Coverage	Sub-Limit

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The

Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ A.2.4 Optional Extended Property Insurance.

The Owner shall purchase and maintain the insurance selected and described below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

☐ **§ A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance**, to reimburse the Owner for loss of use of the Owner's property, or the inability to conduct normal operations due to a covered cause of loss.

☐ **§ A.2.4.2 Ordinance or Law Insurance**, for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

☐ **§ A.2.4.3 Expediting Cost Insurance**, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

☐ **§ A.2.4.4 Extra Expense Insurance**, to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

☐ **§ A.2.4.5 Civil Authority Insurance**, for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

☐ **§ A.2.4.6 Ingress/Egress Insurance**, for loss due to the necessary interruption of the insured's business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

☐ **§ A.2.4.7 Soft Costs Insurance**, to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

§ A.2.5 Other Optional Insurance.

The Owner shall purchase and maintain the insurance selected below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)

☐ **§ A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information.
(Indicate applicable limits of coverage or other conditions in the fill point below.)

☐ **§ A.2.5.2 Other Insurance**
(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage	Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than ($) each occurrence, ($) general aggregate, and ($) aggregate for products-completed operations hazard, providing coverage for claims including

.1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;

.2 personal injury and advertising injury;

.3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;

.4 bodily injury or property damage arising out of completed operations; and

.5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

.1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.

.2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.

.3 Claims for bodily injury other than to employees of the insured.

.4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.

.5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.

.6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.

.7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.

.8 Claims related to roofing, if the Work involves roofing.

.9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.

.10 Claims related to earth subsidence or movement, where the Work involves such hazards.

.11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than ($) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than ($) each accident, ($) each employee, and ($) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.
(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

☐ **§ A.3.3.2.1** Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible,

and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:
(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

☐ **§ A.3.3.2.2 Railroad Protective Liability Insurance**, with policy limits of not less than ($) per claim and ($) in the aggregate, for Work within fifty (50) feet of railroad property.

☐ **§ A.3.3.2.3 Asbestos Abatement Liability Insurance**, with policy limits of not less than ($) per claim and ($) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.

☐ **§ A.3.3.2.4** Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

☐ **§ A.3.3.2.5** Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

☐ **§ A.3.3.2.6 Other Insurance**
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	**Limits**

§ A.3.4 Performance Bond and Payment Bond
The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:
(Specify type and penal sum of bonds.)

Type	**Penal Sum ($0.00)**
Payment Bond	
Performance Bond	

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

FAIRFIELD WARDE HIGH SCHOOL
CAFETERIA AIR-CONDITIONING

ISSUE: FOR BID

DATE: NOVEMBER 12, 2021

DRAWING INDEX

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MD-100	MECHANICAL DEMO PLANS		
M-100	MECHANICAL PLANS – FIRST FLOOR	FP-001	SPRINKLER DETAILS AND LEGEND
M-101	MECHANICAL PLAN – ROOF	FP-002	SPRINKLER SPECIFICATIONS
M-200	MECHANICAL SECTIONS AND DIAGRAMS	FP-100	SPRINKLER PLAN – FIRST FLOOR
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M-400	MECHANICAL DETAILS	S1.0	STRUCTURAL ROOF PLAN AND DETAILS
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E-101	ELECTRICAL PLAN – ROOF		
E-102	ELECTRICAL PLAN – ROOF		

DOCUMENTS PREPARED BY:

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REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE

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WARDE FAIRFIELD HIGH SCHOOL
.
, FAIRFIELD, CT

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: AD
DATE: 7/16/21		CHECKED BY: RS

PROJECT TITLE SHEET

FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\DWG	.	T-001

GENERAL DEMOLITION NOTES

1. ALL DEMOLITION WORK TO BE COORDINATED WITH BUILDING MANAGER TO AVOID DISTURBANCES TO OTHER OCCUPANTS. ALL DEMOLITION WORK TO BE DONE DURING THE HOURS DESIGNATED.

2. MAINTAIN STABLE AND SAFE CONDITIONS AT ALL TIMES, TAKING CAUTION TO PROTECT THE EXISTING AND ADJACENT BUILDINGS, THEIR OCCUPANTS, STREET FRONT AND THE PUBLIC.

3. DEMOLISHED MATERIAL, NOT IDENTIFIED FOR SALVAGE BY THE OWNER, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE COMPLETELY REMOVED FROM THE JOB SITE.

4. PROVIDE PROTECTION TO ALL EXISTING ELECTRICAL, MECHANICAL, PLUMBING, AND SPRINKLER EQUIPMENT TO REMAIN.

5. COORDINATE WITH GENERAL CONTRACTOR TO REMOVE ALL ABANDONED ELECTRICAL CABLES FROM EXISTING LOCATIONS, TRACE BACK TO THEIR SOURCE AND TAG.

6. ALL LIFE SAFETY EQUIPMENT AND ASSOCIATED CONDUIT AND WIRING SHALL BE PROTECTED FROM ANY PHYSICAL DAMAGE DURING DEMOLITION AND/OR CONSTRUCTION.

7. THE SCOPE OF THE DEMOLITION WORK HAS GENERALLY BEEN INDICATED ON THE DRAWING FOR CONTRACTORS INFORMATION. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE FULL SCOPE, EXTENT, NATURE AND MANNER OF DEMOLITION REQUIRED.

8. ONLY WORKMEN SKILLED AND KNOWLEDGEABLE IN THEIR RESPECTIVE TRADES SHALL BE ENGAGED IN THE DEMOLITION OF ANY WORK.

9. CONTRACTORS SHALL TAKE SPECIAL CARE TO DEMOLISH ONLY THAT WORK WHICH IS REQUIRED TO BE DEMOLISHED AND NOT TO DISTURB ANY WORK WHICH IS TO REMAIN. IF IN THE COURSE OF DEMOLITION, CONTRACTOR DESTROYS OR DISTURBS ANY WORK WHICH IS TO REMAIN, THEN HE SHALL AT HIS OWN EXPENSE, REPAIR OR REPLACE SUCH WORK AS NECESSARY.

10. REMOVE AND DISCARD ALL DEMOLISHED ITEMS IN A MANNER FULLY APPROVED BY THE CITY OF NEW YORK AND ANY OTHER GOVERNMENT AGENCY.

11. DO NOT SCALE DRAWINGS.

12. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND JOB CONDITIONS PRIOR TO SUBMITTING BIDS AND SHALL REPORT TO THE OWNER'S REPRESENTATIVE ANY DISCREPANCIES OR OMISSIONS WHICH WOULD INTERFERE WITH SATISFACTORY COMPLETION OF WORK. ALL BUILDING DEPARTMENT PERMITS SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION WORK.

PROJECT DESCRIPTION

1. THE PRIMARY INTENT OF THIS PROJECT IS TO REPLACE EXISTING HEATING–VENTILATION EQUIPMENT WITH NEW SYSTEMS CAPABLE OF HEATING, VENTILATING AND AIR–CONDITIONING. A NEW VRF SYTSEM WILL BE INSTALLED TO HANDLE SPACE AND ENVELOPE LOADS IN THE CAFETERIA AND SENIOR COMMONS.

2. BIDDERS SHALL RECOGNIZE THAT THE EXISTING BUILDING AUTOMATION SYSTEM (BAS) IS COMPRISED OF AUTOMATED LOGIC (ALC) HARDWARE WITH SOME LEGACY JOHNSON CONTROLS (JCI) HARDWARE STILL IN PLACE. FOR ALL EQUIPMENT REPLACED AS PART OF THIS PROJECT, CONTRACTOR SHALL MIGRATE ALL POINTS MONITORED BY JCI TO NEW OPEN–LICENSE FIELD CONTROLLERS AS MANUFATURED BY HONEYWELL, JCI FX, VYKON OR DISTECH. DO NOT OVERLAY ALC ON TOP OF EXISTING JCI CONTROLLERS.

3. ALL WORK SHALL TAKE PLACE DURING SUMMER 2022 BREAK, WHICH RUNS FROM LATE JUNE TO LATE AUGUST 2022. NEW SYSTEMS SHALL BE STARTED, TESTED AND BALANCED PRIOR TO 8/25/22. IF PREMIUM LABOR IS REQUIRED TO ACHIEVE THIS DEADLINE, CONTRACTOR SHALL FIGURE THIS IN HIS BASE BID.

4. CONTRACTOR IS ENCOURAGED TO PREPARE SUBMITTALS FOR LONG LEAD ITEMS AND ISSUE TO DESIGN ENGINEER IMMEDIATELY FOLLOWING AWARD OF CONTRACT.

5. AN EXISTING WARRANTY IS IN PLACE FOR THE ROOF OF THE BUILDING. ALL ROOF WORK SHALL BE PERFORMED BY AN AUTHORIZED INSTALLER OF 'SIPLAST' PRODUCT IN ORDER TO MAINTAIN ROOF WARRANTY.

PROJECT NOTES:

1. ALL BIDDERS SHALL VISIT PROJECT SITE TO THOROUGHLY FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS. CLAIMS FOR EXTRA PAYMENTS FOR WORK, WHICH COULD HAVE BEEN IDENTIFIED VIA CAREFUL SITE INSPECTION, WILL NOT BE ACKNOWLEDGED.

2. ANY REQUIRED CUTTING AND PATCHING OF WALLS AND CEILINGS SHALL BE DONE BY MECHANICAL CONTRACTOR OR HIS SUBS. BIDDERS SHALL IDENTIFY AND COORDINATE ANY REQUIRED CUTTING/PATCHING PRIOR TO CONSTRUCTION AND COORDINATE WITH OWNER PRIOR TO EXECUTION.

3. CONTRACTOR SHALL PROVIDE A 'TURNKEY' INSTALLATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

- DEMOLITION AND DISPOSAL OF EXISTING HVAC EQUIPMENT
- ELECTRICAL LINE AND LOW–VOLTAGE WIRING AND CONDUITS.
- INSTALLATION OF ALL NEW HVAC EQUIPMENT, DUCTWORK, PIPING AND CONTROLS.
- INSTALLATION OF NEW MAKEUP AIR UNIT FOR KITCHEN
- INSTALLATION OF NEW VFD ONTO EXISTING KITCHEN GREASE FAN
- INSTALLATION OF NEW VARIABLE VOLUME CONTROLS AND HEAT SENSORS AT EXISTING KITCHEN GREASE HOOD.
- ALL REQUIRED CUTTING/PATCHING/PAINTING AND REMOVAL, REINSTALLATION OF HUNG CEILINGS.
- INTEGRATION OF EQUIPMENT INTO EXISTING BUILDING BAS BY ATC CONTRACTOR.
- ROOF CUTTING, PATCHING AND FLASHING BY BUILDING ROOFING CONTRACTOR.
- SYSTEM TESTING AND BALANCING (AIR AND WATER) BY PROFESSIONAL, LICENSED ATB CONTRACTOR.
- LABELING OF DUCTWORK AND PIPING.
- OWNER TRAINING ON EQUIPMENT AND CONTROLS (MINIMUM 2HRS EACH).
- CLOSEOUT DOCUMENTS INCLUDING AS–BUILT DRAWINGS, O&M MANUALS, TEST REPORTS, WARRANTY CARDS, ETC.

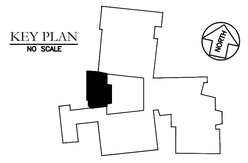
4. CONTRACTOR SHALL FURNISH NEW VARIABLE SPEED HOOD CONTROLS FOR EXISTING KITCHEN EXHAUST HOOD. REFER TO WRITTEN (BOOK) SPECS FOR ADDITIONAL INFORMATION. HOOD CONTROLS ARE BASED ON GREENHECK MODEL GKC–DCV AND SHALL INCLUDE CONTROLLER, WIRING, AND ALL END DEVICES REQUIRED FOR A FUNCTIONAL SYSTEMS.

LEGEND

	FAN OR PUMP
	FAN OR PUMP
TT	TEMPERATURE TRANSMITTER
HT	HUMIDITY TRANSMITTER
FS	FLOW SWITCH
HOA	HAND OFF AUTO
M, MD	MOTORIZED OPERATOR
SD	SMOKE DETECTOR
VFD	VARIABLE FREQUENCY DRIVE
DPS	DIFFERENTIAL PRESSURE SWITCH
LL	LOW LIMIT SWITCH (FREEZESTAT)
CO2	CARBON DIOXIDE LEVEL SENSOR
CV	CONTROL VALVE (MODULATING)
RI	RUN INDICATOR
SS	START/STOP
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
PT	PRESSURE TRANSDUCER
ZD	ZONE DAMPER
AHU	AIR HANDLING UNIT
FCU	FAN COIL UNIT
R/A	RETURN AIR
S/A	SUPPLY AIR
O/A	OUTSIDE AIR
(E)	EXISTING
(N)	NEW
X–X	ZONE DESIGNATION
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
VD	VOLUME DAMPER
EF	EXHAUST FAN
	ISOLATION VALVE
FD	FIRE DAMPER
T	THERMOSTAT
H	HUMIDISTAT
FCP	FACTORY CONTROL PANEL
SC	SPEED CONTROL
SD	SMOKE DETECTOR (DUCT MOUNTED)
SR	SPEED REFERENCE
DF	DRIVE FAULT
UV	UNIT VENTILATOR
DOAS	DEDICATED OUTDOOR AIR SYSTEM
LPS	LOW PRESSURE STEAM
FTR	FIN TUBE RADIATION
XX / X–X	BAS INTERFACE POINT (NEW UNLESS OTHERWISE NOTED)
	POINT OF CONNECTION, NEW WORK TO EXISTING

REV	DATE	DESCRIPTION
–	11–12–21	ISSUED FOR BID

KEY PLAN
NO SCALE



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, FAIRFIELD, CT

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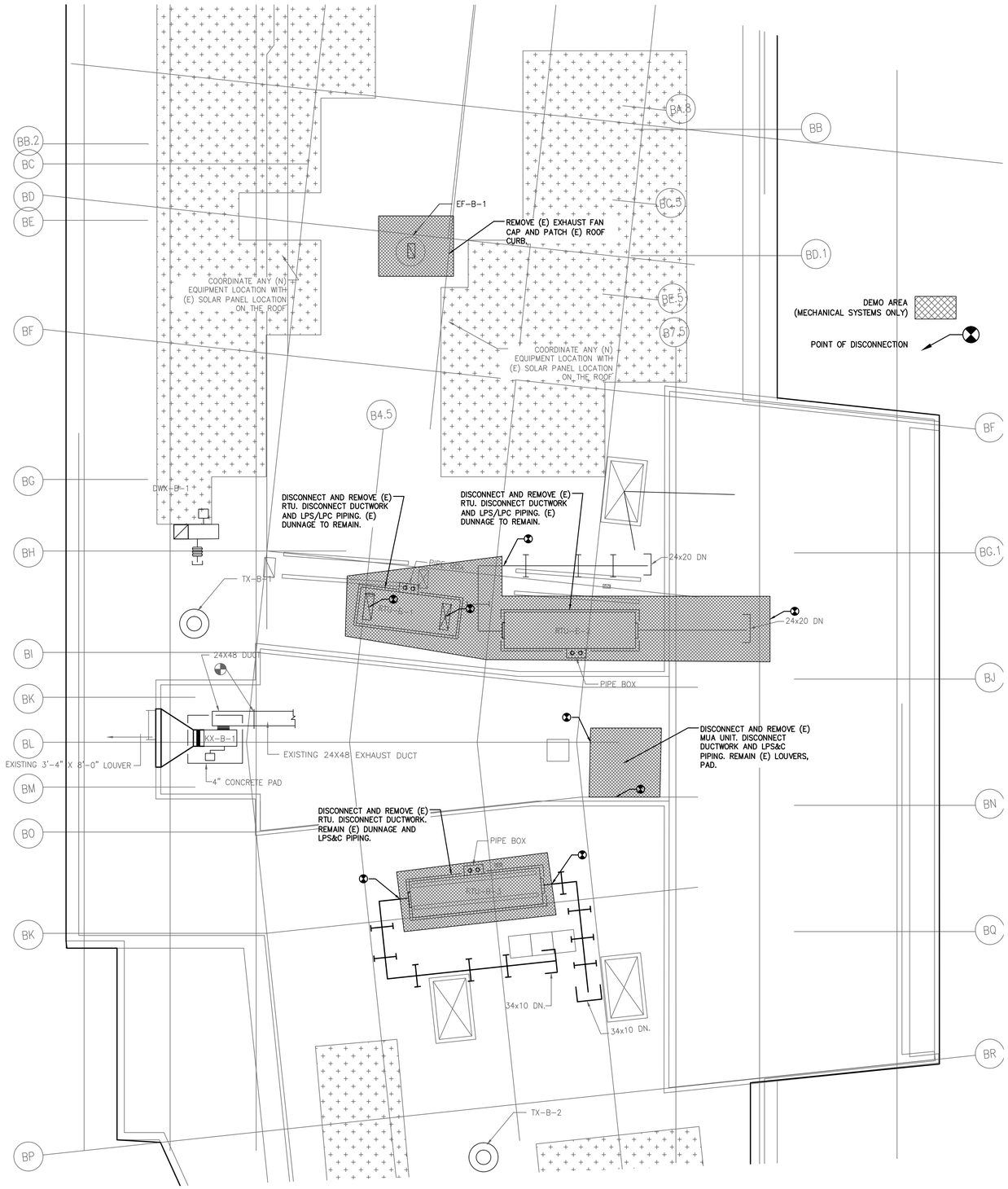
DATE: 7/16/21		CHECKED BY: RS

VRF EQUIPMENT DIAGRAM

FILE NAME: \DIR\DWG	JOB NUMBER: .	DRAWING NUMBER: M-002



01 DEMOLITION HVAC ROOF PLAN
1/8" = 1'-0"

02 DEMOLITION HVAC FIRST FLOOR PLAN
1/8" = 1'-0"

REV	DATE	DESCRIPTION
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NO SCALE

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·
, FAIRFIELD, CT

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: AD
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MECHANICAL DEMO PLAN
ROOF , FIRST FLOOR

FILE NAME: \DIR\DWG	JOB NUMBER: ·	DRAWING NUMBER: MD-100

NOTES:

1. CONTRACTOR SHALL MODIFY EXISTING CEILING GRID AS REQUIRED TO INSTALL NEW FAN COIL UNITS. CONTRACTOR SHALL INCLUDE ALL REQUIRE REMOVAL/REINSTALLATION OF GRID, LIGHTS AND OTHER OBJECTS AS NECESSARY TO PERFORM INSTALLATION OF EQUIPMENT, PIPING AND DUCTWORK SHOWN ON PLANS.

2. CONTRACTOR SHALL PERFORM A CAREFUL FIELD SURVEY TO AVOID CONFLICTS WITH EXISTING LIGHTS AND SPRINKLER HEADS/PIPING.

3. ALL FAN COILS SERVING A COMMON SPACE SHALL BE SLAVED TO A SINGLE THERMOSTAT FOR CONTROL.

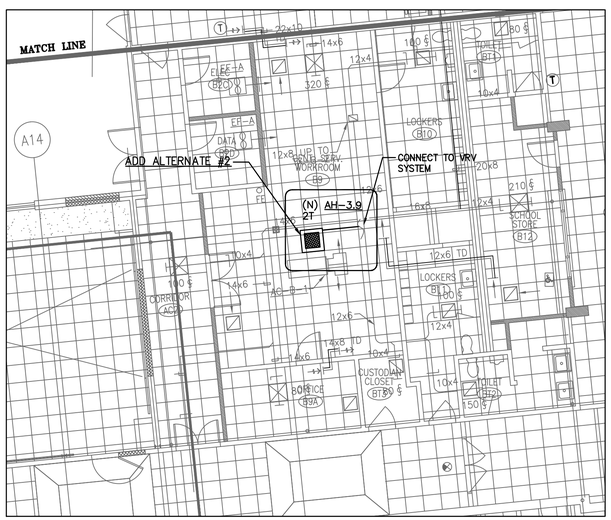
4. DOAS SYSTEM SHALL RUN DURING OCCUPIED PERIODS AND REMAIN OFF DURING UNOCCUPIED PERIODS. CONTROL SYSTEM SHALL MONITOR SPACE TEMPERATURES AND DYNAMICALLY RESET DOAS DISCHARGE AIR TEMPERATURE FROM 65 TO 75 DEG F,

6. CONTRACTOR SHALL ENGAGE LICENSED AIR BALANCE CONTRACTOR TO TEST AND INSPECT EXISTING DISHWASHER HOOD. RUN FAN AT MAX SPEED AND MEASURE FLOW AT ALL EXHAUST AIR INLETS. COMPARE RESULTS TO TRAVERSE READING TAKEN ON ROOF AT FAN INLET. IF MEASUREMENTS DO NOT AGREE, CHECK DUCTWORK FOR OBSTRUCTIONS SUCH AS CLOSED DAMPERS OR FOREIGN OBJECTS. GENERATE REPORT AND SUBMIT TO DESIGN ENGINEER FOR REVIEW.

7. CONTRACTOR SHALL FURNISH AND INSTALL VARIABLE SPEED KITCHEN HOOD CONTROLS. CONTROLS SHALL USE HEAT SENSORS TO VARY THE EXHAUST AND MAKEUP AIR FLOW. REFER TO WRITTEN (BOOK) SPECS FOR ADDITIONAL INFORMATION.

ADD ALTERNATE #1: CONTRACTOR SHALL FURNISH AND INSTALL NEW STEAM FIN TUBE RADIATION ALONG NORTH WALL OF CAFETERIA. CONNECT TO EXISTING STEAM SUPPLY AT ONE END OF UNIT VENTILATOR ROW, AND CONDENSATE RETURN AT OTHER END. PROVIDE NEW MOTORIZED STEAM CONTROL VALVE; REFER TO STEAM PIPING DIAGRAM FOR ADDITIONAL INFORMATION. FIN TUBE RADIATION IS BASED ON MODEL JA-14 BY SLANT FIN.

ADD ALTERNATE #2: FURNISH AND INSTALL NEW 1.5 TON CEILING CASSETTE FAN COIL UNIT FOR CUSTODIAN OFFICE. ALTERNATE SHALL INCLUDE ALL EQUIPMENT, PIPING, CONDENSATE PUMP, AND CONTROLS. ALTERNATE SHALL ALSO INCLUDE POSSIBLE DIFFERENT PIPING LAYOUT AND UPSIZING HP AND BS UNIT.



02 PROPOSED CUSTODIAN OFFICE PLAN
1/8" = 1'-0"

01 PROPOSED HVAC FIRST FLOOR PLAN
1/8" = 1'-0"

REV	DATE	DESCRIPTION
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KEY PLAN
NO SCALE

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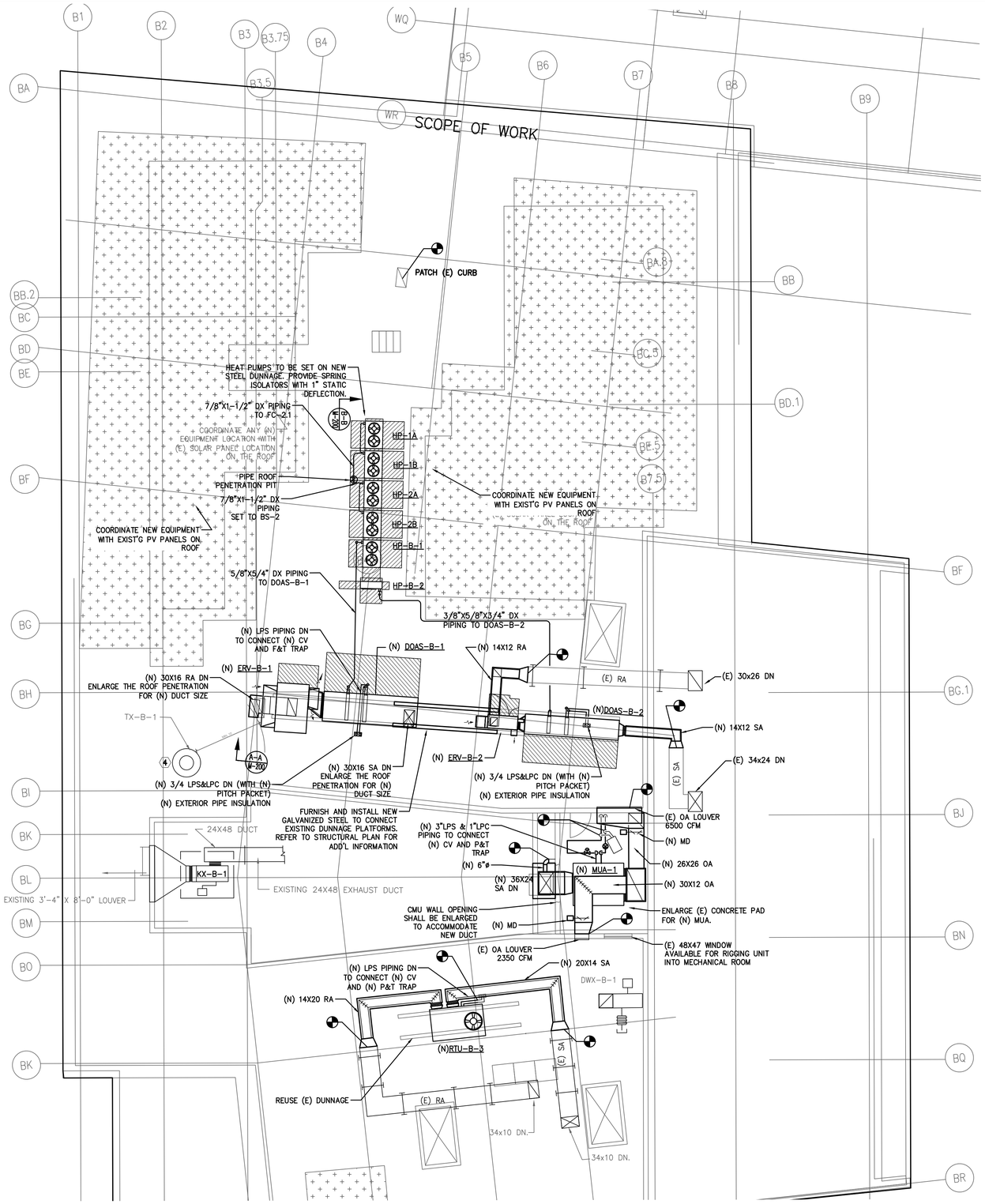
.
, FAIRFIELD, CT

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: AD
DATE: 7/16/21		CHECKED BY: RS

MECHANICAL PLAN
FIRST FLOOR

FILE NAME: \DIR\.DWG	JOB NUMBER: .	DRAWING NUMBER: M-100



01 PROPOSED HVAC ROOF PLAN
1/8" = 1'-0"

NOTES:

1. CONTRACTOR SHALL EXTEND EXIST'G STEEL DUNNAGE AS REQUIRED TO ACCOMMODATE NEW EQUIPMENT.

2. REFER TO STRUCTURAL PLANS FOR SUPPORT OF NEW ROOFTOP EQUIPMENT.

3. REFER TO ELECTRICAL PLANS FOR LIGHTING PROTECTION REQUIREMENTS.

4. ALL EXTERIOR DUCTWORK SHALL BE COVERED WITH SELF ADHESIVE WEATHERPROOF MEMBRANE FOLLOWING AIR SEALING AND APPLICATION OF RIGID BOARD INSULATION. OVERLAP ALL SEAMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

5. ROOFTOP EQUIPMENT SHALL BE INSTALLED SO AS TO MAINTAIN MANUFACTURER'S RECOMMEND SERVICE CLEARANCES ON ALL SIDES.

6. ALL ROOF PENETRATIONS AND FLASHING SHALL BE DONE BY CONTRACTOR HOLDING EXISTING ROOF WARRANTY. OWNER TO PROVIDE ROOF CONTRACTOR'S CONTACT INFORMATION.

7. REFER TO ELECTRICAL PLANS FOR INSTRUCTIONS ON GROUNDING/BONDING OF ALL ROOFTOP EQUIPMENT AND DUCTWORK.

8. CONTRACTOR SHALL HIRE AIR BALANCE CONTRACTOR TO 'PRE BALANCE' GREASE AND DISHWASHER FAN AT START OF PROJECT. TAKE AIR FLOW TRAVERSE READINGS TO ESTABLISH EXISTING CFM AT BOTH FANS AND REPORT DATA TO DESIGN ENGINEER.

9. CONTRACTOR SHALL FURNISH AND INSTALL FIELD CONTROLLERS, END DEVICES AND WIRING FOR ALL NEW EQUIPMENT. BUILD DYNAMIC GRAPHICS AT EXISTING USER INTERFACE. FIELD CONTROLLERS SHALL BE INTEGRATED INTO EXISTING 'WEB CTRL' USER INTERFACE BY AUTOMATED LOGIC CORP.

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE

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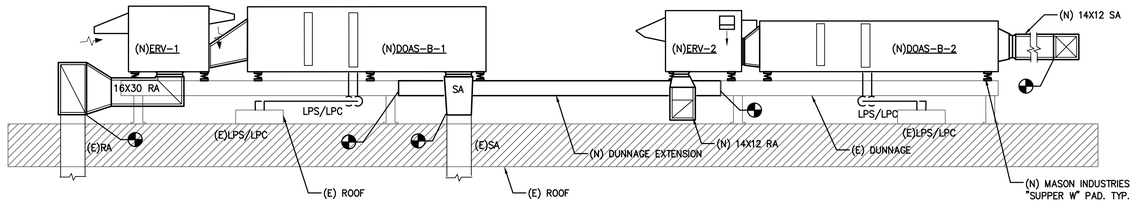
WARDE FAIRFIELD HIGH SCHOOL
.
, FAIRFIELD, CT

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: MD
DATE: 7/16/21		CHECKED BY: RS

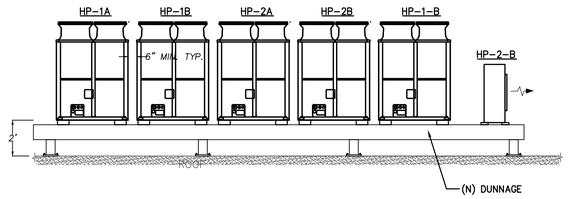
MECHANICAL PLAN
ROOF

FILE NAME: \DIR\DWG	JOB NUMBER: .	DRAWING NUMBER: M-101

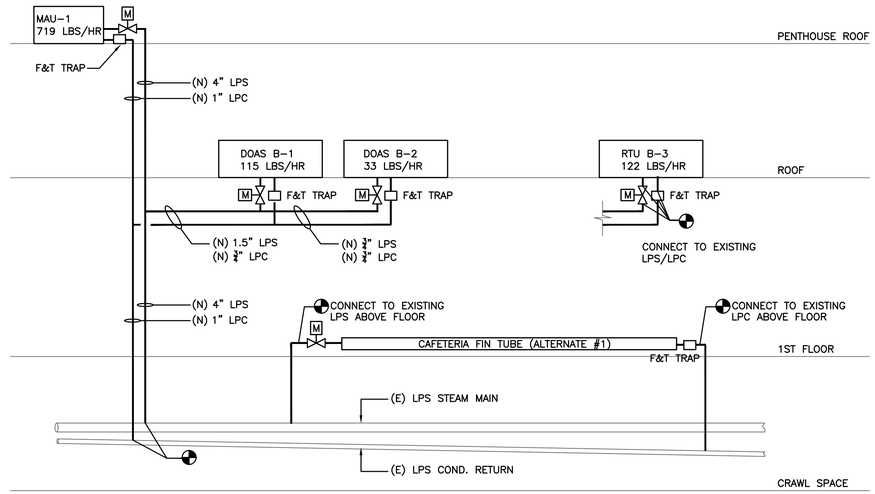


NOTES:
1. PROVIDE FLEXIBLE CANVAS CONNECTORS AT ALL DUCT CONNECTIONS TO EQUIPMENT.
2. UNITS SHALL BE SET ON DUNNAGE USING SPRING ISOLATORS WITH MIN. 1" STATIC DEFLECTION. PROVIDE ISOLATOR SUBMITTAL TO DESIGN ENGINEER FOR REVIEW.
3. ALL EXTERIOR DUCTWORK SHALL BE COVERED WITH 1.5" THICK RIGID INSULATION BOARD. COVER INSULATION WITH SELF-ADHESIVE WEATHERPROOF MEMBRANE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

01 SECTION A-A
1/4" = 1'-0"



02 SECTION B-B
1/4" = 1'-0"



STEAM PIPING DIAGRAM
NO SCALE

BASE CONTRACT WORK
CONTRACTOR SHALL REPLACE EXISTING 3" LP STEAM RISER WITH NEW 4" PIPE. REPLACE EXISTING 1" LP CONDENSATE WITH NEW. INSULATE NEW PIPING PER SPECIFICATIONS. PROVIDE NEW STEAM CONTROL VALVES AT MUA-1, DOAS B-1, DOAS B-2, AND RTU B-3.

ALTERNATE #3
PROVIDE 'DEDUCT ALTERNATE' TO DELETE MATERIALS AND LABOR FOR THE FOLLOWING WORK:
- FURNISH AND INSTALL NEW 1" LP CONDENSATE RISER AND BRANCH PIPING
- FURNISH AND INSTALL NEW F&T TRAPS AT MUA-1, DOAS B-1, DOAS B-2.

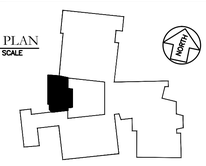
STEAM CONTROL VALVE SCHEDULE

TAG	UNIT SERVED	MFG	MODEL	FLOW RATE LBS/HR	TYPE	DESIGN Cv	VALVE Cv	BODY SIZE	ACTUATOR
SCV-1	DOAS B-1	BELIMO	G250B-N	115	GLOBE	30.24	40	2.0	LVKX24-SR
SCV-2	AHU 2.1 (ECONOMIZER)	BELIMO	165SQN17D	4,000	1.0	1.0	1.0	1.0	
SCV-3	AHU 1.2 (ECONOMIZER)	BELIMO	180SQN17D	5,000	0.65	0.65	0.65	0.65	
SCV-4	MAU-1	BELIMO	G250B-N	719	GLOBE	30.24	40	2.0	LVKX24-SR

NOTES:
1. PROVIDE VIBRATIONS ISOLATORS AND SUPPORTS.
2. PROVIDE UNIT WITH ECM MOTOR.

REV	DATE	DESCRIPTION
-	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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SCALE: AS NOTED	APPROVED BY:	DRAWN BY: AD
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MECHANICAL SECTIONS

FILE NAME: \DIR\DWG	JOB NUMBER: .	DRAWING NUMBER: M-200

VARIABLE REFRIGERANT VOLUME - INDOOR UNIT SCHEDULE

TAG	ROOM	BASIS OF DESIGN (DAIKIN)	NOMINAL TONNAGE	TYPE	CONNECTED TO:		SUPPLY FAN	COOLING CAPACITY				HEATING CAPACITY		ELECTRICAL			DIMENSIONS	WEIGHT	NOTES	Options and Accessories
					CONDENSING UNIT	ZONE CHANGEOVER DEVICE	AIR FLOW RATE cfm	TOTAL BTU/h	SENSIBLE BTU/h	ENTERING AIR °F DB	ENTERING AIR °F WB	TOTAL BTU/h	ENTERING AIR °Fdb	POWER SUPPLY Voltage - Phase	Min Circuit Amps MCA	Max Overcurrent Protection MOP	WxHxD inch	Net lbs		
FC-1.7	Cafeteria	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-1	No	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BRC1E73 (1), BYCQ125B-W1 (1)
FC-1.5	Cafeteria	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-1	No	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-1.8	Cafeteria	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-1	No	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-1.6	Cafeteria	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-1	No	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-1.4	Cafeteria	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-1	No	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-1.1	Cafeteria	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-1	No	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-1.2	Cafeteria	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-1	No	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-1.3	Cafeteria	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-1	No	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-2.1	Servery	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-2	Yes	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BRC1E73 (1), BYCQ125B-W1 (1)
FC-2.2	Servery	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-2	Yes	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-3.1	Student Gov. Office	FXFQ18TVJU	1.5	Round Flow Sensing Cassette	HP-2	Yes	742	15,149	13,988	75.0	62.5	19,999	70.0	208-230V 1ph	0.6	15.0	33.1 x 9.7 x 33.1	50.7		BRC1E73 (1), BYCQ125B-W1 (1)
FC-3.2	Student Activity Center	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-2	Yes	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BRC1E73 (1), BYCQ125B-W1 (1)
FC-3.3	Student Concourse	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-2	Yes	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BRC1E73 (1), BYCQ125B-W1 (1)
FC-3.4	Student Activity Center	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-2	Yes	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-3.5	Student Concourse	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-2	Yes	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-3.6	Student Activity Center	FXFQ36TVJU	3.0	Round Flow Sensing Cassette	HP-2	Yes	1,165	30,316	24,428	75.0	62.5	39,989	70.0	208-230V 1ph	1.5	15.0	33.1 x 11.3 x 33.1	57.3		BYCQ125B-W1 (1)
FC-3.7	Student Gov. Office	FXFQ18TVJU	1.5	Round Flow Sensing Cassette	HP-2	Yes	742	15,149	13,988	75.0	62.5	19,999	70.0	208-230V 1ph	0.6	15.0	33.1 x 9.7 x 33.1	50.7		BRC1E73 (1), BYCQ125B-W1 (1)
FC-3.8	Student Pub. Office	FXFQ24TVJU	2.0	Round Flow Sensing Cassette	HP-2	Yes	777	20,233	17,273	75.0	62.5	26,989	70.0	208-230V 1ph	0.7	15.0	33.1 x 9.7 x 33.1	50.7		BRC1E73 (1), BYCQ125B-W1 (1)
DOAS-B-1 box 1	Roof	EKEXV200-US	6.0	AHU INTEGRATION VALVE KIT	HP-B-1	No	-	83,939	-	-	-	94,516	-	12 1ph	-	-	8.5 x 15.8 x 3.1	6.4		BRC1E73 (1)
DOAS-B-1 box 2	Roof	EKEXV200-US	6.0	AHU INTEGRATION VALVE KIT	HP-B-1	No	-	83,939	-	-	-	94,516	-	12 1ph	-	-	8.5 x 15.8 x 3.1	6.4		BRC1E73 (1)
DOAS-B-2 box 1	Roof	EKEXV100-US	3.0	AHU INTEGRATION VALVE KIT	HP-B-2	No	-	41,969	-	-	-	47,088	-	12 1ph	-	-	8.5 x 15.8 x 3.1	6.4		BRC1E73 (1)

Schedule Notes:

FCU thermostats must provide +/- 1 degree dead-band set-point and control capability.
Manufacturers submittal must include refrigerant piping diagram with pipe diameters, lengths, and refrigerant volume.
Contractor to verify piping dimensions prior to installing any pipe. Additional refrigerant charge shall be updated based on the final piping layout. Substitute manufacturer shall be responsible for additional piping and refrigerant.

Contractor to furnish and install insulation on refrigerant piping per the manufacturers recommendation.
Refer to specifications for additional details and information.
Standard Limited Warranty: 10-year warranty on all parts.

VARIABLE REFRIGERANT VOLUME - ZONE HEAT RECOVERY DEVICE SCHEDULE

TAG: ROOM	BASIS OF DESIGN (DAIKIN)	CONDENSING UNIT SERVED	VOLTAGE-PHASE	MIN CIRCUIT AMPS (MCA)	MAX OVERCURRENT PROTECTION (MOP)	MAX CAPACITY (per Port)	DIMENSIONS (WxHxD inch)	WEIGHT (lbs)	ZONE SERVED	Options and Accessories
BS-2.1	BSQ96TVJ	HP-2	208-230V 1ph	0.1	15.0	96,000	15.3 x 8.1 x 12.8	33.1	Servery	-
BS-2.2	BS12QS4TVJ	HP-2	208-230V 1ph	1.2	15.0	54,000	32.3 x 11.7 x 18.9	105.8	Student Area	KHFP26A100C (4)

Schedule Notes:
Provide ball valves to isolate individual branches.
No drain piping needed.
Standard Limited Warranty: 10-year warranty on all parts.

VARIABLE REFRIGERANT VOLUME - AIR-COOLED CONDENSING UNIT SCHEDULE

TAG: ROOM	BASIS OF DESIGN (DAIKIN)	NOMINAL TONNAGE	DESCRIPTION	COOLING CAPACITY		HEATING CAPACITY		REFRIGERANT CHARGE		CONNECTION RATIO (%)	ELECTRICAL										DIMENSIONS		EFFICIENCY (Non-Ducted)							NOTES	Options and Accessories
											VOLTAGE-PHASE	MIN CIRCUIT AMPS (MCA)			MAX OVERCURRENT PROTECTION (MOP)			RUNNING CURRENT(RLA)			(WxHxD) (inch)	WEIGHT (lbs)	EER	IEER	COP47	COP17	SCHE	SEER	HSPF		
				BTU/h	AMBIENT DESIGN (°F DB)	BTU/h	AMBIENT DESIGN (°F DB / WB)	Factory Charge (lbs)	Add'l Refrigerant (lbs)			mod #1	mod #2	total	mod #1	mod #2	total	mod #1	mod #2	total										
HP-1	RXYQ288XAYDA	24	Air cooled heat pump (2)	216,857	91.0	174,895	2.2 / 0.0	36.2	37.1	100.0	460V 3ph	25.9	25.9	51.8	35.0	35.0	70.0	15.2	15.2	30.4	48.9 x 66.7 x 30.2 / 48.9 x 66.7 x 30.2	709.9 / 709.9	10.5 / 10.1	20.1 / 19.6	3.25 / 3.3	2.07 / 2.13	-	-	-	Dual Module - 144,144	BHFP22P100U (1)
HP-2	REYQ288XAYDA	24	Air cooled heat recovery (2)	247,398	91.0	196,662	2.2 / 0.0	51.6	57.8	108.3	460V 3ph	27.9	27.9	55.8	40.0	40.0	80.0	19.3	19.3	38.6	48.9 x 66.7 x 30.2 / 48.9 x 66.7 x 30.2	793.0 / 793.0	11 / 10.3	21 / 17.9	3.51 / 3.2	2.2 / 2.06	23.3 / 19.9	-	-	Dual Module - 144,144	BHFP26P100U (1)
HP-B-1	RXYQ144XAYDA	12	Air cooled heat pump (1)	142,736	91.0	91,099	2.2 / 0.0	18.1	12.2	94.2	460V 3ph	25.9	-	25.9	35.0	-	35.0	15.2	-	15.2	48.9 x 66.7 x 30.2	709.9	12.3 / 11.5	24.8 / 22.6	3.67 / 3.34	2.33 / 2.2	-	-	-	-	EKEQFCBAV3-US (2)
HP-B-2	RXTQ36TAVJ9A	3	Air cooled heat pump (1)	36,266	91.0	28,443	2.2 / 0.0	6.4	1.0	94.9	208-230V 1ph	16.5	-	16.5	20.0	-	20.0	15.3	-	15.3	37.0 x 39.0 x 12.6	172.0	-	-	-	-	-	-	-	-	EKEQFCBAV3-US (1)

Schedule Notes:

3-phase Air cooled condensing units must have published performance data with 200% indoor connected capacity.
Submitted performance data must be fully de-rated for all components and accessories, including but not limited to, line length, vertical separation, connection ratio, design conditions, condenser coil coating.
System rating data based on design ambient conditions for cooling and for heating.
Condensing units must have fully modulating INVERTER compressors.
Condensing units must have have auto changeover functions
Condensing units must be furnished with protective coil coating to withstand ASTM B117 salt spray test for a minimum of 1000 hours.Performance of system must be de-rated for coil coating.
Demand limiting relay contact must be provided.
EEV actuators must be removable from valve body without disturbing the refrigerant system.
System shall be provided with i-Touch Manager controller with WEB based software for displaying up to 8 DIII-Net systems with 128 indoor units per system.PC by others. Controller shall be capable of integration into the BMS.

Manufacturer must be certified, listed, and labeled per AHRI 1230.
Manufacturer must certify and submit system performance at extreme conditions of 122 degrees FDB ambient in cooling mode and -4 degrees FWB in heating mode.
Manufacturers Representative must have local stock of parts and factory certified technician on staff.
Manufacturers Representative shall provide proof of ongoing installation training at their local facility for at least the past 5 years.
Installing contractor must have successfully completed manufacturers certified installation class within past 36 months.
Manufacturers Representative shall provide proof of continuous sales and support of their products for at least 15 years.
Mechanical contractor shall be responsible for all direct costs and operating costs increases for 20 years associated with any deviations resulting from changes in design.
Manufacturer must provide 10 years parts warranty on all FCUs, Condensing Units, and Mode Changeover Devices. Warranty conditions must be clarified during submittal phase.

Rooftop Airhandlers DOAS Unit SCHEDULES

Project Name: Fairfield Warde High School

Tag #	Qty	Evaporator Fan CFM SA	Evaporator Fan HP FA	Evaporator Fan ESP (IWG)	RPM	Cooling (Lev Kit- VRF) Temperature (°F) Ent. Air DB	Ent. Air WB	Lvg. Ar DB	Lvg. Ar WB	OT Amb	Total Cap. MBH[2]	Sens. Cap MBH[2]	EER/ SEER	Heating (LPS 5 PSI) Temp (°F) Ent. DB	Lvg. DB	MBH	KW	Filter	Unit Electrical Voltage	MCA	Max Fuse	Weight[2]	Model Number	Brand	Remarks
DOAS-B-1	1	3500	3	1.00	2193	79.1	67.0	55.0	53.9	91.8	92.6	140.7	-	51.0	80.0	110.1	-	2" Merv-13	460-3-60	6	15	2140	CSAA008	Trane	1, 2
DOAS-B-2	1	900	1	1.00	2862	78.2	67.1	55.0	53.8	91.8	36.8	22.9	-	55.3	88.2	32.1	-	2" Merv-13	460-3-60	2.6	15	1508	CSAA003	Trane	1, 2
Notes																									

General Information:

[1] Commercial Products are rated in Gross MBH and Residental Products are rated in Net MBH

[2] Install DOAS on the existing Dunnage as per Mechanical drawings.

Make Up Air Unit SCHEDULES

Project Name: Fairfield Warde High School

Tag #	Qty	Fan CFM SA	Fan HP FA	Fan ESP (IWG)	RPM	Heating (LPS 5 PSI) Temp (°F) Ent. DB	Lvg. DB	MBH	KW	Filter	Unit Electrical Voltage	MCA	Max Fuse	Weight[2]	Model Number	Brand	Remarks
MUA-1	1	8850	1-1/2	1.00	1412	0.0	71.9	690.0	-	2" Merv-13	460-3-60	15.6	25	1326	CSAA014	Trane	1, 2, 3
Notes																	

General Information:

[1] Commercial Products are rated in Gross MBH and Residental Products are rated in Net MBH

[2] Provide extension of concrete pad for new unit footprint.

3. Provide (N) CV and F&T Trap.

Packaged Rooftop Unit SCHEDULES

Project Name: Fairfield Warde High School

Tag #	Qty	Evaporator Fan CFM SA	Evaporator Fan HP	Evaporator Fan ESP (IWG)	RPM	DX Cooling Temperature (°F) Ent. Air DB	Ent. Air WB	Lvg. Ar DB	Lvg. Ar WB	OT Amb	Total Cap. MBH[2]	Sens. Cap MBH[2]	EER/ SEER	Heating (LPS 5 PSI) Temp (°F) Ent. DB	Lvg. DB	MBH	KW	Filter	Unit Electrical Voltage	MCA	Max Fuse	Weight[2]	Model Number	Brand	Remarks
RTU-B-3	1	2400	2.75	0.75	1412	80.0	67.0	58.5	57.5	91.8	79.0	58.7	73.6	45.0	90.0	117.1	-	2" Merv-13	460-3-60	18	20	958	RTU: THC074 + LPSC: DNSB12034G0AA085AADA0	Trane	1, 2, 3, 4

General Information:

[1] Commercial Products are rated in Gross MBH and Residental Products are rated in Net MBH

[2] Install Rooftop unit on the existing Dunnage.

3. Provide and field install LPS Coil: Trane model DNSB12034G0AA085AADA0

4. Provide RTU with side Intake and Discharge of the unit.

Energy Recovery Ventilator SCHEDULES

Project Name: Fairfield Warde High

Tag #	Qty	Evaporator Fan CFM FA	Evaporator Fan CFM EA	Evaporator Fan ESP (IWG)	Energy Recovery Ventilator OA Summer DB / WB	OA Winter DB / WB	SA Summer DB / WB	SA Winter DB / WB	RA Summer DB / WB	RA Winter DB / WB	EA Summer DB / WB	EA Winter DB / WB	Capacity Red. Sensible MBH Summer / Winter	Capacity Red. Total MBH Summer / Winter	Filter	Unit Electrical Voltage	MCA	Max Fuse	Weight[2]	Model Number	Brand	Remarks
ERV-B-1	1	3500	3500	1.00	87.7 / 73.1	11.4 / 8.0	79.1 / 68.3	51.0 / 39.0	75.0 / 62.5	70.0 / 51.5	-	-	32.4 / 149.4	64.7 / 179.5	2" Merv-8 / 2" Merv-8	460-3-60	16.6	20	1143	HE-4XJRTR-S34XX--DVNT---L	Renew Air	1, 2
ERV-B-2	1	900	900	0.60	87.7 / 73.1	11.4 / 8.0	79.2 / 68.4	50.7 / 38.7	75.0 / 62.5	70.0 / 51.5	-	-	8.3 / 38.3	16.5 / 45.9	2" Merv-8 / 2" Merv-8	460-3-60	2.8	15	346	HE-1XJRTV-S34HH--DVNT---L	Renew Air	1, 2
Notes																						

General Information:

[1] Commercial Products are rated in Gross MBH and Residental Products are rated in Net MBH

[2] Provide duct connection to DOAS Unit as per drawings.

01 MECHANICAL SCHEDULES
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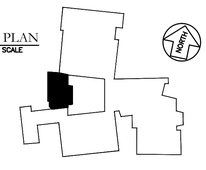
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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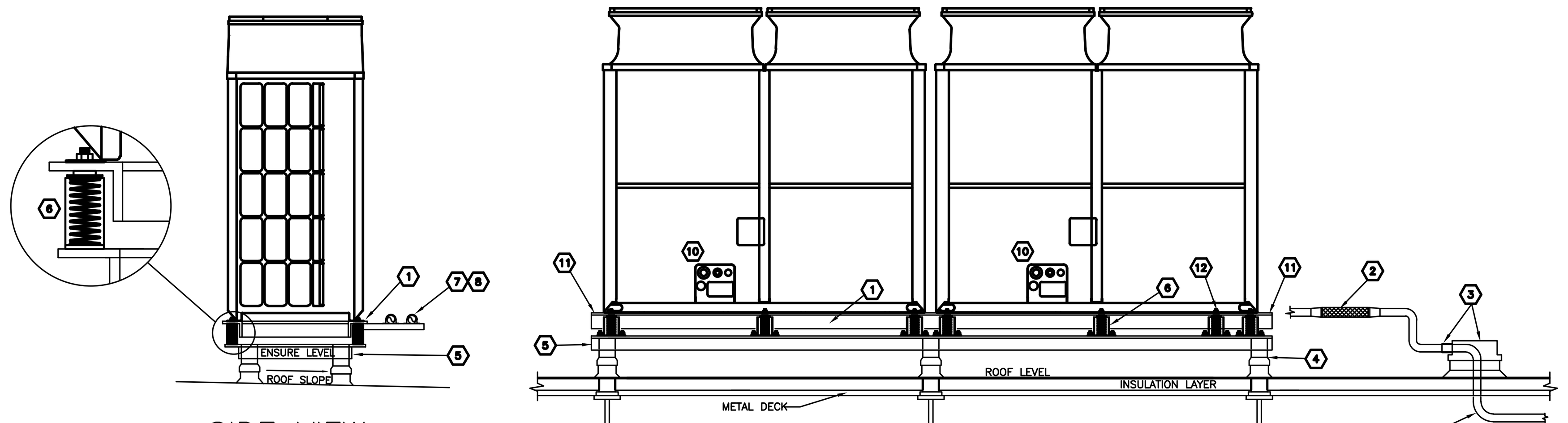
WARDE FAIRFIELD HIGH SCHOOL
.
, FAIRFIELD, CT

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: AD
DATE: 7/16/21		CHECKED BY: RS

MECHANICAL SCHEDULES

FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\.DWG	.	M-300

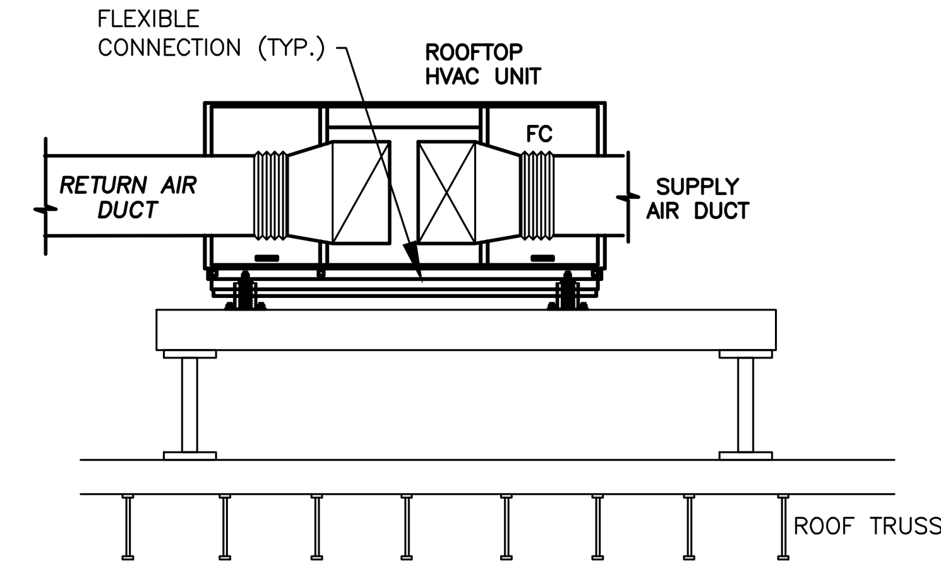


SIDE VIEW

FRONT VIEW

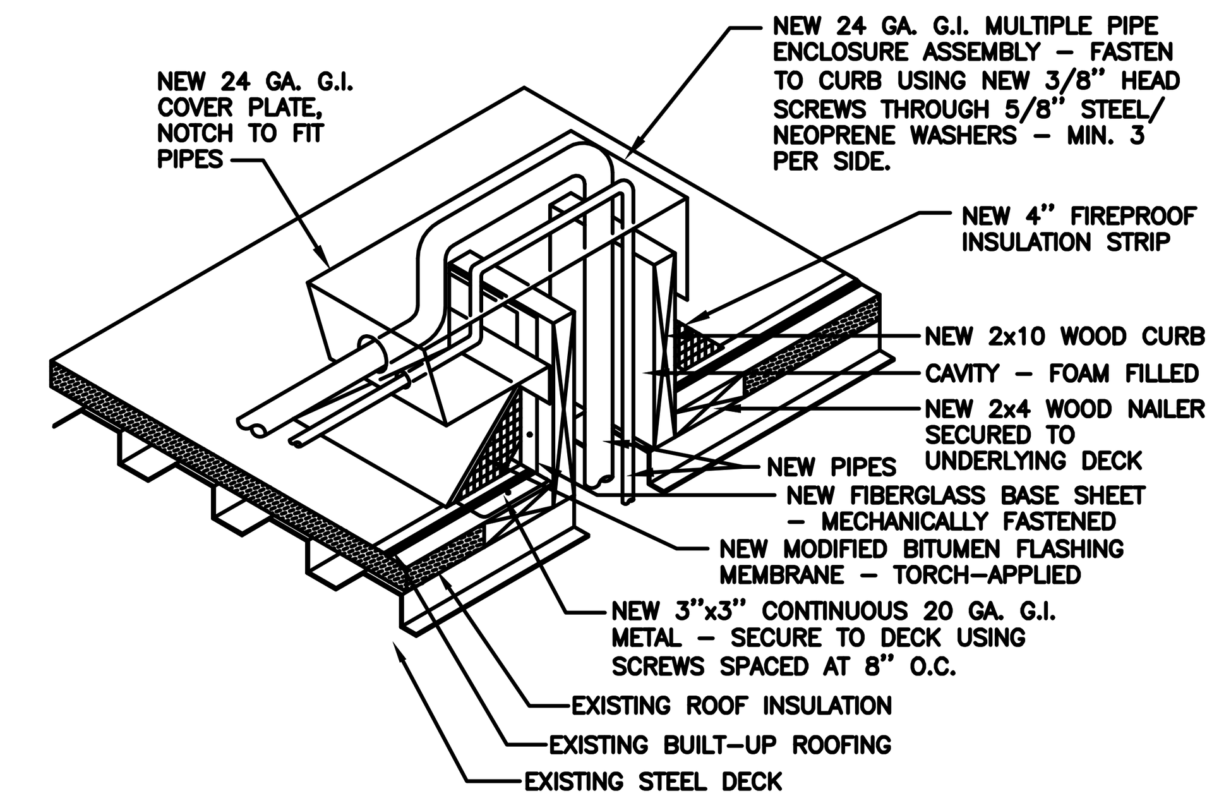
CODED NOTES:

1. PROVIDE STRUCTURAL INTERSTITIAL ANGLE IRON MOUNTING MEMBER OR SIMILAR ATTACHED DIRECTLY TO BOTTOM OF UNIT MOUNTING FLANGE AND PROVIDE CROSS BRACING FOR RIGIDITY. ENSURE IT CARRIES FULL MOUNTING FOOT WIDTH ON UNIT. FINAL SPECIFICATION OF MEMBER BY STRUCTURAL ENGINEER OF RECORD.
2. PROVIDE BRAIDED COPPER FLEXIBLE CONNECTOR, R410A RATED, 650PSI MAX WORKING PRESSURE, PACKLESS INDUSTRIES OR EQUAL ON ALL MAIN PIPING DOWNSTREAM OF TWINNING KITS/CONVERGING FITTINGS PRIOR TO PENETRATION THROUGH ROOF.
3. PIPE ROOF CURB, FLASHED AND SEALED WATER TIGHT, PROVIDE FLEXIBLE WATER TIGHT COLLAR TO ALLOW FOR MOVEMENT WHERE PIPE ENTERS CURB. DO NOT ENTER PIPE CURB FROM VERTICAL DIRECTION.
4. TYPICAL BASE SUPPORT POSTS, SECURELY ANCHORED TO BUILDING STRUCTURE BELOW, QUANTITY, SIZE, AND CARRYING CAPACITY DETERMINED BY STRUCTURAL ENGINEER OF RECORD.
5. STRUCTURAL ANGLE IRON BASE MOUNTING FRAME WITH CROSS MEMBERS FOR RIGIDITY – FINAL SIZING BY STRUCTURAL ENGINEER OF RECORD.
6. VIBRATION SPRING SLR TYPE ISOLATORS (MASON INDUSTRIES OR EQUIV.) WITH RUBBER BASE PADS, SECURELY FASTENED TO STRUCTURAL BASE AND TO VRF UNIT INTERSTITIAL SUPPORT STEEL. SPRING ISOLATOR TO PROVIDE MINIMUM 1" DEFLECTION OR 10 TIMES THE STATIC DEFLECTION OF THE ROOF DECK FROM EQUIPMENT WEIGHT – DETERMINED BY STRUCTURAL ENGINEER OF RECORD. AT A MINIMUM, PROVIDE SPRING ISOLATORS AT EACH EQUIPMENT BASE MOUNTING HOLE LOCATION.
7. IF REQUIRED, ONLY SUPPORT LATERAL PIPE EMANATING FROM VRF UNIT CONNECTIONS BY CROSS MEMBER SUPPORT THAT IS ATTACHED DIRECTLY TO VRF UNIT MOUNTING ANGLE IRON FRAME ABOVE SPRING ISOLATORS. DO NOT ATTACH ANY PIPING TO LOWER FIXED SUPPORT BASE.
8. USE NEOPRENE ISOLATION COLLARS ON PIPE CLAMS WHEN FASTENING PIPING TO SUPPORTS.
9. USE LONG RADIUS SWEEPING COPPER ACR TUBE PIPE BENDS WHERE PIPE ENTERS BUILDING AT FIRST ELBOW INTO CEILING SPACE TO MINIMIZE REFRIGERANT FLOW NOISE AND VIBRATION.
10. ALL ELECTRICAL CONNECTIONS TO UNITS TO BE VIA FLEXIBLE CONDUIT, PROVIDE SUFFICIENT SLACK TO ALLOW FOR UNIT MOVEMENT ON SPRING ISOLATORS.
11. ENSURE CROSS MEMBERS OF INTERSTITIAL FRAME AND BOTTOM SUPPORT FRAME ARE NOT DIRECTLY BELOW ENDS OF MODULES IN ALL LOCATIONS AND DO NOT BLOCK DRAINAGE WEEP HOLES IN BOTTOM OF UNIT CASING, FAILURE TO DO THIS MAY RESULT IN ICE DAMMING/BUILDUP BENEATH UNIT AND SUBSEQUENT BUILDUP OF ICE IN BOTTOM OF UNIT CASING BELOW COIL AND POTENTIAL DAMAGE TO BOTTOM OF COIL.
12. WHEN SELECTING SPRING ISOLATORS ALWAYS CONSIDER WEIGHT DISTRIBUTION BY REFERENCING EQUIPMENT WEIGHT AND CENTER OF GRAVITY. NEAR RIGHT ENDS OF UNITS (VIEWED FROM FRONT PANEL) SPRING WEIGHT CAPACITY MAY BE LARGER. IF HIGHER SPRING WEIGHT CAPACITY IS REQUIRED VS OTHER SPRING LOCATIONS, CONSIDER AN ADDITIONAL SPRING OF EQUAL "K" VALUE (lbs/in) NEAR RIGHT END OF LAST MODULE. IN GENERAL IT IS RECOMMENDED TO SELECT ALL MOUNTING SPRINGS OF EQUIVALENT "K" VALUE (lbs/in).



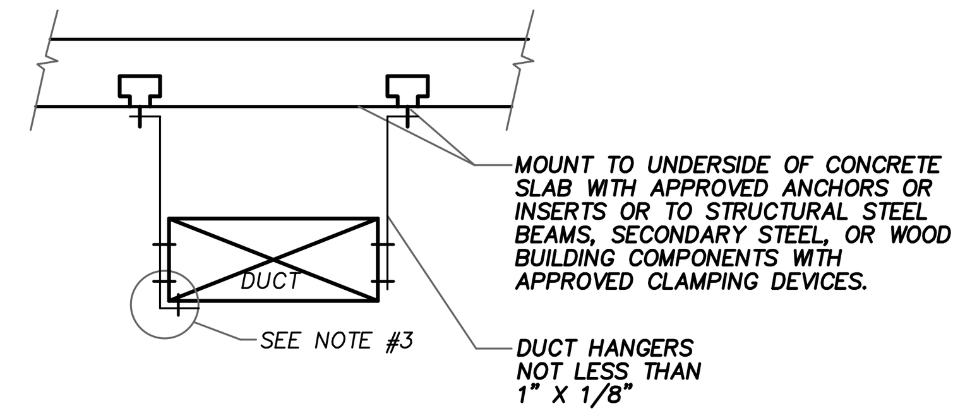
NOTES
1. PROVIDE OPENING THROUGH ROOF AND ROOF DECK INSULATION NO LARGER THAN REQUIRED TO ALLOW DUCTS TO PASS THROUGH.
2. INSTALL ROOFTOP UNIT LEVEL TO ASSURE PROPER CONDENSATE DRAINAGE. FLASH AND SEAL ROOF PENETRATIONS, ETC. TO ASSURE WEATHER TIGHT INSTALLATION.

ROOFTOP UNIT ELEVATION DETAIL
NO SCALE



NOTE: ALL PIPES ENTERING THE PIPE ENCLOSURE ASSEMBLY SHALL BE SLOPED UPWARD AS THEY ENTER THE FLASHING SO THAT WATER WILL NOT BE ABLE TO RUN INTO THE BUILDING.

PIPE THROUGH ROOF DETAIL
NO SCALE

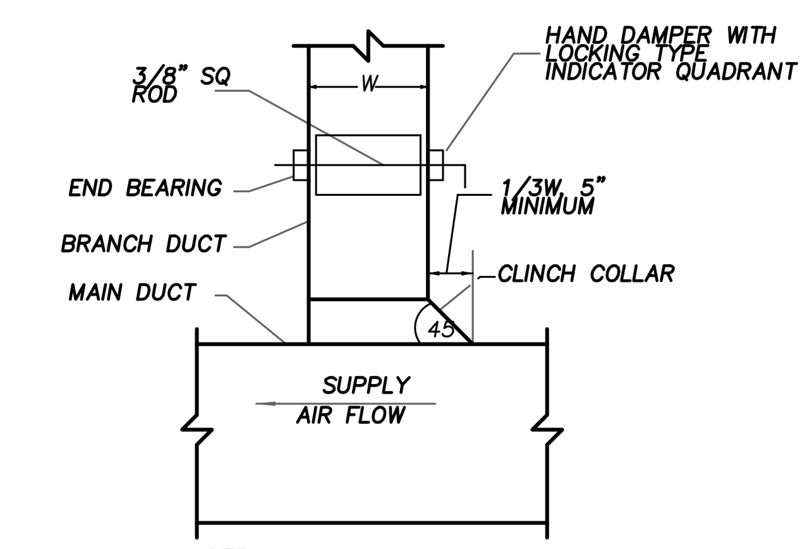


LONGEST DIMENSION OF DUCT	ROUND HANGERS	MAXIMUM SPACING SEE NOTE #4	STRAP HANGERS	TRAPEZE SHELF ANGLES
UP TO 18"	8GA. WIRE	8'0"	1" X 1/8"	1" X 1" X 1/8"
19" TO 30"	1/4"ROD	8'0"	1" X 1/8"	1" X 1" X 1/8"
31" TO 42"	1/4"ROD	8'0"	1" X 1/8" GA.	1 1/2" X 1 1/2" X 1/8"
43" TO 60"	3/8"ROD	4'0"		1 1/2" X 1 1/2" X 1/8"
61" TO 84"	3/8"ROD	4'0"		2" X 2" X 1/8"
85" TO 96"	3/8"ROD	4'0"		2" X 2" X 3/16"
OVER 97"	3/8"ROD	4'0"		2" X 2" X 1/4"

SPECIAL HANGERS SHALL BE PROVIDED FOR #10 GAUGE BLACK STEEL DUCTS. (BOILER BREECHING AND KITCHEN EXHAUST.) AND FOR SECTION OF DUCT CONTAINING COILS OR FANS.

NOTES:
1. ALL DUCTWORK TO BE HUNG FROM BUILDING CONSTRUCTION NOT TO BE SUPPORTED FROM HUNG CEILING.
2. WHEN DUCT AREA EXCEEDS 8SQ. FT. ANGLE STIFFENERS REQUIRED AROUND CIRCUMFERENCE EVERY 4'0".
3. FOR DUCTS OVER 48" WIDE HANGERS SHALL TURN UNDER DUCT AT LEAST 2" AND SHALL BE FASTENED TO THE BOTTOM AS WELL AS TO THE SIDES OF THE DUCT.
4. FOR DUCTS WITH CROSS SECTIONAL AREA OF 4' OR LESS, HANGERS SHALL BE NO MORE THAN 8FT. APART. FOR DUCTS WITH A CROSS SECTIONAL AREA OF MORE THAN 4 SQ. FT. BUT NOT OVER 8 SQ. FT. HANGERS SHALL BE NOT MORE THAN 6FT. APART. AND FOR DUCTS WITH A CROSS SECTIONAL AREA OF MORE THAN 8 SQ. FT. HANGERS SHALL BE NOT MORE THAN 4 FT. APART. THE DISTANCES BETWEEN SHALL BE MEASURED LINEARLY ALONG THE DUCT.
5. VERTICAL DUCTS SHALL BE SECURELY SUPPORTED AT EACH FLOOR LEVEL BY CONTINUOUS LENGTHS OF STRUCTURAL ANGLES OF A SIZE AT LEAST EQUIVALENT TO THAT FOR STIFFENING. THE ANGLES SHALL BE FASTENED TO THE OPPOSITE SIDES OF THE DUCT AND SHALL EXTEND ACROSS THE OPENING AND BEAR UPON THE STRUCTURE OR SLAB ON BOTH SIDES OF THE OPENING.
6. PROVIDE SEISMIC SUPPORT FOR HVAC DUCTS IN ACCORDANCE WITH APPLICABLE CODES.

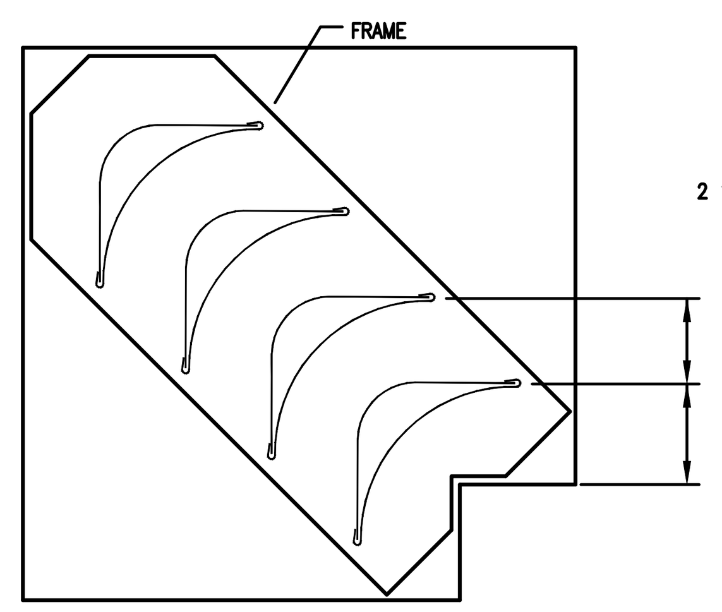
DUCT SUPPORT DETAIL
NO SCALE

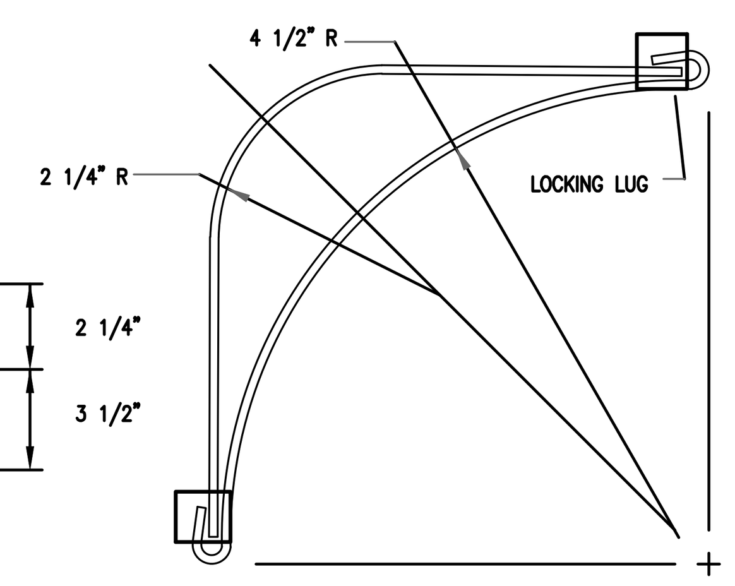


NOTE:

FURNISH THIS TYPE CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS FOR LESS THAN 700 CFM AND MEDIUM PRESSURE BRANCHES WITH LESS THAN 1000 CFM

RECTANGULAR DUCT TAP WITH VOLUME DAMPER
NO SCALE



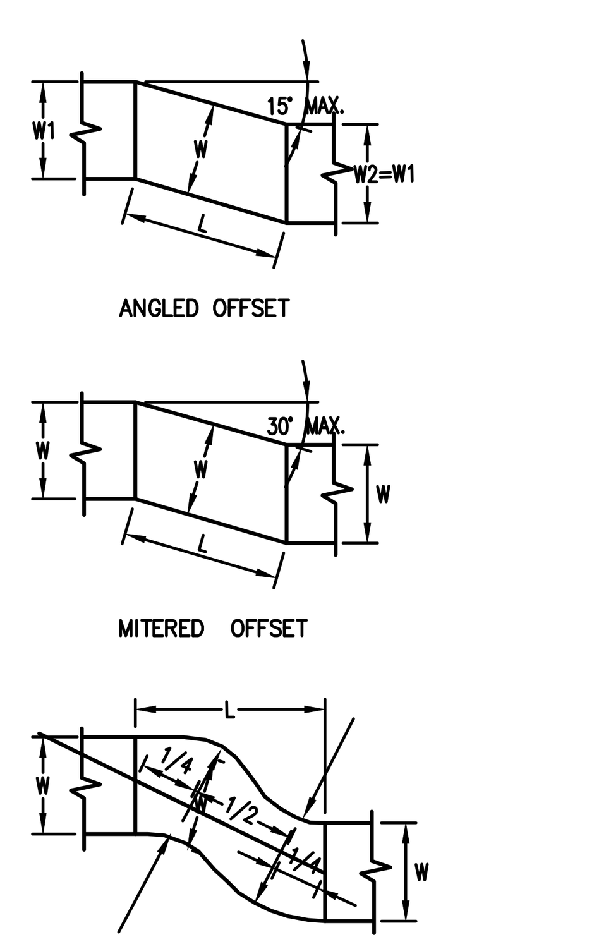


NOTES:
1. LOCKING LUGS INTEGRAL WITH VANE
2. MAXIMUM UNSUPPORTED VANE LENGTH 48"
3. FRAMES-BOLTED OR RIVETED TO ELBOW
4. VANES AND FRAMES-SAME GAUGE AS ELBOW

VANED ELBOW 02 SECTION B-B TURNING VANE

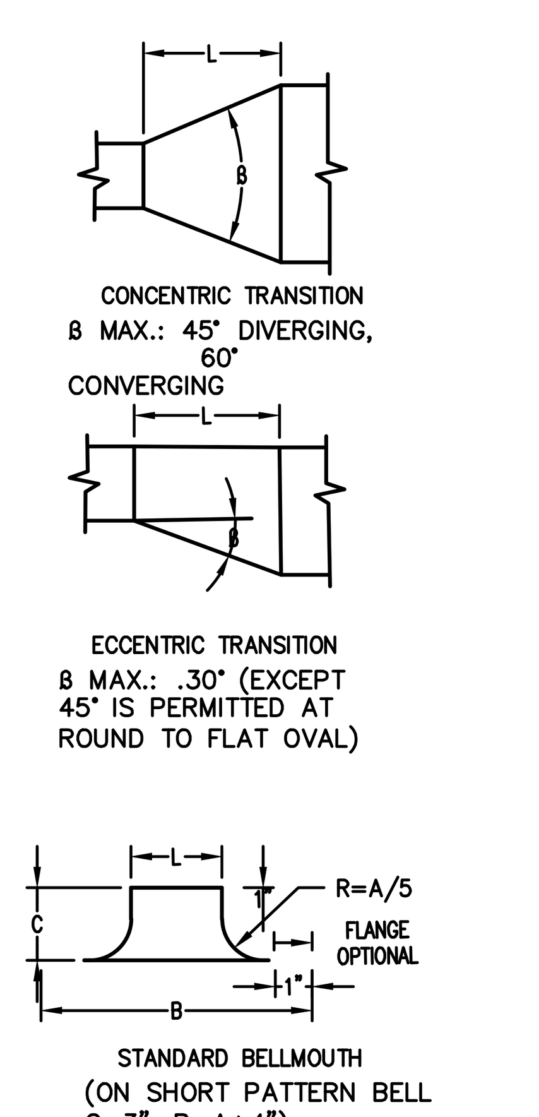
DOUBLE THICKNESS TURNING VANES

FOR SQUARE ELBOW
NO SCALE



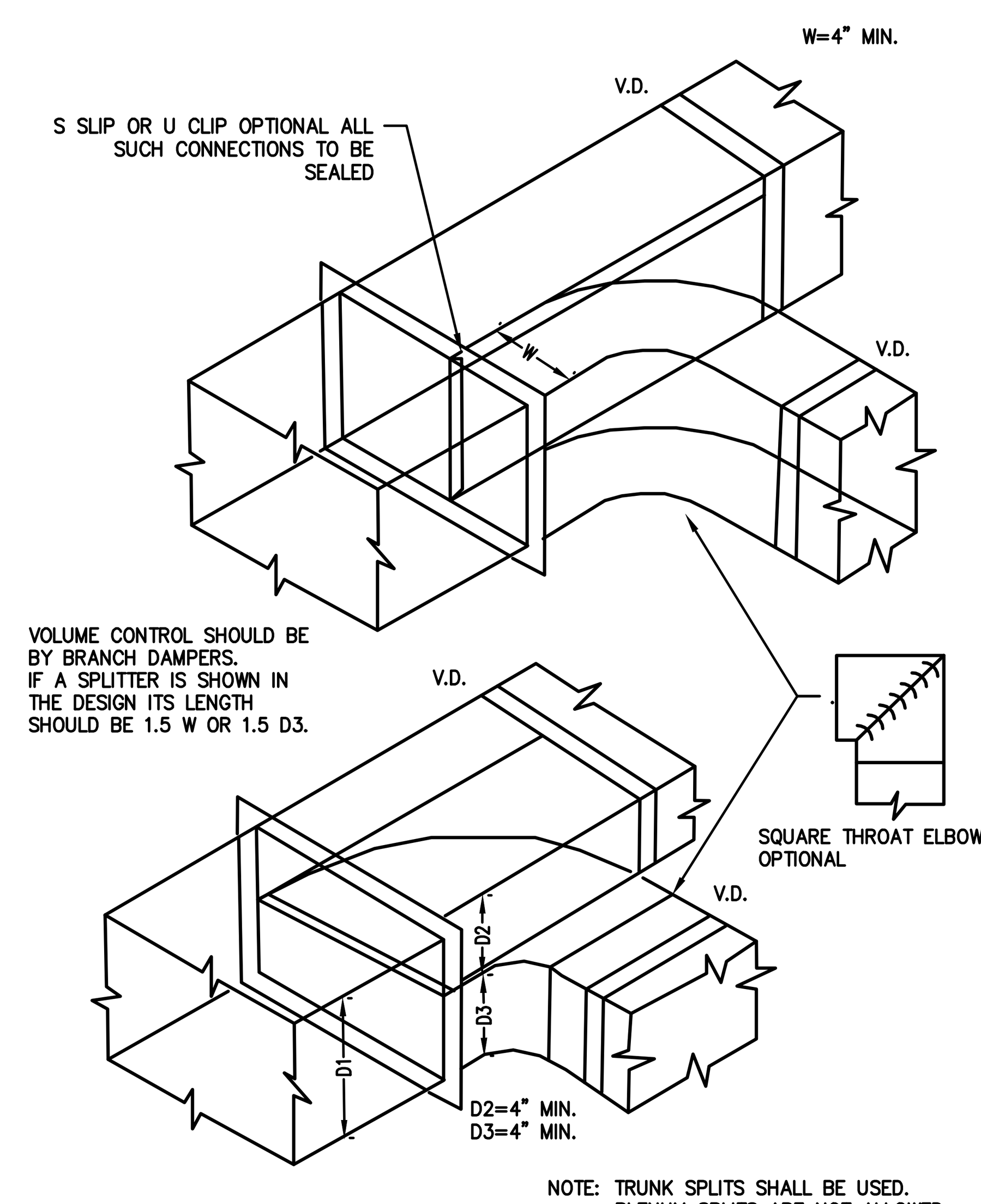
NOTE:
1. OFFSET 2 AND 3 MAY HAVE EQUAL ON UNEQUAL INLET AND OUTLET AREAS.
2. OFFSETS SHALL BE USED. DOUBLE ELBOWS ARE NOT ALLOWED.

OFFSET DETAILS
NOT TO SCALE



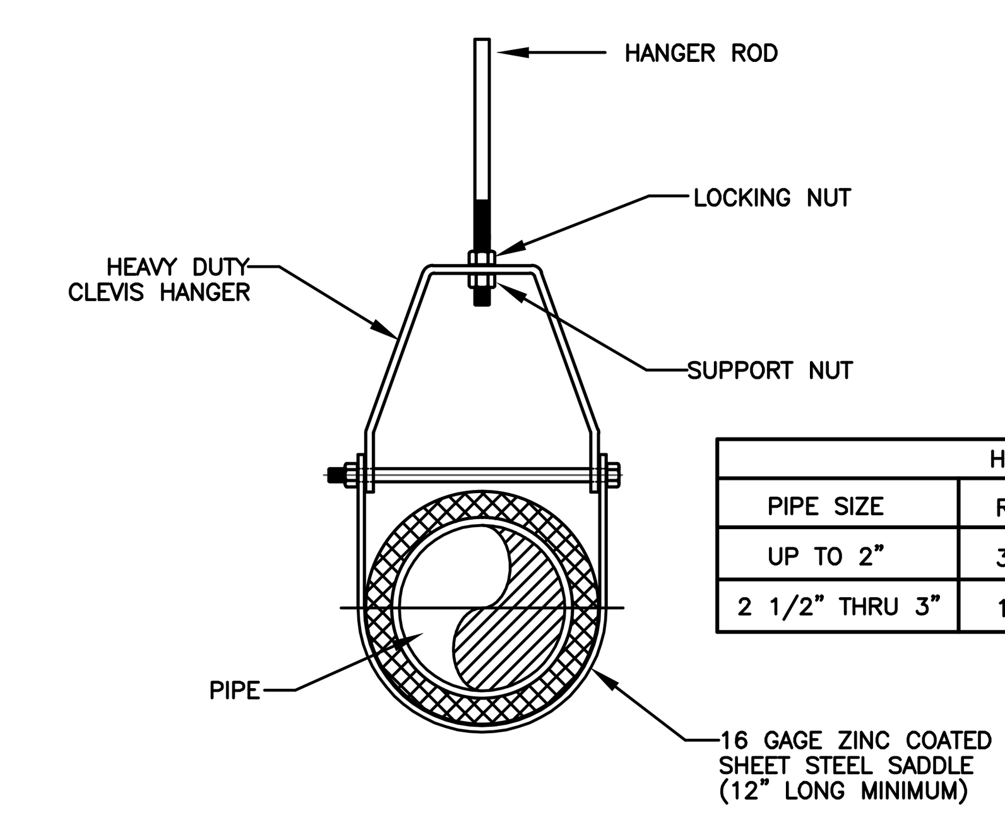
NOTE:
1. TRANSITION MAY HAVE EQUAL OR UNEQUAL INLET AND OUTLET AREAS. TRANSITIONS MAY CONVERT DUCT PROFILES TO ANY COMBINATION FOR RECTANGULAR, ROUND OR FLAT OVAL SHAPES.

TRANSITION DETAILS
NOT TO SCALE



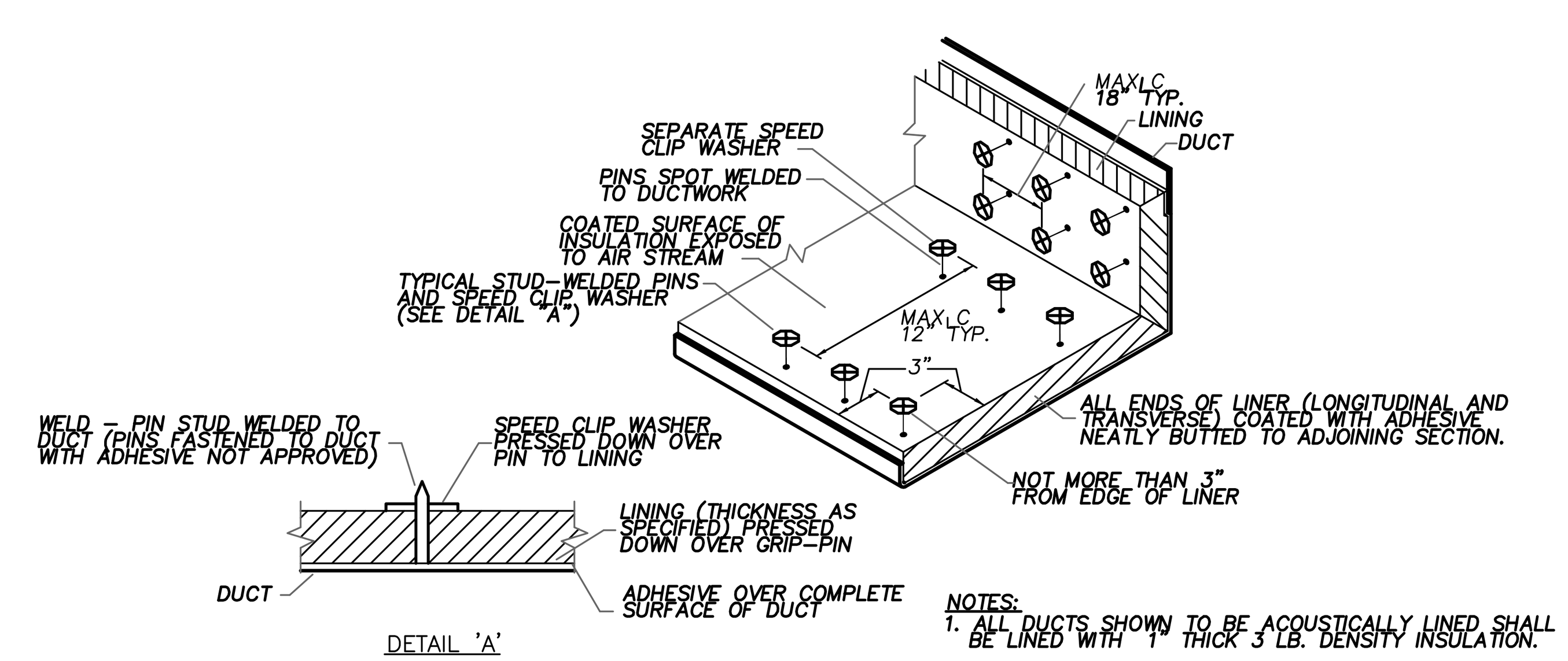
NOTE: TRUNK SPLITS SHALL BE USED. PLENUM SPLITS ARE NOT ALLOWED.

TRUNK DUCT SPLIT DETAIL
NOT TO SCALE



HANGER ROD SCHEDULE			
PIPE SIZE	ROD SIZE	PIPE SIZE	ROD SIZE
UP TO 2"	3/8" DIA.	4" THRU 5"	5/8" DIA.
2 1/2" THRU 3"	1/2" DIA.	6" THRU 12"	7/8" DIA.

CLEVIS HANGER HORIZONTAL RUNS
NO SCALE

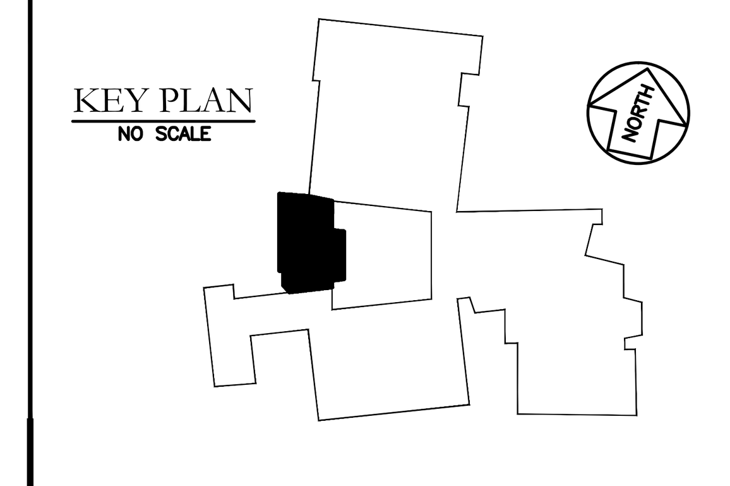


NOTES:
1. ALL DUCTS SHOWN TO BE ACOUSTICALLY LINED SHALL BE LINED WITH 1" THICK 3 LB. DENSITY INSULATION.

SOUND LINING INSTALLATION DETAIL
NO SCALE

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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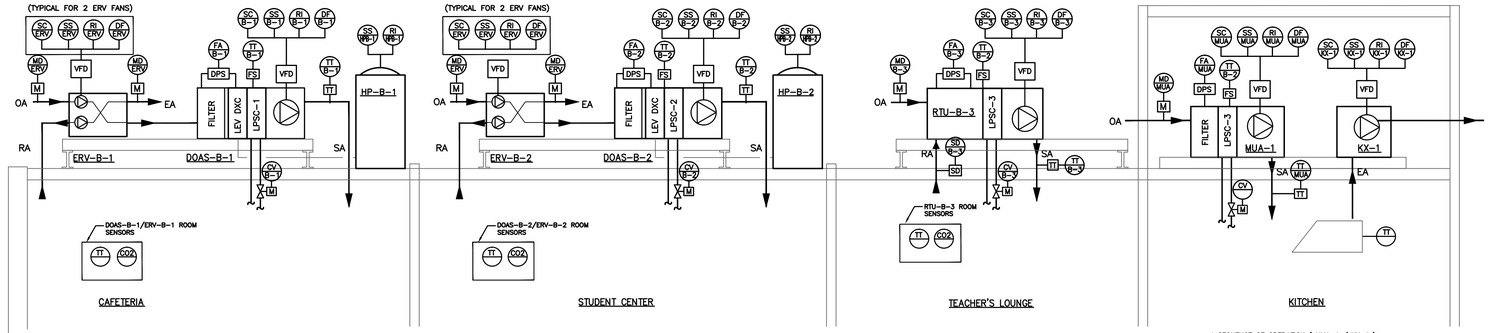
.
, FAIRFIELD, CT

SCALE: AS NOTED | APPROVED BY: | DRAWN BY: AD
DATE: 7/16/21 | CHECKED BY: RS

MECHANICAL DETAILS

FILE NAME: \DIR\DWG | JOB NUMBER: . | DRAWING NUMBER: M-400



* SEQUENCE OF OPERATION (DOAS-B-1, ERV-B-1):

a. EQUIPMENT SHALL RUN DURING OCCUPIED PERIODS AND STOP DURING UNOCCUPIED PERIODS. DAMPERS SHALL BE OPEN WHEN FANS ARE RUNNING AND SHALL CLOSE WHEN FANS STOP. ATB CONTRACTOR SHALL SET FAN SPEED OF DOAS AND ERV TO TRACK CFM WITHIN 10% SO THAT EQUIVALENT AIR FLOW WILL BE PROVIDED FROM BOTH UNITS.

b. SYSTEM SHALL DELIVER NEUTRAL AIR TEMPERATURE AT ALL TIMES (70°F, ADJUSTABLE). CONTROL SYSTEM SHALL STAGE HEAT PUMPS TO MAINTAIN CONSTANT DISCHARGE AIR TEMPERATURE WHEN SYSTEM IS ENABLED.

c. DEMAND CONTROL VENTILATION: WHEN COMMANDED ON IN OCCUPIED MODE, DOAS AND ERV FANS SHALL START AND REMAIN AT LOW SPEED. WHEN SPACE CO2 LEVELS EXCEED SETPOINT (800 PPM, ADJUSTABLE), FAN SPEED SHALL GRADUALLY INCREASE TO BRING CO2 LEVEL WITHIN LIMITS. WHEN CO2 LEVEL IS BELOW SETPOINT FOR 30 MINS, FAN SPEED SHALL GRADUALLY DECREASE.

d. CONTRACTOR SHALL PROVIDE ALL REQUIRED CONTROLS, RELAYS, WIRE, ETC. WHETHER OR NOT SHOWN ON DRAWING AND SPECIFICATIONS TO PROVIDE A COMPLETE OPERATING SYSTEM AND SEQUENCE OF OPERATION AS DESCRIBED HEREIN.

e. EQUIPMENT SHALL BE FURNISHED WITH FACTORY BACNET CARDS FOR INTEGRATION INTO BAS.

f. FREEZESTAT ALARM: IF SUPPLY AIR TEMPERATURE IS MEASURED TO BE 37°F OR BELOW, ALL FANS SHALL STOP AND DAMPERS SHALL CLOSE. FREEZESTAT ALARM SHALL BE INITIATED AT USER INTERFACE. ALARM MUST BE MANUALLY RESET IN ORDER TO RESUME SYSTEM OPERATION.

g. ALL CONTROL POINTS SHALL BE DISPLAYED ALONG WITH DYNAMIC GRAPHICS AT USER INTERFACE. ATC CONTRACTOR SHALL PROVIDE THERMAL FLOOR PLANS TO PROVIDE COLOR INDICATION (GREEN/YELLOW/RED) OF WHETHER SPACES ARE AT TEMPERATURE SETPOINT. ALARMS SHALL BE SETUP FOR THE FOLLOWING:
- HIGH SPACE TEMP
- LOW SPACE TEMP
- DIRTY FILTER
- FAN FAILURE TO START (ALL)
- FREEZESTAT

ALARMS SHALL BE BROADCAST VIA EMAIL AND/OR TEXT MESSAGE TO ADDRESS LIST PROVIDED BY OWNER.

h. DURING A CALL FOR HEAT WHEN OUTDOOR TEMPERATURE IS BELOW 60°F, CONTROL VALVE AT PERIMETER STEAM RADIATION SHALL OPEN. VALVE SHALL CLOSE WHEN THERMOSTAT IS SATISFIED.

* SEQUENCE OF OPERATION (DOAS-B-2, ERV-B-2):

a. EQUIPMENT SHALL RUN DURING OCCUPIED PERIODS AND STOP DURING UNOCCUPIED PERIODS. DAMPERS SHALL BE OPEN WHEN FANS ARE RUNNING AND SHALL CLOSE WHEN FANS STOP. ATB CONTRACTOR SHALL SET FAN SPEED OF DOAS AND ERV TO TRACK CFM WITHIN 10% SO THAT EQUIVALENT AIR FLOW WILL BE PROVIDED FROM BOTH UNITS.

b. SYSTEM SHALL DELIVER NEUTRAL AIR TEMPERATURE AT ALL TIMES (70°F, ADJUSTABLE). CONTROL SYSTEM SHALL STAGE HEAT PUMPS TO MAINTAIN CONSTANT DISCHARGE AIR TEMPERATURE WHEN SYSTEM IS ENABLED.

c. DEMAND CONTROL VENTILATION: WHEN COMMANDED ON IN OCCUPIED MODE, DOAS AND ERV FANS SHALL START AND REMAIN AT LOW SPEED. WHEN SPACE CO2 LEVELS EXCEED SETPOINT (800 PPM, ADJUSTABLE), FAN SPEED SHALL GRADUALLY INCREASE TO BRING CO2 LEVEL WITHIN LIMITS. WHEN CO2 LEVEL IS BELOW SETPOINT FOR 30 MINS, FAN SPEED SHALL GRADUALLY DECREASE.

d. CONTRACTOR SHALL PROVIDE ALL REQUIRED CONTROLS, RELAYS, WIRE, ETC. WHETHER OR NOT SHOWN ON DRAWING AND SPECIFICATIONS TO PROVIDE A COMPLETE OPERATING SYSTEM AND SEQUENCE OF OPERATION AS DESCRIBED HEREIN.

e. EQUIPMENT SHALL BE FURNISHED WITH FACTORY BACNET CARDS FOR INTEGRATION INTO BAS.

f. FREEZESTAT ALARM: IF SUPPLY AIR TEMPERATURE IS MEASURED TO BE 37°F OR BELOW, ALL FANS SHALL STOP AND DAMPERS SHALL CLOSE. FREEZESTAT ALARM SHALL BE INITIATED AT USER INTERFACE. ALARM MUST BE MANUALLY RESET IN ORDER TO RESUME SYSTEM OPERATION.

g. ALL CONTROL POINTS SHALL BE DISPLAYED ALONG WITH DYNAMIC GRAPHICS AT USER INTERFACE. ATC CONTRACTOR SHALL PROVIDE THERMAL FLOOR PLANS TO PROVIDE COLOR INDICATION (GREEN/YELLOW/RED) OF WHETHER SPACES ARE AT TEMPERATURE SETPOINT. ALARMS SHALL BE SETUP FOR THE FOLLOWING:
- HIGH SPACE TEMP
- LOW SPACE TEMP
- DIRTY FILTER
- FAN FAILURE TO START (ALL)
- FREEZESTAT

ALARMS SHALL BE BROADCAST VIA EMAIL AND/OR TEXT MESSAGE TO ADDRESS LIST PROVIDED BY OWNER.

* SEQUENCE OF OPERATION (RTU-B-3):

a. OCCUPIED MODE: FAN SHALL RUN CONTINUOUSLY AND OUTDOOR AIR DAMPER SHALL BE MODULATE BASED ON VENTILATION REQUIREMENTS IN ACCORDANCE WITH SEQUENCE BELOW. CONTROL SYSTEM SHALL OPERATE HEATING AND COOLING IN ACCORDANCE WITH SEQUENCE BELOW.

b. UNOCCUPIED MODE : FAN SHALL RUN ONLY AS NECESSARY TO MAINTAIN UNOCCUPIED TEMPERATURE SETPOINT. OUTDOOR AIR DAMPER SHALL BE CLOSED.

c. DURING A CALL FOR HEAT, CONTROL SYSTEM SHALL MODULATE STEAM CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE SETPOINT. COOLING SYSTEM SHAL BE DISABLED. CONTROL VALVE SHALL OPEN FOR EXISTING FIN TUBE RADIATION WHEN THERMOSTAT CALLS FOR HEAT AND OUTDOOR TEMPERATURE IS BELOW 60°F. VALVE SHALL CLOSE WHEN THERMOSTAT IS SATISFIED.

d. DEMAND CONTROL VENTILATION: WHEN COMMANDED ON IN OCCUPIED MODE, DOAS AND ERV FANS SHALL START AND REMAIN AT LOW SPEED. WHEN SPACE CO2 LEVELS EXCEED SETPOINT (800 PPM, ADJUSTABLE), FAN SPEED SHALL GRADUALLY INCREASE TO BRING CO2 LEVEL WITHIN LIMITS. WHEN CO2 LEVEL IS BELOW SETPOINT FOR 30 MINS, FAN SPEED SHALL GRADUALLY DECREASE.

e. DURING A CALL FOR COOLING, CONTROL SYSTEM SHALL STAGE HEAT PUMP(S) TO MAINTAIN SPACE TEMPERATURE SETPOINT. STEAM VALVE SHALL BE CLOSED.

f. CONTRACTOR SHALL PROVIDE ALL REQUIRED CONTROLS, RELAYS, WIRE, ETC. WHETHER OR NOT SHOWN ON DRAWING AND SPECIFICATIONS TO PROVIDE A COMPLETE OPERATING SYSTEM AND SEQUENCE OF OPERATION AS DESCRIBED HEREIN.

g. EQUIPMENT SHALL BE FURNISHED WITH FACTORY BACNET CARDS FOR INTEGRATION INTO BAS.

h. FREEZESTAT ALARM: IF SUPPLY AIR TEMPERATURE IS MEASURED TO BE 37°F OR BELOW, ALL FANS SHALL STOP AND DAMPERS SHALL CLOSE. FREEZESTAT ALARM SHALL BE INITIATED AT USER INTERFACE. ALARM MUST BE MANUALLY RESET IN ORDER TO RESUME SYSTEM OPERATION.

I. ALL CONTROL POINTS SHALL BE DISPLAYED ALONG WITH DYNAMIC GRAPHICS AT USER INTERFACE. ATC CONTRACTOR SHALL PROVIDE THERMAL FLOOR PLANS TO PROVIDE COLOR INDICATION (GREEN/YELLOW/RED) OF WHETHER SPACES ARE AT TEMPERATURE SETPOINT. ALARMS SHALL BE SETUP FOR THE FOLLOWING:
- HIGH SPACE TEMP
- LOW SPACE TEMP
- DIRTY FILTER
- FAN FAILURE TO START (ALL)
- FREEZESTAT

ALARMS SHALL BE BROADCAST VIA EMAIL AND/OR TEXT MESSAGE TO ADDRESS LIST PROVIDED BY OWNER.

* SEQUENCE OF OPERATION (MUA-1 / KX-1):

a. CONTROL SYSTEM. AUTOMATIC CONTROL WILL OPERATE THE MUA / KX SYSTEM AS PER SEQUENCE: HOOD TEMPERATURE CONTROLLER (HEREIN AFTER CALLED THERMOSTAT) SHALL ENABLE APPROPRIATE CONTROL ACTION INCLUDING VFD OF MUA FAN, KX FAN AND LPS MODULATION VALVE OPERATION DEPENDS OF HOOD TEMPERATURE.

b. HOOD EXHAUST FAN (KX) SHALL BE ENABLED MANUALLY BY OPERATOR. KX FAN SPEED SHALL MODULATE BASED ON SIGNAL FROM NEW HEAT DETECTORS AND CONTROLS INSTALLED AT HOOD. MAKEUP AIR UNIT (MUA) FAN SPEED SHALL BE SET BY ATB CONTRACTOR TO DELIVER 80% OF KX AIR FLOW RATE ACROSS ENTIRE OPERATING RANGE (MAX TO MIN SPEED). REFER TO EQUIPMENT SCHEDULES FOR MAX FLOW RATES.

c. MAKEUP AIR UNIT DISCHARGE AIR TEMPERATURE SHALL BE RESET BASED ON KITCHEN SPACE TEMPERATURE BASED ON THE FOLLOWING:

SPACE TEMPERATURE 70°F AND ABOVE: 55°F (ADJUSTABLE)
SPACE TEMPERATURE BELOW 70°F : 65°F (ADJUSTABLE)

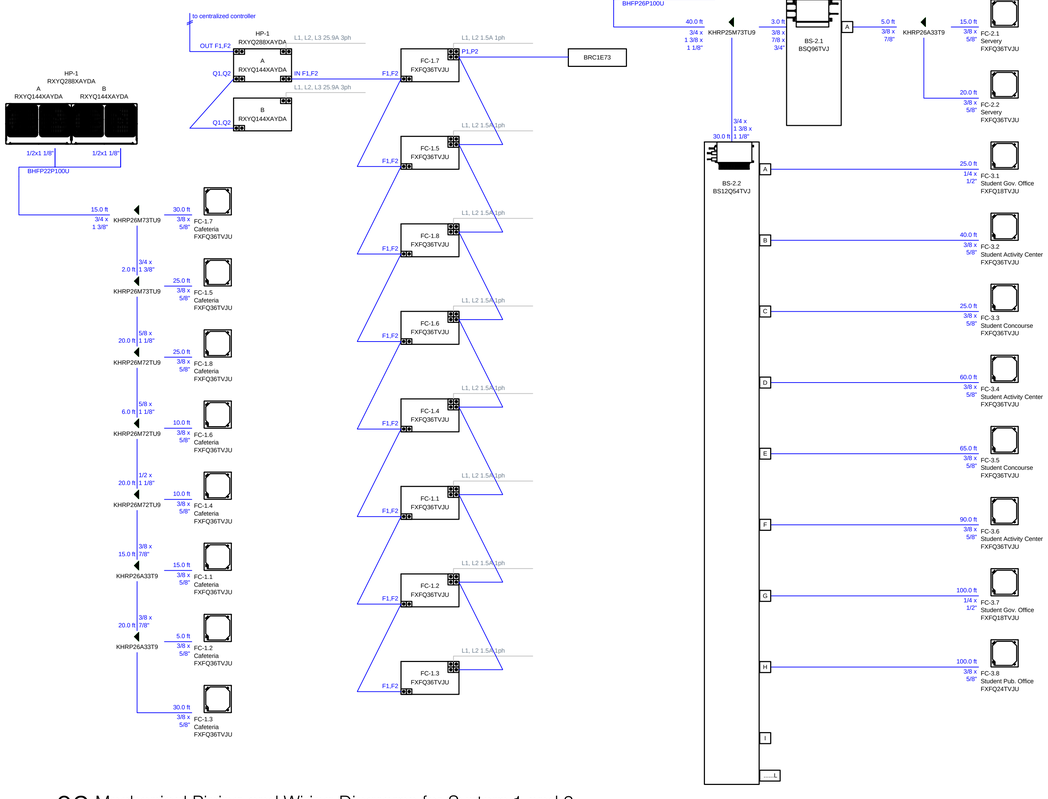
AS MUA-1 IS NOT EQUIPPED WITH A COOLING COIL, 55°F DISCHARGE TEMPERATURE IS ONLY POSSIBLE WHEN OUTDOOR AIR IS AT OR BELOW 55 °F.

d. CONTRACTOR SHALL PROVIDE ALL REQUIRED CONTROLS, RELAYS, WIRE, ETC. WHETHER OR NOT SHOWN ON DRAWING AND SPECIFICATIONS TO PROVIDE A COMPLETE OPERATING SYSTEM AND SEQUENCE OF OPERATION AS DESCRIBED HEREIN.

e. EQUIPMENT SHALL BE FURNISHED WITH FACTORY BACNET CARDS FOR INTEGRATION INTO BAS.

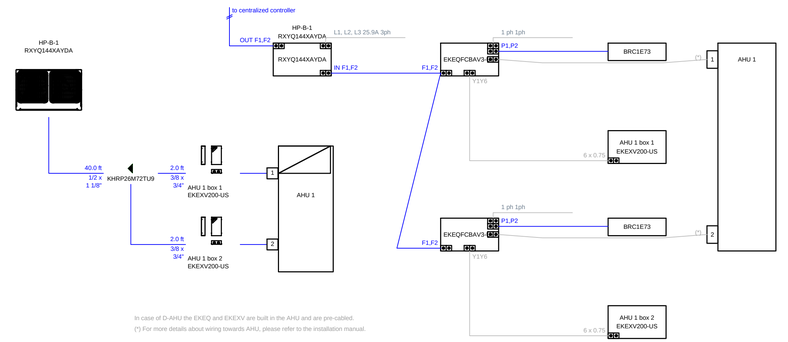
NOTE: MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL DUCT SMOKE DETECTORS AT LOCATIONS SHOWN. COORDINATE WITH FIRE ALARM VENDOR TO TIE INTO EXISTING BUILDING FIRE ALARM SYSTEM.

01 Mechanical Control Diagram and Sequance of Operation
N.T.S.

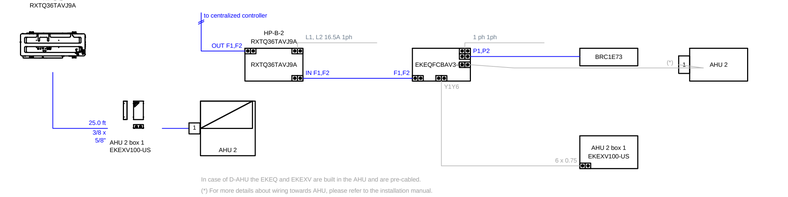


02 Mechanical Piping and Wiring Diagrams for System 1 and 2
N.T.S.

03 WIRING AND PIPING DIAGRAM - SYSTEM 3: DOAS-B-1 LEV KIT
NTS



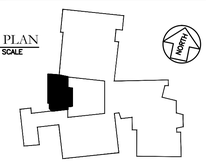
04 WIRING AND PIPING DIAGRAM - SYSTEM 4: DOAS-B-2 LEV KIT
NTS



05 WIRING DIAGRAM - MASTER CONTROL
NTS

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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, FAIRFIELD, CT

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: AD
DATE: 7/16/21		CHECKED BY: RS

MECHANICAL CONTROL DIAGRAM

FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\DWG	.	M-500

HEATING, VENTILATING AND AIR-CONDITIONING SPECIFICATIONS

SECTION 1.01 RELATED DOCUMENTS
A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL CONDITIONS, ANY SUPPLEMENTAL, CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, GOVERN THE WORK OF THIS SECTION

SECTION 1.02 GENERAL PROVISIONS
A. THE DRAWINGS SHOW THE VARIOUS DUCTWORK, EQUIPMENT AND PIPING SYSTEM SCHEMATICALLY. NO ADDED COMPENSATION WILL BE PERMITTED FOR VARIATIONS DUE TO FIELD CONDITIONS. IT IS NOT THE INTENT FOR THE DRAWINGS TO SHOW, OR THE COMPONENT OF THE SYSTEMS. FURNISH AND INSTALL ALL WORK ACCORDANCE WITH STANDARDS OF GOOD PRACTICE AND PROVIDE ALL REQUIRED APPURTENANCES AND ACCESSORIES FOR COMPLETE AND OPERATIONAL SYSTEMS.
B. INSTALL ALL WORK IN FULL ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODE REQUIREMENTS.
C. ALL EQUIPMENT AND MATERIALS SHALL BE NEW.
D. BEFORE SUBMITTING BID, VISIT THE SITE AND EXAMINE ALL ADJOINING WORK AND CONDITION ON WITCH THIS WORK IS IN ANY WAY DEPENDENT, INCLUDING BUT NOT LIMITED TO, MEANS OF MATERIAL EGRESS AND INGRESS, SPACE LIMITATIONS AND PARKING FACILITIES. REPORT ANY DISCREPANCIES TO THE OWNER.

SECTION 1.03 SCOPE OF WORK
1. PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED TO PERFORM THE WORK OF THIS SECTION AS SHOWN ON THE CONTRACT DRAWINGS, AND AS SPECIFIED HEREIN, TO INCLUDE:
A. INSTALLATION OF NEW EQUIPMENT ACCORDINGLY WITH SCHEDULES AND MECHANICAL DRAWING.
a. INSTALLATION OF NEW DUCTWORK ACCORDINGLY WITH MECHANICAL DRAWING.
C. MISCELLANEOUS STEEL DUNNAGE, PADS OR OTHER SUPPORTS AND HANGERS AS SHOWN AND AS REQUIRED.
D. ALL AUTOMATIC TEMPERATURE CONTROL WORK AND PARTS TO MAKE THE SYSTEM(S) FULLY FUNCTIONAL, INCLUDING DUCT SMOKE DETECTORS, RELAYS, SENSORS, CONTROLS ETC.

SECTION 1.04 RELATED WORK INCLUDED UNDER OTHER SECTIONS.
1. ELECTRICAL SECTION
2. PLUMBING SECTION
3. FIRE PROTECTION SECTION

SECTION 1.05 CODES, TESTS, STANDARDS, PERMITS AND GUARANTEES
A. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES AND ANY OTHER AUTHORITIES HAVING JURISDICTION.
B. PAY ALL FEES AND FILE ALL FORMS REQUIRED BY ALL MUNICIPAL AGENCIES OR GOVERNING BODIES HAVING JURISDICTION FOR ALL WORK INSTALLED UNDER THE CONTRACT. FURNISH ALL REQUIRED PERMITS AND INSPECTIONS CERTIFICATES TO THE ENGINEER PRIOR TO COMPLETION OF THE WORK.
C. SUBMIT A GUARANTEE TO THE OWNER OR ENGINEER STATING THAT ALL PORTIONS OF THE WORK ARE IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS. GUARANTEE ALL WORK AGAINST FAULTY AND IMPROPER MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER, EXCEPT THAT WERE GUARANTIES OR WARRANTIES FOR LONGER TERMS ARE SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS, SUCH LONGER TERM SHALL APPLY. AT NO ADDITIONAL COST TO THE OWNER WITHIN 24 HOURS AFTER NOTIFICATION, CORRECT ANY DEFICIENCIES WHICH OCCUR DURING THE GUARANTY PERIOD, ALL TO THE SATISFACTION OF THE OWNER. THIS CONTRACTOR SHALL REQUIRE SIMILAR GUARANTEES FROM HIS SUBCONTRACTORS.
D. THE OWNER, OR HIS REPRESENTATIVE, SHALL BE THE SOLE JUDGE OF THE ACCEPTABILITY OF THE TESTS. THE ENGINEER MAY DIRECT THE PERFORMANCE OF ANY SUCH ADDITIONAL TESTS AS HE DEEMS NECESSARY IN ORDER TO DETERMINE THE ACCEPTABILITY OF THE SYSTEMS, EQUIPMENT MATERIAL AND WORKMANSHIP. NO ALLOWANCE WILL BE FOR ANY TEST REQUIRED BY THE ENGINEER.
1. ALL SAFETY DEVICES SHALL BE ACTUATED IN A MANNER THAT CLEARLY DEMONSTRATES THEIR OPERATION.
2. CONTRACTOR SHALL PERFORM ANY AND ALL OTHERS TESTS THAT MAY BE REQUIRED BY THE LOCAL MUNICIPALITY OR OTHER GOVERNING BODY, BOARD OR AGENCY HAVING JURISDICTION.

SECTION 1.06 EXAMINATION OF SITE:
CONTRACTOR SHALL VISIT SITE AND VERIFY ALL EXISTING CONDITIONS BEFORE SUBMITTING PROPOSAL TO FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS INCLUDING ENTRANCE AND EXIT FACILITIES, ELEVATOR LIMITATIONS, HOURS PERMITTED BY THE BUILDING FOR TRANSPORTATION OF EQUIPMENT AND MATERIALS, AND SATISFY HIMSELF AS TO THE NATURE AND SCOPE OF THE WORK AND DIFFICULTIES THAT ATTEND EXECUTION. THE CONTRACTOR SHALL EXAMINE ALL EXISTING STRUCTURAL CONDITIONS. TAKE ALL NECESSARY MEASUREMENTS AND NOTE EXISTING CONDITIONS FOR THE PURPOSE OF MOVING NEW EQUIPMENT INTO THE BUILDING. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE AND LATER CLAIMS FOR LABOR EQUIPMENT OR MATERIALS REQUIRED OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAM BEEN MADE WILL NOT BE RECOGNIZED.

SECTION 1.07 DRAWINGS:
THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATE ARRANGEMENT OF EQUIPMENT, DUCTS, PIPING. THE CONTRACTOR SHALL COORDINATE HIS WORK WILL ALL CONTRACT DRAWINGS AND DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS. THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND STRUCTURAL BEAMS, OR FOR PROPER EXECUTION OF THE WORK.

SECTION 1.08 SUBMITTALS
PROVIDE SUBMITTALS OF MANUFACTURER'S PRODUCT DATA ON PROPOSED EQUIPMENT FOR REVIEW AND APPROVAL OF ENGINEER, PRIOR TO PURCHASE AND INSTALLATION. SUBMITTALS SHALL INCLUDE:
1.) VRF HEAT PUMPS AND INDOOR UNITS INCLUDING ALL REQUIRED ACCESSORIES
2.) ROOFTOP HEATING/COOLING AND DEDICATED OUTSIDE AIR UNITS
3.) ENERGY RECOVERY VENTILATORS
4.) DEDICATED OUTSIDE AIR DX COIL
5.) MAKE-UP AIR UNITS
6.) SHEET METAL DUCTWORK MATERIAL AND STANDARDS
7.) SUPPLY AND RETURN GRILLES AND DIFFUSERS
8.) LOUVER
9.) CONDENSATE PUMPS
10.) ROOF CURBS, DUNNAGE.
11.) PIPE, FITTINGS AND VALVES
12.) HANGERS AND SUPPORTS
13.) INSULATION
14.) FIRE STOPPING
15.) FULL CONTROL SHOP DRAWINGS INCLUDING SEQUENCE OF OPERATION AND ALL USED CONTROLLERS SUBMITTALS
16.) SHEET METAL, EQUIPMENT AND PIPING SHOP DRAWINGS
17.) OPERATIONS AND MAINTENANCE MANUAL INCLUDING CONTROL WIRING DIAGRAM.

SECTION 1.09 OPERATING AND MAINTENANCE INSTRUCTION
A. AT THE COMPLETION OF CONSTRUCTION THE CONTRACTOR SHALL PREPARE AND DELIVER TO THE OWNER REP. THREE SETS OF OPERATING AND MAINTENANCE INSTRUCTION MANUALS COVERING ALL EQUIPMENT INCLUDED IN THIS CONTRACT.
B. MANUALS SHALL INCLUDE ALL APPROVED SHOP DRAWINGS. WIRING DIAGRAMS, OPERATING AND MAINTENANCE INSTRUCTIONS, VALVE CHARTS, AS-BUILD DRAWINGS AND SHALL BE BOUND IN A LOOSELEAF BINDER WITH TABS SEPARATING SECTIONS.

SECTION 1.10 RIGGING:
MECHANICAL CONTRACTOR SHALL RIG ALL EQUIPMENT TO APPROPRIATE LOCATIONS. CONTRACTOR SHALL EXAMINE ALL DIFFICULTIES PRIOR TO BIDDING AND SHALL COOPERATE WITH BUILDING MANAGEMENT.

SECTION 1.11 CUTTING AND PATCHING:
1. THE CONTRACTOR SHALL DO ALL CUTTING, DRILLING AND PATCHING WHICH MAY BE REQUIRED FOR THE INSTALLATION OF THE WORK UNDER THIS SPECIFICATION.
2. PATCHING SHALL BE OF THE SAME WORKMANSHIP, MATERIAL AND FINISH, AND SHALL MATCH ACCURATELY ALL SURROUNDING CONSTRUCTION IN A MANNER SATISFACTORY TO THE ARCHITECT/ENGINEER.
3. NO CUTTING OF THE STRUCTURE SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
4. EXISTING DUCTS, PIPES, UTILITIES, ETC. THAT ARE DAMAGED DURING CONSTRUCTION PERIOD, WHETHER OR NOT DUE TO THE CONTRACTOR'S NEGLIGENCE, SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AND LEFT IN A CONDITION SATISFACTORY TO THE ENGINEER.
5. THE SPACE AROUND PIPES, DUCTS, ETC. PENETRATING RATED WALLS, SHALL NOT EXCEED 1/2" AND SHALL BE PACKED SOLID WITH MINERAL WOOL OR EQUIVALENT. PERIMETER SHALL BE CLOSED OFF BY TIGHT FITTING METAL ESCUTCHEONS ON BOTH SIDES OF THIS CONSTRUCTION AS REQUIRED BY APPLICABLE CODES.

SECTION 1.12 ELECTRICAL
1. ALL POWER WIRING SHALL BE BY ELECTRICAL CONTRACTOR. MECHANICAL CONTRACTOR TO PROVIDE ALL NECESSARY CONTROL AND INTERLOCK WIRING AND WIRING DIAGRAMS.
2. CONTRACTOR SHALL PROVIDE ALL STARTERS AND MOTORS FOR ALL MECHANICAL EQUIPMENT, WITH LOW VOLTAGE PROTECTION AND BUILT-IN THERMAL OVERLOAD PROTECTION.
3. CONTRACTOR SHALL VERIFY THE ELECTRICAL CHARACTERISTICS REQUIRED OF ALL EQUIPMENT WITH THE ELECTRICAL DRAWINGS, ELECTRICAL CONTRACTOR, AND FIELD CONDITIONS PRIOR TO ORDERING THE EQUIPMENT.

SECTION 1.13 SHEET METAL DUCTWORK
1. ALL DUCTWORK SHALL BE GALVANIZED SHEET STEEL OF GAUGES CALLED FOR AS STANDARD IN ASHRAE GUIDE AND COMPLETE INSTALLATION SHALL COMPLY WITH LATEST SMACNA STANDARDS. ALL DUCTWORK SHALL BE SEALED NOT TO EXCEED 5% AIR LEAKAGE. SEAL ALL DUCTS IN ACCORDANCE WITH SEAL CLASS "B" 2 "WG STATIC AS PER SMACNA STANDARDS.
2. ALL DUCTWORK CONNECTED TO ROTATING PARTS SHALL BE MADE OF FLEXIBLE CONNECTIONS WHICH SHALL BE HEAVY GLASS FABRIC COATED WITH NEOPRENE AND NON-COMBUSTIBLE, AND SHALL COMPLY WITH ALL APPLICABLE CODES.
3. "DUCTMATE" CONNECTIONS MAY BE USED WHEREVER POSSIBLE. DUCTWORK HAVING OTHER TYPE OF JOINTS SHALL BE SEALED WITH DUCT SEALANT OF A NON-HARDENING TYPE MASTIC OR LIQUID ELASTIC SEALANT, SUCH AS "DURA DYNE" TYPE S-2 OR EQUAL APPROVED. NO DUCT TAPE SHALL BE ALLOWED.
4. PROVIDE 1-1/2 HOUR U.L. LISTED FUSIBLE LINK, OUT OF AIRSTREAM TYPE, FIRE DAMPERS AND ACCESS DOORS FOR EACH WHERE SHOWN ON DRAWINGS AND AS REQUIRED BY APPLICABLE CODE.

SECTION 1.14 DUCTWORK INSULATION
1. ALL RECTANGULAR SUPPLY AND RETURN DUCTS ACCEPTABLE AS INDICATED ON DRAWINGS SHALL BE INTERNALLY LINED WITH MANVILLE "LINA-COUSTIC" 1" THICK, 1-1/2"# DENSITY. OTHERWISE INDICATE ON THE DRAWING NOTES. DUCTWORK SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. INCREASE DUCT SIZES ACCORDINGLY.
2. ALL DUCTWORK EXPOSED TO WEATHER SHALL HAVE TWO INCHES FIBERGLASS INSULATION, CHICKEN WIRE COVERING, 45% ROOFING FELT, AND TWO COATS OF BITUMASTIC.
3. ALL ROUND SUPPLY DUCTWORK THAT RUNS EXPOSED SHALL BE UNINSULATED.
4. OTHER NOT-EXPOSED SUPPLY AND RETURN DUCTWORK NOT INTERNALLY LINED (AND NOT ROUND EXPOSED DUCTWORK, AS IN #3 ABOVE) SHALL BE INSULATED WITH FLEXIBLE BLANKET DUCT INSULATION WITH FOIL/KRAFT VAPOR BARRIER FACING 1-1/2" THICK MIN. R-8 OWENS CORNING FRK TYPE 75 OR EQUAL.

SECTION 1.15 DUCTWORK AIR DEVICES AND ACCESSORIES
1. DUCTWORK AND AIR DEVICE INSTALLATION SHALL COMPLY WITH NFPA STANDARD 90A 'INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS", UNLESS OTHERWISE NOTED.
2. UNLESS OTHERWISE NOTED, ALL NEW DUCTWORK SHALL BE GALVANIZED STEEL IN ACCORDANCE WITH SMACNA STANDARDS FOR MINIMUM 2-INCHES WATER GAGE PRESSURE CLASSIFICATION.
3. DUCTWORK SEALANT SHALL BE AIR SEAL HEAVY-DUTY MASTIC TYPE WITH EMBEDDED FIBERGLASS REINFORCEMENT TAPE, AS MANUFACTURED BY POLYMER ADHESIVE SEALANT SYSTEM, OR APPROVAL EQUIVALENT.
4. ALL SEALANT SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS, AS TESTED BY PROCEDURE ASTM E-84, NFPA 225 AND UL 723, NOT EXCEEDING A 'FLAME SPREAD" OF 25 AND "SMOKE DEVELOPED" OF 50.
5. LINEAR DIFFUSERS:
A. LINEAR DIFFUSERS SHALL BE TITUS OR APPROVED EQUIVALENT AS MANUFACTURED BY CARNES OR NAILOR WITH SIZES AS INDICATED ON THE DRAWINGS. NUMBER OF SLOTS AND STYLE TO MATCH EXISTING AS NEARLY POSSIBLE.
B. LINEAR DIFFUSERS SHALL BE HEAVY WALLED EXTRUDED ALUMINUM. MODEL, COLOR AND FRAME TYPE SHALL BE AS DIRECTED BY THE ENGINEER.
C. CEILING OR SIDEWALL SUPPLY REGISTERS GRILLE SHALL BE TITUS (300RL) OR APPROVED EQUIVALENT AS MANUFACTURED BY CARNES OR NAILOR WITH SIZES AS INDICATED ON THE DRAWINGS.
6. RETURN GRILLES:
A. RETURN GRILLE SHALL BE TITUS OR APPROVED EQUIVALENT AS MANUFACTURED BY CARNES OR NAILOR WITH SIZES AS INDICATED ON THE DRAWINGS.
B. RETURN GRILLE SHALL BE GALVANIZED STEEL FRAME WITH ALUMINUM GRID CORE.
C. RETURN GRILLE SHALL BE EQUIPPED WITH ADJUSTABLE OPPOSED BLADE GALVANIZED STEEL DAMPERS, WHICH SHALL BE ACCESSED THROUGH THE FACE OF THE GRILLE.
D. MODEL, COLOR AND FRAME TYPE SHALL BE DIRECTED BY THE ENGINEER.
7. CEILING DIFFUSERS - STAMPED SQUERE:
A. CEILING DIFFUSERS SHALL BE TITUS OR APPROVAL EQUIVALENT AS MANUFACTURED BY CARNES OR NAILOR WITH SIZES AS INDICATED ON THE DRAWINGS.
B. CEILING DIFFUSERS SHALL BE STEEL WITH BAKED ENAMEL FINISH.
C. CEILING DIFFUSERS SHALL BE EQUIPPED WITH AN ADJUSTABLE OPPOSED BLADE DAMPER.
D. MODEL, COLOR AND FRAME TYPE SHALL BE DIRECTED BY THE ENGINEER.
8. ALL DUCTWORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH NFPA AND SMACNA STANDARDS, EXCEPT AS INDICATED OTHERWISE HEREIN.
9. ALL NEW SUPPLY, RETURN , EXHAUST AND FRESH AIR INTAKE DUCTWORK SHALL BE SEALED IN ITS ENTIRETY (ALL TRANSVERSE JOINTS, LONGITUDINAL SEEMS AND DUCT WALL PENETRATIONS SHALL BE SEALED). SEALANT MASTIC SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
10. PROVIDE SINGLE THICKNESS TURNING VANES FOR ALL SQUARE ELBOWS.
11. DUCT SIZES INDICATED ON THE DRAWINGS ARE CLEAR INSIDE DIMENSIONS. WHERE ACOUSTICAL LINING IS PROVIDED. INCREASE SHEET METAL DUCT SIZE AS REQUIRED TO MAINTAIN CLEAR INSIDE DUCT DIMENSIONS.
12. PROVIDE SHEET METAL NOSINGS AT ALL EXPOSED EDGES OF ACOUSTICAL LINING.
13. PROVIDE FLEXIBLE CONNECTIONS AT ALL CONNECTIONS TO ROTATING EQUIPMENT.
14. PROVIDE FIRE STOPS AT ALL PENETRATIONS THROUGH FIRE RATED WALLS AND PARTITIONS.
15. SLEEVES FOR PIPES PASSING THROUGH MASONRY FLOORS, WALLS AND PARTITIONS SHALL BE SCHEDULE 40 BLACK STEEL PIPE SLEEVES FOR PIPES PASSING THROUGH NON-MASONRY FLOORS, WALLS AND PARTITIONS SHALL BE 22 GAGE GALVANIZED STEEL.
16. WHERE DUCTS PASS THROUGH MASONRY FIRE RATED INTERIOR PARTITIONS INSTALL APPROPRIATELY RATED SLEEVE AND FIRESTOPPING SEALANT.
17. SAFE OFF ALL OPENINGS AROUND DUCT PENETRATIONS THROUGH WALLS.

SECTION 1.16 PIPING AND INSULATION
1. REFRIGERANT PIPING AND INSULATION: REFRIGERANT PIPING SHALL BE TYPE "K" HARD DRAWN COPPER TUBING WITH BRACING JOINTS. REFRIGERANT SUCTION LINES SHALL BE INSULATED WITH ARMORFLEX 5/8" THICK WALL CLOSED CELL PIPE INSULATION. ALL SEAMS AND JOINTS SHALL BE GLUED TIGHT.
2. CONDENSATE DRAIN PIPING SHALL BE 1-INCH MINIMUM TYPE-L DRAWN COPPER TUBE WITH 95/5 SOLDERED JOINTS. INSTALL PIPING WITH PITCH AWAY FROM DRAIN PANS AT A MINIMUM SLOPE OF 1/8-INCH PER FOOT. PIPING SHALL INCORPORATE A SERVICEABLE TRAP OF ADEQUATE DEPTH TO MAINTAIN AIR SEAL AT EACH DRAIN
3. LP STEAM PIPING, NPS 2 AND SMALLER: SCHEDULE 40, TYPE S, GRADE B, STEEL PIPE; CLASS 125 CAST-IRON FITTINGS AND THREADED JOINTS. LP STEAM PIPING, NPS 2-1/2 THROUGH NPS 12: SCHEDULE 40, TYPE E, GRADE B, STEEL PIPE; CLASS 150.
WROUGHT-STEEL FITTINGS, FLANGES, AND FLANGE FITTINGS; AND WELDED AND FLANGED JOINTS.
INSULATION: CALCIUM SILICATE: 3 INCHES THICK OR MINERAL-FIBER, PREFORMED PIPE, TYPE I OR II: 3 INCHES THICK.
4. LP CONDENSATE RETURN PIPING ABOVE GRADE, NPS 2 AND SMALLER, SHALL BE SCHEDULE 80, TYPE S, GRADE B, STEEL PIPE; CLASS 125 CAST-IRON FITTINGS; AND THREADED JOINTS. NPS 2 AND SMALLER: SCHEDULE 40, TYPE S, GRADE B, STEEL PIPE; CLASS 125 CAST-IRON FITTINGS AND THREADED JOINTS. LP STEAM PIPING, NPS 2-1/2 THROUGH NPS 12: SCHEDULE 40, TYPE E, GRADE B, STEEL PIPE; CLASS 150

SECTION 1.17 VIBRATION ISOLATION AND HANGERS
1. PROVIDE HANGERS AND SUPPORTS FOR ALL PIPING, DUCTWORK AND EQUIPMENT. PIPING SUPPORTS SHALL COMPLY WITH MSS SP-69 STANDARDS.
2. DUCT HANGERS SHALL BE OF THE TYPE AND SIZE AND BE SPACED AS INDICATED IN DUCT SUPPORT DETAIL ON DRAWINGS.
3. PIPING WITHIN 25' OF ALL EQUIPMENT THAT IS SUPPORTED BY VIBRATION ISOLATORS SHALL BE SUPPORTED WITH STEEL SPRING AND RUBBER IN SHEAR TYPE VIBRATION ISOLATORS, WITH A MINIMUM OF 1" STATIC DEFLECTION.
4. ALL HANGERS SHALL BE ATTACHMENT OF RODS TO STRUCTURAL BEAMS.
5. ALL PIPING HANGERS SHALL BE AT LEAST 3/8" ROD AND MAX. SPACING 6' FOR PIPES SIZE 1" AND LESS.
6. ALL PIPING HANGERS SHALL BE AT LEAST 3/8" ROD AND MAX. SPACING 8' FOR PIPES SIZE 1 1/4" - 2".
7. ISOLATION OF DUCTWORK FROM EQUIPMENT VIBRATIONS SHALL BE MADE BY USE OF FLEXIBLE CONNECTORS CONSTRUCTED OF HEAVY GLASS FABRIC COATED WITH NEOPRENE AND NON-COMBUSTIBLE IN COMPLIANCE WITH ALL APPLICABLE CODES.

SECTION 1.18 HVAC EQUIPMENT
1. REFER TO EQUIPMENT SCHEDULES ON DRAWINGS M-001.00:
A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING DAIKIN, MITSUGISHI OR EQUIVALENT VARIABLE REFRIGERATION SPLIT SYSTEM (VRF), TWO (2) DEDICATED OUTSIDE AIR ROOFTOP UNITS, ONE (1) PACKAGE ROOFTOP UNIT, TWO (2) RENEW AIRE ENERGY RECOVERY VENTILATORS, ONE (1) MAKE UP AIR UNIT AND ALL ASSOCIATED CONTROLS. THE CONTRACTOR SHALL INSTALL NEW DUCT SYSTEM AND PUT INTO OPERATION AND SERVICE THE NEW HVAC UNIT AS REQUIRED FOR A COMPLETE FULL OPERATING SYSTEM.
B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING EXISTING DUCT, PIPING AS LOUVERS AS PER M-SERIES DRAWING.
C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECT AND REMOVE EXITING HVAC EQUIPMENT AND ALL RELATED DUCTWORKK AND PIPING IN AREA INDICATED ON MD-100 DRAWING.
D. ALL NEW EQUIPMENT TYPE AND MODEL SPECIFIED IN THE EQUIPMENT SCHEDULES M-001.00.
2. ALL ITEMS OF THE HVAC EQUIPMENT INCLUDING FANS, FILTERS, COILS AND ACCESSORIES SHALL BE TESTED, CLEANED, OILED, AND ADJUSTED AS REQUIRED FOR OPTIMUM OPERATION.
3. AUTOMATIC TEMPERATURE CONTROLS AND DEVICES SUCH AS SPACE THERMOSTATS, VALVES, SENSORS, DAMPERS, ETC. SHALL BE TESTED, ADJUSTED AND/OR REPLACED BY THE ATC CONTRACTOR AS NECESSARY FOR A FULLY FUNCTIONAL SYSTEM.
4. ALL AIR HANDLING EQUIPMENT AND PARTS INCLUDING BELTS, PULLEYS AND MOTORS SHALL BE ADJUSTED AS REQUIRED TO PROVIDE AIR QUANTITIES INDICATED ON THE DRAWINGS.
5. FILTERS: PRIOR TO STARING OF THE HVAC EQUIPMENT, CONTRACTOR SHALL INSTALL BRAND NEW SET OF FILTERS. AFTER TESTING AND BALANCING IS COMPLETE, A NEW SET OF FILTERS SHALL BE INSTALLED AS A FINAL CHANGE BEFORE THE STORE STOCKING PERIOD. ALSO PROVIDE ONE SPARE SET OF FILTERS AND BELTS AT THE COMPLETION OF THE CONTRACT.

SECTION 1.19 AUTOMATIC TEMPERATURE CONTROL SYSTEM
1. THE AUTOMATIC TEMPERATURES CONTROLS CONTRACTOR SHALL PROVIDE ALL REQUIRED AUTOMATIC TEMPERATURE CONTROLS FOR BMS SYSTEM TO ACCOMPLISH THE FOLLOWING SEQUENCES OF OPERATION AND TO PROVIDE FOR COMPLETE AND OPERATIONAL CONTROL SYSTEMS, ITEMS PROVIDED SHALL INCLUDE, BUT NOT BE LIMITED TO SYSTEM ENGINEERING, LABOR, CONTROL WIRING, PNEUMATIC TUBING, CONTROLLERS, SENSORS, RELAYS, PNEUMATIC-ELECTRIC SWITCHES, ELECTRIC-PNEUMATIC SWITCHES, MOTOR STARTERS, CONTROL ENCLOSURES, DAMPERS, ACTUATORS, CONTROL VALVES ETC.
2. THE AUTOMATIC TEMPERATURE CONTROLS SUBCONTRACTOR SHALL PROVIDE ALL REQUIRED CONTROL WIRING AND ALL WIRING REQUIRED FOR INTERLOCKING AND INTERFACING CONTROLS WITH THE EQUIPMENT TO BE CONTROLLED WHETHER LOW VOLTAGE OR LINE VOLTAGE.
3. THE AUTOMATIC TEMPERATURE CONTROLS CONTRACTOR SHALL INSTALL DUCT MOUNTED SMOKE DETECTORS, WHICH WILL BE FURNISHED AND WIRED BY THE ELECTRICAL SUBCONTRACTOR.
4. AUTOMATIC CONTROL EQUIPMENT SHALL BE DIKIN, MITSUBISHI, JOHNSON CONTROLS, HONEYWELL, SIEMENS OR APPROVED EQUIVALENT.
5. SEQUENCE OF OPERATION REFER TO M-500.
6. PROVIDE COMPLETE CONTROL WIRING DIAGRAM INCLUDING ALL CONTROL COMPONENTS AND SEQUENCE OF OPERATION.

SECTION 1.20 TESTING AND BALANCING
1. BALANCING OF THE HVAC SYSTEM WILL BE PERFORMED BY AN INDEPENDENT TEST AND BALANCING AGENCY. THE MECHANICAL CONTRACTOR SHALL COOPERATE WITH THE SELECTED TEST AND BALANCE AGENCY IN THE FOLLOWING MANNER:
A. PROVIDE SUFFICIENT TIME BEFORE FINAL COMPLETION DATE SO THAT TEST AND BALANCING CAN BE ACCOMPLISHED.
B. PROVIDE IMMEDIATE LABOR AND TOOLS TO MAKE CORRECTIONS WHEN REQUIRED WITHOUT UNDUE DELAY. INSTALL BALANCING DAMPERS AS REQUIRED BY TEST AND BALANCE AGENCY.
C. THE CONTRACTOR SHALL PUT ALL HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS AND EQUIPMENT INTO FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.
D. TESTING AND BALANCING AGENCY SHALL BE KEPT INFORMED OF ANY MAJOR CHANGES MADE TO SYSTEM DURING CONSTRUCTION AND SHALL BE PROVIDED WITH COMPLETE AS-BUILT DRAWINGS.
E. THE MECHANICAL CONTRACTOR SHALL INCLUDE THE COSTS OF DAMPERS, PULLEY, AND BELT CHANGES IN HIS CONTRACT.
F. TESTING AND BALANCING REPORTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.

SECTION 1.21 CLEANING, TESTING AND ADJUSTMENT
A. PROPERLY CAP ALL DUCTWORK DURING CONSTRUCTION TO PREVENT THE ENTRANCE OF FOREIGN MATERIAL.
B. ALL MOTORS, FANS, PUMPS ETC. SHALL BE PROPERLY OILED AND MADE READY FOR OPERATION.
C. DEMONSTRATE THAT ALL EQUIPMENT AND APPARATUS FULFILL THE REQUIREMENT OF THE SPECIFICATIONS. ALL EQUIPMENT AND SAFETIES SHALL BE OPERATED AND TESTED FOR RATED CAPACITIES AND SPECIFIED CHARACTERISTICS. VOLTAGE AND AMPERAGE READINGS SHALL BE TAKEN ON ALL ELECTRIC MOTORS.

SECTION 1.22 INSTRUCTION OF OWNER 'S PERSONNEL
A. AFTER COMPLETION OF WORK AND ALL TESTS AND AT SUCH TIME AS DESIGNATED BY THE ARCHITECT. PROVIDE THE NECESSARY SKILLED PERSONNEL TO DEMONSTRATE THE ENTIRE INSTALLATION TO THE OWNER'S PERSONNEL FOR A PERIOD OF 2 HOURS.
B. DURING THE OPERATING PERIOD, FULLY INSTRUCT THE OWNER'S REPRESENTATIVE IN THE COMPLETE OPERATION, ADJUSTMENT AND MAINTENANCE OF THE ENTIRE INSTALLATION.

VARIABLE-REFRIGERANT VOLUME (VRV) DIRECT EXPANSION SYSTEMS

GENERAL
1. SYSTEM DESCRIPTION
a. THE VARIABLE CAPACITY, HEAT PUMP/HEAT RECOVERY AIR CONDITIONING SYSTEM SHALL BE A DAIKIN VARIABLE REFRIGERANT VOLUME (VRV) SYSTEM.
b. THE SYSTEM SHALL CONSIST OF OUTDOOR UNITS, BS (BRANCH SELECTOR) BOXES, REFNET JOINTS AND INDOOR UNITS WITH DDC (DIRECT DIGITAL CONTROLS). EACH INDOOR UNIT OR GROUP OF INDOOR UNITS SHALL BE INDEPENDENTLY CONTROLLED.
c. THE VRV SYSTEM SELECTED SHALL BE OF THE "HEAT PUMP" TYPE TO PROVIDE NON-SIMULTANEOUS HEATING OR COOLING VIA A 2-PIPE REFRIGERATION PIPE DESIGN TO THE INDOOR UNITS.
d. THE VRV SYSTEM SELECTED SHALL BE OF THE "HEAT RECOVERY" TYPE TO PROVIDE SIMULTANEOUS HEATING AND COOLING VIA A 3-PIPE REFRIGERATION PIPE DESIGN TO BRANCH SELECTOR BOXES AND A 2-PIPE DESIGN TO THE INDOOR UNITS. A DEDICATED HOT GAS PIPE SHALL BE REQUIRED TO ENSURE OPTIMUM HEATING OPERATION PERFORMANCE. TWO-PIPE, HEAT RECOVERY SYSTEMS UTILIZING A LOWER TEMPERATURE MIXED LIQUID/GAS REFRIGERANT TO PERFORM HEAT RECOVERY ARE NOT ACCEPTABLE DUE TO REDUCED HEATING CAPABILITIES.
e. ALL REFRIGERANT LINES SHALL BE INSULATED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. PIPING SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR.
2. QUALITY ASSURANCE
a. THE UNITS SHALL BE LISTED BY ELECTRICAL LABORATORIES (ETL) AND BEAR THE ETL LABEL.
b. ALL WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (N.E.C.).
c. THE SYSTEM WILL BE PRODUCED IN AN ISO 9001 AND ISO 14001 FACILITY, WHICH ARE STANDARDS SET BY THE INTERNATIONAL STANDARD ORGANIZATION (ISO). THE SYSTEM SHALL BE FACTORY TESTED FOR SAFETY AND FUNCTION.
d. THE SYSTEM SHALL USE R-410A REFRIGERANT ONLY. A FULL CHARGE OF R-410A FOR THE CONDENSING UNIT ONLY SHALL BE PROVIDED IN THE CONDENSING UNIT. ALL EXTRA REFRIGERANT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR.
3. DELIVERY, STORAGE AND HANDLING
a. UNIT SHALL BE STORED AND HANDLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
4. INSTALLATION
a. THE VRV SYSTEM SHALL BE INSTALLED BY A MANUFACTURER AUTHORIZED INSTALLER WITH TRAINING SPECIFIC TO THE EQUIPMENT BEING INSTALLED. THE MANDATORY CONTRACTOR SERVICE AND INSTALL TRAINING SHOULD BE PERFORMED BY THE MANUFACTURER OR THE LOCAL REPRESENTATIVE. UNTRAINED CONTRACTORS WHO WISH TO BID THIS PROJECT MAY CONTACT THE LOCAL DAIKIN REPRESENTATIVE (SWAN ASSOCIATES - NEWINGTON, CT - 860-666-6923) TO ARRANGE TRAINING PRIOR TO INSTALLATION.
5. STARTUP
a. THE DAIKIN VRV SYSTEM STARTUP WILL BE SUPPORTED LOCALLY BY CERTIFIED DAIKIN VRV TECHNICIANS. ALL WIRING, PIPING, EVACUATION AND AN INITIAL CHARGE OF R-410A SHALL BE COMPLETED BY THE MECHANICAL CONTRACTOR PRIOR TO HAVING A DAIKIN VRV CERTIFIED TECHNICIAN CALLED OUT TO WITNESS AND ASSIST WITH STARTUP. THE CERTIFIED TECHNICIAN SHALL PROVIDE TECHNICAL SUPPORT AND ASSIST WITH STARTUP; PRESSURE TESTING, LEAK TESTING, EVACUATION AND REFRIGERANT CHARGING SHALL BE BY THE MECHANICAL CONTRACTOR. ADDITIONAL REFRIGERANT WILL BE REQUIRED AND SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR.
6. WARRANTY
a. FURNISH TEN YEAR MANUFACTURER'S WARRANTY FOR ALL PARTS AND COMPRESSORS FOR VRV OUTDOOR CONDENSING UNITS, BS BOXES AND INDOOR UNITS. CONTROLS SHALL BE WARRANTEED FOR A PERIOD OF ONE YEAR. ALSO FURNISH ONE YEAR LABOR WARRANTY. IF, DURING THIS PERIOD, ANY PART SHOULD FAIL TO FUNCTION PROPERLY DUE TO DEFECTS IN WORKMANSHIP OR MATERIAL, IT SHALL BE REPLACED OR REPAIRED AT THE DISCRETION OF THE MANUFACTURER. OWNER/CONTRACTOR MUST RETAIN STRICT RECORD OF ALL MAINTENANCE AND FOLLOW THE FACTORY RECOMMENDED INSTRUCTIONS

PRODUCTS
1. OUTDOOR AIR COOLED VRV CONDENSING UNIT:
a. GENERAL: THE OUTDOOR UNIT SHALL BE USED WITH COMPATIBLE INDOOR COMPONENTS. THE OUTDOOR UNITS SHALL BE EQUIPPED WITH MULTIPLE CIRCUIT BOARDS THAT INTERFACE TO THE D-III NET CONTROLS SYSTEM AND SHALL PERFORM ALL FUNCTIONS NECESSARY FOR OPERATION. THE OUTDOOR UNIT SHALL HAVE A POWDER COATED FINISH. THE OUTDOOR UNIT SHALL BE COMPLETELY FACTORY ASSEMBLED, PIPED AND WIRED. EACH UNIT SHALL BE RUN TESTED AT THE FACTORY.
1) THE REFRIGERATION CIRCUIT OF THE CONDENSING UNIT SHALL CONSIST OF DAIKIN INVERTER SCROLL COMPRESSORS, MOTORS, FANS, CONDENSER COIL, ELECTRONIC EXPANSION VALVES, SOLENOID VALVES, 4-WAY VALVE, DISTRIBUTION HEADERS, CAPILLARIES, FILTERS, SHUT OFF VALVES, OIL SEPARATORS, SERVICE PORTS, LIQUID RECEIVER AND SUCTION ACCUMULATOR.
2) TO ENSURE THE LIQUID REFRIGERANT DOES NOT FLASH WHEN SUPPLYING TO THE VARIOUS INDOOR UNITS, THE CIRCUIT SHALL BE PROVIDED WITH A SUB-COOLING FEATURE.
3) THE SUM OF CONNECTED CAPACITY OF ALL INDOOR AIR HANDLERS SHALL RANGE FROM 50% TO 200% OF OUTDOOR RATED CAPACITY.
4) THE CONDENSING UNIT SHALL BE FACTORY ASSEMBLED IN THE USA AND PRE-WIRED WITH ALL NECESSARY ELECTRONIC AND REFRIGERANT CONTROLS.
5) LOW SOUND LEVELS - EACH SYSTEM SHALL USE INDOOR AND CONDENSING UNITS WITH QUIET OPERATION AS LOW AS 27 DB(A). THE SOUND PRESSURE LEVEL STANDARD SHALL BE THAT VALUE AS LISTED IN THE DAIKIN ENGINEERING MANUAL FOR THE SPECIFIED MODELS AT 3 FEET FROM THE FRONT OF THE UNIT. THE OUTDOOR UNIT SHALL BE CAPABLE OF OPERATING AUTOMATICALLY AT FURTHER REDUCED NOISE DURING NIGHT TIME.
6) REFRIGERANT LINES SHALL BE INSULATED.
7) THE OUTDOOR UNIT SHALL HAVE AN ACCUMULATOR WITH REFRIGERANT LEVEL SENSORS AND CONTROLS.
8) THE OUTDOOR UNIT SHALL HAVE A HIGH PRESSURE SAFETY SWITCH, OVER-CURRENT PROTECTION AND DC BUS PROTECTION.
9) THE SYSTEM SHALL BE CAPABLE OF REFRIGERANT PIPING UP TO 540 ACTUAL FEET OR 620 EQUIVALENT FEET FROM THE OUTDOOR UNIT TO THE FURTHEST INDOOR UNIT, A TOTAL COMBINED LIQUID LINE LENGTH OF 3,280 FEET OF PIPING BETWEEN THE CONDENSING AND INDOOR UNITS WITH 295 FEET MAXIMUM VERTICAL DIFFERENCE, WITHOUT ANY OIL TRAPS. SYSTEMS SHALL BE CAPABLE OF UP TO 295FT (90M) FROM THE FIRST REFNET™ / BRANCH POINT.
10) REFNET™ PIPING JOINTS AND HEADERS SHALL BE USED TO ENSURE PROPER REFRIGERANT BALANCE AND FLOW FOR OPTIMUM SYSTEM CAPACITY AND PERFORMANCE. T STYLE JOINTS SHALL NOT BE ACCEPTABLE.
11) THE CONDENSING UNIT SHALL BE CAPABLE OF HEATING OPERATION AT NEGATIVE 13°F (-25°C) WET BULB AMBIENT TEMPERATURE WITHOUT ADDITIONAL LOW AMBIENT CONTROLS OR AN AUXILIARY HEAT SOURCE.
12) LOW AMBIENT COOLING - VRV SHALL BE CAPABLE OF LOW AMBIENT COOLING OPERATION TO -4°FDB (-20°CDB) WITH CONTINUED OPERATION OF SIMULTANEOUS HEATING AND COOLING.
13) THE OUTDOOR UNIT SHALL HAVE A HIGH EFFICIENCY OIL SEPARATOR PLUS ADDITIONAL LOGIC CONTROLS TO ENSURE ADEQUATE OIL VOLUME IN THE COMPRESSOR IS MAINTAINED.
14) DEFROST HEATING - MULTIPLE CONDENSER VRV SYSTEMS SHALL MAINTAIN CONTINUOUS HEATING DURING DEFROST OPERATION. REVERSE CYCLE (COOLING MODE) DEFROST OPERATION SHALL NOT BE PERMITTED DUE TO THE POTENTIAL REDUCTION IN SPACE TEMPERATURE. IT IS IMPORTANT TO THE COMFORT OF THE DESIGN THAT THE SYSTEM SHALL CONTINUE TO PROVIDE HEAT TO THE INDOOR UNITS IN HEATING OPERATION WHILE IN THE DEFROST MODE.
15) OIL RETURN HEATING - VRV SYSTEMS SHALL MAINTAIN CONTINUOUS HEATING DURING OIL RETURN OPERATION. REVERSE CYCLE (COOLING MODE) OIL RETURN DURING HEATING OPERATION SHALL NOT BE PERMITTED DUE TO THE POTENTIAL REDUCTION IN SPACE TEMPERATURE.
16) STABLE OPERATION - SYSTEM SHALL PROVIDE STABLE INVERTER OPERATION AT VARIED AMBIENT CONDITIONS.
17) NO DRAIN PAN HEATER - SYSTEM SHALL BE CAPABLE OF HEATING OPERATION WITHOUT THE NEED FOR A DRAIN PAN HEATER.
  a) IF ALTERNATE MANUFACTURER IS CHOSEN, AN ADDITIONAL DRAIN PAN HEATER SHALL BE PROVIDED BY THE MANUFACTURER AND ANY COST INCREASES DUE TO ELECTRICAL SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.
18) ADVANCED ZONING - A SINGLE SYSTEM SHALL PROVIDE FOR UP TO 64 ZONES.
19) VFD INVERTER CONTROL AND VARIABLE REFRIGERANT TEMPERATURE - EACH CONDENSING UNIT SHALL USE HIGH EFFICIENCY, VARIABLE SPEED ALL 'INVERTER" BASED FLASH VAPOR INJECTION COMPRESSOR(S) COUPLED WITH INVERTER FAN MOTORS TO OPTIMIZE PART LOAD PERFORMANCE. THE SYSTEM CAPACITY AND REFRIGERANT TEMPERATURES SHALL BE MODULATED AUTOMATICALLY TO SET SUCTION AND CONDENSING PRESSURES WHILE VARYING THE REFRIGERANT VOLUME FOR THE NEEDS OF THE COOLING OR HEATING LOADS. THE CONTROL WILL BE AUTOMATIC AND CUSTOMIZABLE DEPENDING ON LOAD AND WEATHER CONDITIONS.
  a) INDOOR SHALL USE PID TO CONTROL SUPERHEAT TO DELIVER A COMFORTABLE ROOM TEMPERATURE CONDITION AND OPTIMIZE EFFICIENCY.
20) THE FOLLOWING SAFETY DEVICES SHALL BE INCLUDED ON THE CONDENSING UNIT; HIGH PRESSURE SENSOR AND SWITCH, LOW PRESSURE SENSOR, CONTROL CIRCUIT FUSES, CRANKCASE HEATERS, FUSIBLE PLUG, OVERLOAD RELAY, INVERTER OVERLOAD PROTECTOR, THERMAL PROTECTORS FOR COMPRESSOR AND FAN MOTORS, OVER CURRENT PROTECTION FOR THE INVERTER AND ANTI-RECYCLING TIMERS.
21) SCHEDULED HEATING AND COOLING CAPACITIES SHALL BE MET AT A MINIMUM AND RESIZING MAY BE NEEDED BY OTHER MANUFACTURERS TO MEET THIS REQUIREMENT.
22) SPACE SAVING - EACH SYSTEM SHALL HAVE A CONDENSING UNIT MODULE FOOTPRINT NO LARGER THAN 66-11/16" X 48-7/8" X 30-3/16" (1694MM X 1242MM X 767MM).
23) EACH CONDENSING UNIT SHALL INCLUDE A MULTI-FUNCTIONAL DIGITAL DISPLAY THAT CAN PROVIDE SYSTEM OPERATION STATUS SUCH AS OPERATING REFRIGERANT TEMPERATURES, PRESSURES, OUTDOOR ELECTRONIC EXPANSION VALVE OPENING AND COMPRESSOR OPERATION TIME.
24) EACH CONDENSING UNIT SHALL INCLUDE A SERVICE WINDOW THAT CAN PROVIDE EASY ACCESS TO SYSTEM FIELD SETTINGS AND OPERATION STATUS WITHOUT COMPLETELY REMOVING THE CONDENSING UNIT PANEL.
25) ADVANCED DIAGNOSTICS - SYSTEMS SHALL INCLUDE A SELF-DIAGNOSTIC, AUTO-CHECK FUNCTION TO DETECT A MALFUNCTION AND DISPLAY THE TYPE AND LOCATION.
26) THE SYSTEM WILL AUTOMATICALLY RESTART OPERATION AFTER A POWER FAILURE AND WILL NOT CAUSE ANY SETTINGS TO BE LOST, THUS ELIMINATING THE NEED FOR REPROGRAMMING.
27) EACH SYSTEM SHALL BE ABLE TO ENLARGE FROM SINGLE TO DUAL MODULE OR DUAL TO TRIPLE MODULE WITHOUT THE NEED FOR INSTALLED MAIN PIPE SIZE CHANGES. THE MANUFACTURER SHALL PROVIDE PREDEFINED PIPE SIZES AND DESIGN RULES ENSURING RELIABLE SYSTEM OPERATION AND OFFERING DESIGN FLEXIBILITY IN PHASED INSTALLATION APPLICATIONS.
b. UNIT CABINET:
1) THE OUTDOOR UNIT SHALL BE COMPLETELY WEATHERPROOF AND CORROSION RESISTANT. THE UNIT SHALL BE CONSTRUCTED FROM RUST-PROOFED MILD STEEL PANELS COATED WITH A BAKED ENAMEL FINISH.
2) THE UNIT SHALL BE ELEVATED ON RAILS OR STANDS ACCORDING TO THE MANUFACTURER'S RECOMMENDATION. FAILURE TO DO SO SHALL VOID THE MANUFACTURER'S WARRANTIES. RAILS/STANDS ARE NOT PROVIDED BY THE MANUFACTURER.
c. FAN:
1) THE UNIT SHALL BE FURNISHED WITH ONE OR MORE DIRECT DRIVE FAN MOTOR(S) THAT HAVE MULTIPLE SPEED OPERATION VIA A DC (DIGITALLY COMMUTATING) INVERTER.
2) THE FAN MOTOR SHALL HAVE INHERENT PROTECTION, HAVE PERMANENTLY LUBRICATED BEARINGS, AND BE COMPLETELY VARIABLE SPEED.
3) THE FAN MOTOR SHALL BE MOUNTED FOR QUIET OPERATION.
4) THE FAN SHALL BE PROVIDED WITH A RAISED GUARD TO PREVENT CONTACT WITH MOVING PARTS.
5) THE OUTDOOR UNIT SHALL HAVE VERTICAL DISCHARGE AIRFLOW.
6) THE FAN MOTOR SHALL BE FACTORY SET AS STANDARD AT 0.12 IN. WG, BUT CONTAIN A FIELD SETTING SWITCH TO A MAXIMUM 0.32 IN. WG PRESSURE.
7) NIGHT SETBACK CONTROL OF THE FAN MOTOR FOR LOW NOISE OPERATION BY WAY OF AUTOMATICALLY LIMITING THE MAXIMUM SPEED SHALL BE A STANDARD FEATURE. OPERATION SOUND LEVEL SHALL BE SELECTABLE FROM 3 STEPS
8) THE CONDENSING UNIT SHALL HAVE CONFIGURABLE SETTINGS FOR INTERMITTENT FAN OPERATION TO HELP MINIMIZE SNOW ACCUMULATION ON FAN BLADES WHEN THE SYSTEM IS OFF.
d. COIL
1) THE CONDENSER COIL SHALL BE MANUFACTURED FROM COPPER TUBES EXPANDED INTO ALUMINUM FINS TO FORM A MECHANICAL BOND.
2) THE HEAT EXCHANGER COIL SHALL BE OF A WAFFLE LOUVER FIN AND RIFLED BORE TUBE DESIGN TO ENSURE HIGH EFFICIENCY PERFORMANCE.
3) THE HEAT EXCHANGER ON THE CONDENSING UNITS SHALL BE MANUFACTURED FROM HI-X SEAMLESS COPPER TUBE WITH N-SHAPE INTERNAL GROOVES MECHANICALLY BONDED ON TO ALUMINUM FINS TO AN E-PASS DESIGN.
4) THE OUTDOOR COIL SHALL HAVE THREE-CIRCUIT HEAT EXCHANGER DESIGN ELIMINATING THE NEED FOR A DRAIN PAN HEATER THE LOWER PART OF THE COIL SHALL BE USED FOR INVERTER COOLING AND BE ON OR OFF DURING HEATING OPERATION ENHANCING THE DEFROST OPERATION.
5) THE FINS SHALL BE COATED WITH AN ANTI-CORROSION HYDROPHILIC BLUE COATING AS STANDARD FROM FACTORY WITH A SALT SPRAY TEST RATING OF 1000HR PER ASTM TEST STANDARDS.
6) THE CONDENSING UNIT SHALL BE FACTORY EQUIPPED WITH CONDENSER COIL GUARDS ON ALL SIDES.
e. COMPRESSOR:
1) THE DAIKIN INVERTER FLASH VAPOR INJECTION SCROLL COMPRESSORS SHALL BE VARIABLE SPEED (PVM INVERTER) CONTROLLED WHICH IS CAPABLE OF CHANGING THE SPEED TO FOLLOW THE VARIATIONS IN TOTAL COOLING AND HEATING LOAD AS DETERMINED BY THE SUCTION GAS PRESSURE AS MEASURED IN THE CONDENSING UNIT.
  a) IN ADDITION, SAMPLINGS OF EVAPORATOR AND CONDENSER TEMPERATURES SHALL BE MADE SO THAT THE HIGH/LOW PRESSURES DETECTED ARE READ EVERY 20 SECONDS AND CALCULATED. WITH EACH READING, THE COMPRESSOR CAPACITY (INV FREQUENCY) SHALL BE CONTROLLED TO ELIMINATE DEVIATION FROM TARGET VALUE.
  b) NON -INVERTER-DRIVEN COMPRESSORS, WHICH MAY CAUSE STARTING MOTOR CURRENT TO EXCEED THE NOMINAL MOTOR CURRENT (RLA) AND REQUIRE LARGER WIRE SIZING, SHALL NOT BE ALLOWED.
2) THE INVERTER DRIVEN COMPRESSORS IN THE CONDENSING UNIT SHALL BE OF HIGHLY EFFICIENT RELUCTANCE DC (DIGITALLY COMMUTATING), HERMETICALLY SEALED SCROLL 'K-TYPE".
3) NEODYMIUM MAGNETS SHALL BE ADOPTED IN THE ROTOR CONSTRUCTION TO YIELD A HIGHER TORQUE AND EFFICIENCY IN THE COMPRESSOR INSTEAD OF THE NORMAL FERRITE MAGNET TYPE.
  a) AT COMPLETE STOP OF THE COMPRESSOR, THE NEODYMIUM MAGNETS WILL POSITION THE ROTOR INTO THE OPTIMUM POSITION FOR A LOW TORQUE START.
4) THE CAPACITY CONTROL RANGE SHALL BE AS LOW AS 3% TO 100%.
5) THE COMPRESSOR'S MOTOR SHALL HAVE A COOLING SYSTEM USING DISCHARGE GAS, TO AVOID SUDDEN CHANGES IN TEMPERATURE RESULTING IN SIGNIFICANT STRESSES ON WINDING AND BEARINGS.
6) EACH COMPRESSOR SHALL BE EQUIPPED WITH A CRANKCASE HEATER, HIGH PRESSURE SAFETY SWITCH, AND INTERNAL THERMAL OVERLOAD PROTECTOR.
7) OIL SEPARATORS SHALL BE STANDARD WITH THE EQUIPMENT TOGETHER WITH AN INTELLIGENT OIL MANAGEMENT SYSTEM.
8) THE COMPRESSOR SHALL BE MOUNTED ON VIBRATION DAMPENING RUBBER GROMMETS TO MINIMIZE THE TRANSMISSION OF VIBRATION, ELIMINATING THE STANDARD NEED FOR EXTERNAL SPRING ISOLATION.
9) IN THE EVENT OF COMPRESSOR FAILURE, THE REMAINING COMPRESSORS, IF APPLICABLE, SHALL CONTINUE TO OPERATE AND PROVIDE HEATING OR COOLING AS REQUIRED AT A PROPORTIONALLY REDUCED CAPACITY. THE MICROPROCESSOR AND ASSOCIATED CONTROLS SHALL BE MANUALLY ACTIVATED TO SPECIFICALLY ADDRESS THIS CONDITION FOR SINGLE MODULE AND MANIFOLD SYSTEMS.
10) IN THE CASE OF MULTIPLE CONDENSER MODULES, COMBINED OPERATION HOURS OF THE COMPRESSORS SHALL BE BALANCED BY MEANS OF THE DUTY CYCLING FUNCTION, ENSURING SEQUENTIAL STARTING OF EACH MODULE AT EACH START/STOP CYCLE, COMPLETION OF OIL RETURN, COMPLETION OF DEFROST OR EVERY 8 HOURS. WHEN CONNECTED TO A CENTRAL CONTROL SYSTEM SEQUENTIAL START IS ACTIVATED FOR ALL SYSTEM ON EACH DIII NETWORK.

2. BRANCH SELECTOR (BS) BOXES - HEAT RECOVERY SYSTEMS
a. GENERAL:
1) THE BS (BRANCH SELECTOR) BOXES SHALL BE PROVIDED AND INSTALLED ON THIS PROJECT IN SUPPORT OF HEAT RECOVERY. THESE UNITS SHALL BE EQUIPPED WITH A CIRCUIT BOARD THAT INTERFACES TO THE D-III NET CONTROLS SYSTEM AND SHALL PERFORM ALL FUNCTIONS NECESSARY FOR OPERATION. THE UNIT SHALL HAVE A GALVANIZED STEEL FINISH. THE BS BOXES SHALL BE COMPLETELY FACTORY ASSEMBLED, PIPED AND WIRED. EACH UNIT SHALL BE RUN TESTED AT THE FACTORY. THIS UNIT SHALL BE MOUNTED INDOORS.
2) EACH BS BOX BRANCH SHALL CONNECT TO INDOOR UNIT(S) NOT EXCEEDING 96,000 BTU/H PER BRANCH.
3) EACH BS BOX IS PIPED FROM THE CONDENSING UNIT WITH A 3-PIPE DESIGN TO MAXIMIZE EFFICIENCY AND ELIMINATE THE NEED FOR A CONDENSATE REMOVAL. FROM THE BS BOX TO THE INDOOR UNIT SHALL BE A 2-PIPE DESIGN.
4) FURNISH BS BOXES WITH SPARE PORTS.
b. CABINET:
1) THE CASING SHALL BE FABRICATED OF GALVANIZED STEEL.
2) EACH CABINET SHALL HOUSE A LIQUID-GAS SEPARATOR AND MULTIPLE REFRIGERATION CONTROL VALVES.
3) THE UNIT SHALL HOUSE TWO TUBE-IN-TUBE HEAT EXCHANGERS.
4) THE UNIT SHALL HAVE SOUND ABSORPTION THERMAL INSULATION MATERIAL MADE OF FLAME AND HEAT RESISTANT FOAMED POLYETHYLENE.
5) THE BRANCH SELECTOR BOX SHALL NOT REQUIRE CONDENSATE REMOVAL. THE UNIT SHALL BE HERMETICALLY SEALED TO PREVENT CONDENSATION BUILD UP INSIDE THE UNIT, AND NOT REQUIRE USE OF A SECONDARY CONDENSATE COLLECTION PAN. A SAFETY DEVICE OR SECONDARY DRAIN PAN SHALL BE INSTALLED BY THE MECHANICAL CONTRACTOR TO COMPLY WITH THE APPLICABLE MECHANICAL CODE, IF AN ALTERNATE MANUFACTURER IS SELECTED.
c. ELECTRONIC EXPANSION VALVES:
1) EACH BRANCH OF THE BRANCH SELECTOR BOX SHALL CONSIST OF THREE ELECTRONIC EXPANSION VALVES, REFRIGERANT CONTROL PIPING AND ELECTRONICS TO FACILITATE COMMUNICATIONS BETWEEN THE BOX AND MAIN PROCESSOR AND BETWEEN THE BOX AND INDOOR UNITS.
2) THE BRANCH SELECTOR BOX SHALL CONTROL THE OPERATIONAL MODE OF THE SUBORDINATE INDOOR UNITS. THE USE OF THREE EEV'S ENSURES CONTINUOUS HEATING DURING DEFROST (MULTIPLE CONDENSER SYSTEMS), NO HEATING IMPACT DURING CHANGEOVER AND REDUCED SOUND LEVELS.
3) THE USE OF SOLENOID VALVES FOR CHANGEOVER AND PRESSURE EQUALIZATION SHALL NOT BE ACCEPTABLE DUE TO DECREASED PERFORMANCE AND INCREASED REFRIGERANT NOISE.

3. 4-WAY CEILING CASSETTE (3' X 3' FXFQ):
a. GENERAL:
1) THE UNIT SHALL BE A CEILING CASSETTE STYLE INDOOR FAN COIL DESIGN THAT MOUNTS FLUSH/ABOVE THE CEILING WITH A DECORATION GRILLE BELOW. THE CASSETTE SHALL HAVE FOUR-WAY SUPPLY AIR DISTRIBUTION VIA INDIVIDUALLY MOTORIZED LOUVERS. RETURN AIR SHALL BE THROUGH THE CONCENTRIC PANEL, WHICH INCLUDES A FACTORY PROVIDED FILTER. TO SAVE ENERGY AND OPTIMIZE OCCUPANCY COMFORT, THE INDOOR UNIT SHALL BE EQUIPPED WITH BUILT IN OCCUPANCY SENSOR AND SURFACE TEMPERATURE SENSOR. COMPUTERIZED PID CONTROL SHALL BE USED TO CONTROL SUPERHEAT TO DELIVER A COMFORTABLE ROOM TEMPERATURE CONDITION. THE UNIT SHALL BE EQUIPPED WITH A PROGRAMMED DRYING MECHANISM THAT DEHUMIDIFIES WHILE INHIBITING CHANGES IN ROOM TEMPERATURE. THE UNIT SHALL SUPPORT INDIVIDUAL CONTROL USING D-III NET DDC CONTROLLERS.
b. INDOOR UNIT:
1) THE INDOOR UNIT SHALL BE FACTORY ASSEMBLED, WIRED AND RUN TESTED. CONTAINED WITHIN THE UNIT SHALL BE ALL FACTORY WIRING, PIPING, ELECTRONIC MODULATING LINEAR EXPANSION DEVICE, CONTROL CIRCUIT BOARD AND FAN MOTOR. THE UNIT SHALL HAVE A SELF-DIAGNOSTIC FUNCTION, 3-MINUTE TIME DELAY MECHANISM, AND AN AUTO RESTART FUNCTION. INDOOR UNIT AND REFRIGERANT PIPES SHALL BE CHARGED WITH DEHYDRATED AIR BEFORE SHIPMENT FROM THE FACTORY. THE UNIT SHALL CONTAIN A FACTORY INSTALLED CONDENSATE DRAIN PAN AND CONDENSATE DRAIN PUMP WITH FLOAT SWITCH.
2) THE ROUND FLOW SUPPLY AIR FLOW CAN BE FIELD MODIFIED TO 23 DIFFERENT AIRFLOW PATTERNS TO ACCOMMODATE VARIOUS INSTALLATION CONFIGURATIONS INCLUDING CORNER INSTALLATIONS.
3) INDEPENDENT CONTROL - EACH INDOOR UNIT SHALL USE A DEDICATED ELECTRONIC EXPANSION VALVE FOR INDEPENDENT CONTROL.
c. UNIT CABINET:
1) A BRANCH DUCT KNOCKOUT SHALL EXIST FOR BRANCH DUCTING SUPPLY AIR.
2) THE CABINET SHALL BE CONSTRUCTED WITH SOUND ABSORBING FOAMED POLYSTYRENE AND POLYETHYLENE INSULATION.
d. FAN:
1) THE FAN SHALL BE DIRECT-DRIVE TURBO FAN TYPE WITH STATICALLY AND DYNAMICALLY BALANCED IMPELLER WITH HIGH AND LOW FAN SPEEDS AVAILABLE.
2) THE FAN MOTOR SHALL OPERATE ON 208/230 VOLTS, 1 PHASE, 60 HERTZ WITH A MOTOR OUTPUT RANGE FROM 0.06 TO 0.12 HP.
3) THE AIRFLOW RATE SHALL BE AVAILABLE IN HIGH AND LOW SETTINGS.
4) THE FAN MOTOR SHALL BE THERMALLY PROTECTED.
e. FILTER:
1) RETURN AIR SHALL BE THROUGH THE CONCENTRIC PANEL, WHICH INCLUDES A WASHABLE LONG-LIFE FILTER WITH MILDEW PROOF RESIN AND ANTIBACTERIAL TREATMENT.
f. COIL:
1) COILS SHALL BE OF THE DIRECT EXPANSION TYPE CONSTRUCTED FROM COPPER TUBES EXPANDED INTO ALUMINUM FINS TO FORM A MECHANICAL BOND.
2) THE COIL SHALL BE OF A WAFFLE LOUVER FIN AND HIGH HEAT EXCHANGE, RIFLED BORE TUBE DESIGN TO ENSURE HIGHLY EFFICIENT PERFORMANCE.
3) THE COIL SHALL BE A 2, OR 3-ROW CROSS FIN COPPER EVAPORATOR COIL WITH UP TO 21 FPI DESIGN COMPLETELY FACTORY TESTED.
4) THE REFRIGERANT CONNECTIONS SHALL BE FLARE CONNECTIONS AND THE CONDENSATE WILL BE 1 -1/4 INCH OUTSIDE DIAMETER PVC.
5) A FACTORY MOUNTED CONDENSATE PAN WITH A ANTIBACTERIAL TREATMENT SHALL BE PROVIDED UNDER THE COIL.
6) A FACTORY MOUNTED CONDENSATE PUMP WITH A 33-1/2" LIFT SHALL BE LOCATED BELOW THE COIL IN THE CONDENSATE PAN WITH A BUILT IN SAFETY ALARM AND INTERNAL FLOAT SWITCH.

C. ELECTRICAL:
1. THE OUTDOOR UNIT ELECTRICAL POWER SHALL BE 460 VOLTS, 3 PHASE, 60 HERTZ.
2. A SEPARATE POWER SUPPLY WILL BE REQUIRED OF 208/230 VOLTS, 1 PHASE, 60 HERTZ FOR THE BS BOXES AND INDOOR UNITS.
3. THE CONTROL CIRCUIT BETWEEN THE CONTROLS, INDOOR UNITS, BS BOXES AND THE OUTDOOR UNITS SHALL BE COMPLETED USING A 18AWG, 2-WIRE, STRANDED, NON-SHIELDED CABLE TO PROVIDE TOTAL INTEGRATION OF THE SYSTEM.
  a. THE ELECTRICAL VOLTAGE FROM EACH CIRCUIT BOARD TO THE CONTROLS SHALL BE 16 VOLTS DC. THE VOLTAGE MAY FLUCTUATE UP OR DOWN DEPENDING ON COMMUNICATION PACKETS BEING SENT AND RECEIVED. CONTROL WIRING TO BE PROVIDED BY CONTRACTOR.
  b. CONTROL WIRING SHALL BE INSTALLED IN A DAISY CHAIN CONFIGURATION FROM THE OUTDOOR UNIT, TO THE BS BOXES, THEN DAISY CHAINING TO EACH INDOOR. THE REMOTE CONTROLLER WIRING SHALL RUN FROM THE INDOOR UNIT TERMINAL BLOCK TO THE CONTROLLER ASSOCIATED WITH THAT UNIT.
  c. TRANSMISSION (CONTROL) WIRING BETWEEN THE INDOOR AND OUTDOOR UNIT SHALL BE A MAXIMUM OF 3,280 FEET (TOTAL 6,560 FEET).
  d. TRANSMISSION (CONTROL) WIRING BETWEEN THE INDOOR UNIT AND REMOTE CONTROLLER SHALL BE A MAXIMUM DISTANCE OF 1,640 FEET.
4. ALL CONTROL WIRING SHALL BE FURNISHED AND WIRED BY THE ATC CONTRACTOR.
5. ELECTRICAL DISCONNECTS SHALL BE FURNISHED AND WIRED BY DIV 26.

D. CONTROLS
1. GENERAL:
  a. THE VRV CONTROLS NETWORK IS COMPRISED OF LOCAL REMOTE CONTROLLERS, ADVANCED CENTRAL CONTROLLERS, AND OPEN PROTOCOL SOFTWARE DEVICES THAT TRANSMIT INFORMATION VIA THE HIGH-SPEED COMMUNICATION BUS AND MAY ALSO BE CONTROLLED VIA A NETWORK PC. THE VRV CONTROLS NETWORK SUPPORTS OPERATION MONITORING, SCHEDULING, ERROR E-MAIL DISTRIBUTION, GENERAL USER SOFTWARE, TENANT BILLING, MAINTENANCE SUPPORT, AND INTEGRATION WITH BUILDING MANAGEMENT SYSTEMS (BMS) USING OPEN PROTOCOL VIA BACNET®; ALL OF WHICH BLEND TO PROVIDE THE OPTIMAL CONTROL STRATEGY FOR THE BEST HVAC COMFORT SOLUTION. THE SYSTEMS SHALL HAVE CONTROLS PROVIDED BY DAIKIN TO PERFORM INPUT FUNCTIONS NECESSARY TO OPERATE THE SYSTEM.
  b. OPERATION OF THE SYSTEM SHALL PERMIT EITHER INDIVIDUAL COOLING OR HEATING OF EACH INDOOR UNIT SIMULTANEOUSLY OR ALL OF THE INDOOR UNITS ASSOCIATED WITH EACH BRANCH OF THE BS BOX. EACH INDOOR UNIT OR GROUP OF INDOOR UNITS SHALL BE ABLE TO PROVIDE SET TEMPERATURE INDEPENDENTLY VIA A LOCAL REMOTE CONTROLLER, AN INTELLIGENT TOUCH MANAGER OR THE CENTRAL BMS.
  c. CERTAIN INTERIOR ZONES HAVE BEEN SELECTED TO OPERATE IN A LOW AMBIENT COOLING MODE TO -4F, WHILE THE REMAINING ZONES OPERATE IN HEATING. A SIMULTANEOUS HEATING, COOLING AND LOW AMBIENT COOLING MODE IS DESIRED FOR PROPER OPERATION OF THE SYSTEM. MANUFACTURER SHALL PROVIDE ALL NEEDED ACCESSORIES TO ACCOMMODATE THIS OPERATION.
  d. EACH INDOOR UNIT OR GROUP SHALL BE CONTROLLED BY A FACTORY PROVIDED, NAVIGATION REMOTE CONTROLLER, CAPABLE OF CONTROLLING UP TO 16 UNITS.
  e. THE SYSTEMS SHALL BE FURNISHED WITH A BACNET/IP ENABLED DAIKIN INTELLIGENT TOUCH MANAGER ADVANCED CENTRALIZED CONTROLLER.
    1) THE CONTROLLER WILL REQUIRE 24VAC POWER.
    2) THE INTELLIGENT TOUCH MANAGER SHALL BE EQUIPPED WITH TWO RJ-45 ETHERNET PORTS FOR 100 MBPS NETWORK COMMUNICATION TO SUPPORT INTERCONNECTION WITH A NETWORK PC VIA THE INTERNET, LOCAL AREA NETWORK (LAN), OR CONNECTION WITH A NON-NETWORKED PC AFTER COMPLETED INSTALLATION.
    1) WEB ACCESS FUNCTIONS SHALL BE AVAILABLE SO THAT FACILITY STAFF CAN SECURELY LOG INTO EACH INTELLIGENT TOUCH MANAGER VIA THE PC'S WEB BROWSER TO SUPPORT MONITORING, SCHEDULING, ERROR RECOGNITION, DOWNLOADING OF SYSTEM OPERATION DATA (TREND LOG (REFER TO PINTS LIST UNDER BACNET SERVER)) AND GENERAL USER FUNCTIONS. ERROR EMAILS ARE ALSO SENT TO DESIGNATED EMAIL ADDRESSES.
  f. GLOBAL CONTROL OVER THE ENTIRE SYSTEM SHALL BE MANAGED FROM A CENTRAL BMS INCLUDING THERMOSTAT LIMITS, SPACE TEMPERATURE AND USER FUNCTIONALITY.
    1) THROUGH BACNET CONTROL FROM THE ATC CONTRACTOR, THE INDOOR UNITS SHALL BE CAPABLE OF AUTOMATIC MODE CHANGE OVER AT SET POINT PLUS 1F FOR COOLING AND SET POINT MINUS 1F FOR HEATING.

E. MANUFACTURER'S
1. BASIS OF DESIGN : DAIKIN VRV OR LG VRV.
2. ALTERNATE MANUFACTURERS THAT SHALL BE CONSIDERED ARE: LG. NO OTHER MANUFACTURERS SHALL BE CONSIDERED.
  a. ANY OTHER MANUFACTURER INTERESTED IN BIDDING MUST PROVIDE FULL SUBMITTALS - 2 WEEKS PRIOR TO BID - FOR REVIEW BY THE EOR. SCALED PIPING LENGTHS, ADDED REFRIGERATION REQUIRED AND LOCATION OF MANUFACTURING MUST BE INCLUDED. MAXIMUM LEVELS OF REFRIGERANT REQUIRED BY THE BASIS OF DESIGN SHALL NOT BE EXCEEDED BY AN ALTERNATE MANUFACTURER.
  b. MANUFACTURER SHALL BE REQUIRED TO OPERATE VRV SYSTEM IN LOW AMBIENT COOLING DOWN TO -4°F WITH SIMULTANEOUS HEATING AND COOLING OPERATION. EFFICIENCIES SHOWN ON THE SCHEDULES ARE MINIMUM EFFICIENCIES THAT NEED TO BE MET. VRV SYSTEM MUST BE CAPABLE OF OPERATION IN HEATING DOWN TO -13°F. MANUFACTURERS THAT CANNOT GUARANTEE SIMULTANEOUS HEATING AND COOLING DOWN TO -4°F SHALL PROVIDE SEPARATE SYSTEMS FOR ZONES REQUIRING YEAR-ROUND COOLING.
  c. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SPECIFIED ITEMS AND INTENTS OF THIS SPEC SECTION AND SHALL TAKE FULL RESPONSIBILITY IN ACCEPTING ALTERNATE/SUBSTITUTED MANUFACTURER AND ANY ADDITIONAL COST ASSOCIATED WITH PROVIDING THE OWNER WITH FULLY OPERATIONAL SYSTEM INCLUDING ELECTRICAL AND CONSIDERATIONS OF HIGHER REFRIGERANT CHARGE.

DOAS - EXTERIOR FCU'S; MUA - INTERIOR UNIT

PART 1 - GENERAL PERFORMANCE CLIMATE CHANGER (CSAA) - APPLIED AIR HANDLING UNITS.

1.01 START-UP AND OPERATING REQUIREMENTS
A. DO NOT OPERATE UNITS FOR ANY PURPOSE, TEMPORARY OR PERMANENT, UNTIL DUCTWORK IS CLEAN, FILTERS IN PLACE, BEARINGS LUBRICATED (IF APPLICABLE), CONDENSATE PROPERLY TRAPPED, PIPING CONNECTIONS VERIFIED AND LEAK-TESTED, BELTS ALIGNED AND TENSIONED, ALL SHIPPING BRACES REMOVED, BEARING SET SCREWS TORQUED, AND FAN HAS BEEN TEST RUN UNDER OBSERVATION.

1.02 WARRANTY
A. FCU MANUFACTURER SHALL PROVIDE, AT NO ADDITIONAL COST, A STANDARD PARTS WARRANTY THAT COVERS A PERIOD OF ONE YEAR FROM UNIT START-UP OR 18 MONTHS FROM SHIPMENT, WHICHEVER OCCURS FIRST. THIS WARRANTS THAT ALL PRODUCTS ARE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP AND SHALL MEET THE CAPACITIES AND RATINGS SET FORTH IN THE EQUIPMENT MANUFACTURER'S CATALOG AND BULLETINS.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS
A. MANUFACTURER MUST CLEARLY DEFINE ANY EXCEPTIONS MADE TO PLANS AND SPECIFICATIONS. MANUFACTURER SHALL BE TRANE, WITH PRE-APPROVED ALTERNATES CONSIDERED AS DAIKIN. ANY DEVIATIONS IN LAYOUT OR ARRANGEMENT SHALL BE SUBMITTED TO CONSULTING ENGINEER PRIOR TO BID DATE. ACCEPTANCE OF DEVIATION(S) FROM SPECIFICATIONS SHALL BE IN THE FORM OF WRITTEN APPROVAL FROM THE CONSULTING ENGINEER. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR EXPENSES THAT OCCUR DUE TO EXCEPTIONS MADE.

2.02 UNIT CASING
A. UNIT MANUFACTURER SHALL SHIP UNIT IN SEGMENTS AS SPECIFIED BY THE CONTRACTOR FOR EASE OF INSTALLATION IN TIGHT SPACES. THE ENTIRE AIR HANDLER SHALL BE CONSTRUCTED OF GALVANIZED STEEL. CASING FINISHED TO MEET ASTM B117 125-HOUR SALT-SPRAY TEST. THE REMOVAL OF ACCESS PANELS OR ACCESS DOORS SHALL NOT AFFECT THE STRUCTURAL INTEGRITY OF THE UNIT. ALL REMOVABLE PANELS SHALL BE GASKETED. ALL DOORS SHALL HAVE GASKETING AROUND FULL PERIMETER TO PREVENT AIR LEAKAGE. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE CONNECTION FLANGES AND ALL OTHER FRAMEWORK THAT IS NEEDED TO PROPERLY SUPPORT THE UNIT.
B. CASING PERFORMANCE - CASING AIR LEAKAGE SHALL NOT EXCEED LEAK CLASS 6 (CL = 6) PER ASHRAE 111 AT SPECIFIED CASING PRESSURE, WHERE MAXIMUM CASING LEAKAGE (CFM/100 FT2 OF CASING SURFACE AREA) = CL X P0.65.
C. AIR LEAKAGE SHALL BE DETERMINED AT 1.00 TIMES MAXIMUM CASING STATIC PRESSURE UP TO 8 INCHES W.G. SPECIFIED AIR LEAKAGE SHALL BE ACCOMPLISHED WITHOUT THE USE OF CAULK. TOTAL ESTIMATED AIR LEAKAGE SHALL BE REPORTED FOR EACH UNIT IN CFM, AS A PERCENTAGE OF SUPPLY AIR, AND AS AN ASHRAE 111 LEAKAGE CLASS.
D. UNDER 55F SUPPLY AIR TEMPERATURE AND DESIGN CONDITIONS ON THE EXTERIOR OF THE UNIT OF 81F DRY BULB AND 73F WET BULB, CONDENSATION SHALL NOT FORM ON THE CASING EXTERIOR. THE FCU MANUFACTURER SHALL PROVIDE TESTED CASING THERMAL PERFORMANCE FOR THE SCHEDULED SUPPLY AIR TEMPERATURE PLOTTED ON A PSYCHROMETRIC CHART. THE DESIGN CONDITION ON THE EXTERIOR OF THE UNIT SHALL ALSO BE PLOTTED ON THE CHART. IF TESTED CASING THERMAL DATA IS NOT AVAILABLE, FCU MANUFACTURER SHALL PROVIDE, IN WRITING TO THE ENGINEER AND OWNER, A GUARANTEE AGAINST CONDENSATION FORMING ON THE UNIT EXTERIOR AT THE STATED DESIGN CONDITIONS ABOVE. THE GUARANTEE SHALL NOTE THAT THE FCU MANUFACTURER WILL COVER ALL EXPENSES ASSOCIATED WITH MODIFYING UNITS IN THE FIELD SHOULD EXTERNAL CONDENSATE FORM ON THEM. IN LIEU OF FCU MANUFACTURER PROVIDING A WRITTEN GUARANTEE, THE INSTALLING CONTRACTOR MUST PROVIDE ADDITIONAL EXTERNAL INSULATION ON FCU TO PREVENT CONDENSATION.
E. UNIT CASING (WALL/FLOOR/ROOF PANELS AND DOORS) SHALL BE ABLE TO WITHSTAND UP TO 1.5 TIMES DESIGN STATIC PRESSURE, OR 8-INCH W.G., WHICHEVER IS LESS, AND SHALL NOT EXCEED 0.0042 PER INCH OF PANEL SPAN (L/240).
F. FLOOR PANELS SHALL BE DOUBLE-WALL CONSTRUCTION AND DESIGNED TO SUPPORT A 300-LB LOAD DURING MAINTENANCE ACTIVITIES AND SHALL DEFLECT NO MORE THAN 0.0042 PER INCH OF PANEL SPAN.
G. UNIT CASING PANELS SHALL BE 2-INCH DOUBLE-WALL CONSTRUCTION, WITH SOLID GALVANIZED EXTERIOR AND SOLID GALVANIZED INTERIOR, TO FACILITATE CLEANING OF UNIT INTERIOR.
H. UNIT CASING PANELS (ROOF, WALLS, FLOOR) AND DOORS SHALL BE PROVIDED WITH A MINIMUM THERMAL RESISTANCE (R-VALUE) OF 13 HR*FT2*°F/BTU.
I. UNIT CASING PANELS (ROOF, WALLS, FLOOR) AND EXTERNAL STRUCTURAL FRAME MEMBERS SHALL BE COMPLETELY INSULATED FILLING THE ENTIRE PANEL CAVITY IN ALL DIRECTIONS SO THAT NO VOIDS EXIST. PANEL INSULATION SHALL COMPLY WITH NFPA 90A.
J. CASING PANEL INNER LINERS MUST NOT EXTEND TO THE EXTERIOR OF THE UNIT OR CONTACT THE EXTERIOR FRAME. A MID-SPAN, NO-THROUGH-METAL, INTERNAL THERMAL BREAK SHALL BE PROVIDED FOR ALL UNIT CASING PANELS.
K. ACCESS PANELS AND/OR ACCESS DOORS SHALL BE PROVIDED IN ALL SECTIONS TO ALLOW EASY ACCESS TO DRAIN PAN, COIL(S), MOTOR, DRIVE COMPONENTS AND BEARINGS FOR CLEANING, INSPECTION, AND MAINTENANCE.
L. ACCESS PANELS AND DOORS SHALL BE FULLY REMOVABLE WITHOUT THE USE OF SPECIALIZED TOOLS TO ALLOW COMPLETE ACCESS OF INTERIOR SURFACES.

REV	DATE	DESCRIPTION
-	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE

252 East Avenue
Norwalk, CT 06855
(203) 866-4626 Tel
(203) 866-8019 Fax

LFG
LANDMARK
FACILITIES
GROUP, INC.

WARDE FAIRFIELD HIGH SCHOOL
.
, FAIRFIELD, CT

SCALE: AS NOTED
DATE: 7/16/21
APPROVED BY:
DRAWN BY: AD
CHECKED BY: RS

MECHANICAL SPECIFICATION

FILE NAME: \DIR\DWG
JOB NUMBER: .
DRAWING NUMBER: M-600

2.03 OUTDOOR UNIT FEATURES (DOAS UNITS ONLY)

A. OUTDOOR CASING DETAILS – IN ADDITION TO ALL OTHER DETAILS SPECIFIED WITHIN FOR AIR HANDLING UNITS, UNITS THAT ARE INSTALLED OUTDOORS SHALL ALSO COMPLY WITH THE FOLLOWING –

1. OUTDOOR AIR HANDLING UNITS SHALL HAVE ONLY SINGLE DOOR HANDLES FOR EACH DOOR LINKING MULTIPLE LATCHING POINTS NECESSARY TO MAINTAIN THE SPECIFIED AIR LEAKAGE INTEGRITY OF THE UNIT AND EASE OF MAINTENANCE.
2. UNIT PAINT – EXTERNAL SURFACES OF ALL OUTDOOR UNIT CASINGS SHALL BE PREPARED AND PAINTED WITH A MINIMUM 1.5 MIL THICK WATER BASED POLYURETHANE FINISH OR EQUAL. PAINT SHALL BE ABLE TO WITHSTAND A SALT SPRAY TEST IN ACCORDANCE WITH ASTM B117 FOR A MINIMUM OF 500 CONSECUTIVE HOURS. PAINT SHALL BE SLATE GREY UNLESS OTHERWISE INDICATED IN THE SCHEDULE AND DRAWINGS.
3. UNIT BASE – OUTDOOR UNITS SHALL HAVE A WELDED BASE AND STEEL CROSS MEMBERS FOR STRUCTURAL RIGIDITY AND SUPPORTS THE FULL PERIMETER OF THE AIR HANDLING UNIT. FCU PANELS MUST OVERHANG THE PRIMARY UNIT BASE SUCH THAT NO LEDGE EXISTS FOR WATER TO POOL . THE ENTIRE FCU PERIMETER SHALL BE SEALED FOR ADDITIONAL WATER MANAGEMENT PROTECTION. A DRAIN PAN UNDER THE ENTIRE UNIT OR SECTIONS SHALL NOT BE AN ACCEPTABLE ALTERNATIVE TO PREVENT WATER FROM ENTERING THE BUILDING SPACE . UNIT BASE SHALL BE DESIGNED TO ALLOW THE UNIT TO BE CURB MOUNTED WHEN FIELD–INSTALLED AS INDICATED ON THE SCHEDULE AND DRAWINGS.
4. UNIT ROOF – OUTDOOR UNIT ROOFS SHALL INCORPORATE A STANDING SEAM ON THE EXTERIOR TO ENSURE A RIGID ROOF CONSTRUCTION AND PREVENT WATER INFILTRATION . ROOF ASSEMBLY SHALL OVERHANG ALL WALLS BY 1.5–INCH MINIMUM TO PREVENT SHEETING FROM ROOF TO SIDE PANELS . RAIN GUTTERS SHALL ALSO BE PROVIDED OVER ALL DOORS TO DIRECT RAIN AWAY FROM THE DOOR ASSEMBLY. OUTDOOR ROOFS SHALL BE SLOPED, NOT LESS THAN 0.125 INCHES PER FOOT, FOR WATER DRAINAGE. WHERE OUTDOOR UNITS ARE SHIPPED IN MULTIPLE SECTIONS, PROVIDE STANDING–SEAM JOINERS AT EACH SPLIT WITH ADHESIVE, HARDWARE, AND COVER STRIPS FOR FIELD JOINING BY THE INSTALLING CONTRACTOR.
5. FACTORY SUPPLIED ROOFCURB – ROOF CURBS SHALL BE PROVIDED WHERE INDICATED ON THE PLANS AND SHALL BE GALVANIZED STEEL. ROOF CURB SHALL SUPPORT THE FULL PERIMETER OF THE AIR HANDLING UNIT, INCLUDING PIPE CHASES. A 2" X 4" NOMINAL WOOD NAILING STRIP SHALL BE SUPPLIED ATTACHED TO THE ROOF CURB. WOOD NAILING STRIP SHALL BE OF #4 SPRUCE OR #4 YELLOW PINE. ROOF CURB SHALL INCLUDE FRAME WORK NECESSARY TO SUPPORT SUPPLY AND RETURN DUCT INSTALLATION PRIOR TO UNIT PLACEMENT. ROOF CURB SHALL BE SHIPPED LOOSE FOR FIELD INSTALLATION PRIOR TO UNIT PLACEMENT.

2.04 ACCESS DOORS

A. ACCESS DOORS SHALL BE 2–INCH DOUBLE–WALL CONSTRUCTION. INTERIOR AND EXTERIOR SHALL BE OF THE SAME CONSTRUCTION AS THE INTERIOR AND EXTERIOR WALL PANELS.

B. ALL DOORS SHALL BE PROVIDED WITH A THERMAL BREAK CONSTRUCTION OF DOOR PANEL AND DOOR FRAME.

C. GASKETING SHALL BE PROVIDED AROUND THE FULL PERIMETER OF THE DOORS TO PREVENT AIR LEAKAGE.

D. DOOR HARDWARE SHALL BE SURFACE–MOUNTED TO PREVENT THROUGH–CABINET PENETRATIONS THAT COULD LIKELY WEAKEN THE CASING LEAKAGE AND THERMAL PERFORMANCE.

E. HANDLE HARDWARE SHALL BE DESIGNED TO PREVENT UNINTENDED CLOSURE.

F. ACCESS DOORS SHALL BE HINGED AND REMOVABLE WITHOUT THE USE OF SPECIALIZED TOOLS.

G. HINGES SHALL BE INTERCHANGEABLE WITH THE DOOR HANDLE HARDWARE TO ALLOW FOR ALTERNATING DOOR SWING IN THE FIELD TO MINIMIZE ACCESS INTERFERENCE DUE TO UNFORESEEN JOB SITE OBSTRUCTIONS.

H. DOOR HANDLE HARDWARE SHALL BE ADJUSTABLE AND VISUALLY INDICATE LOCKING POSITION OF DOOR LATCH EXTERNAL TO THE SECTION.

I. ALL DOORS SHALL BE A 60–INCH HIGH WHEN SUFFICIENT UNIT HEIGHT IS AVAILABLE, OR THE MAXIMUM HEIGHT ALLOWED BY THE UNIT HEIGHT.

J. A SINGLE DOOR HANDLE SHALL BE PROVIDED FOR EACH DOOR LINKING MULTIPLE LATCHING POINTS NECESSARY TO MAINTAIN THE SPECIFIED AIR LEAKAGE INTEGRITY OF THE UNIT.

K. AN OPTIONAL SHATTERPROOF WINDOW SHALL BE PROVIDED IN ACCESS DOORS WHERE INDICATED ON THE PLANS. WINDOW SHALL EITHER BE SINGLE PANE, OR THERMAL DUAL PANE, AS DEFINED ON SCHEDULE. WINDOW SHALL BE CAPABLE OF WITHSTANDING UNIT OPERATING PRESSURES AND SHALL BE SAFE FOR VIEWING UV–C LAMPS.

2.05 PRIMARY DRAIN PANS (DOAS UNITS ONLY)

A. ALL COOLING COIL SECTIONS SHALL BE PROVIDED WITH AN INSULATED, DOUBLE–WALL, GALVANIZED DRAIN PAN.

B. THE DRAIN PAN SHALL BE DESIGNED IN ACCORDANCE WITH ASHRAE 62.1 BEING OF SUFFICIENT SIZE TO COLLECT ALL CONDENSATION PRODUCED FROM THE COIL AND SLOPED IN TWO PLANES, PITCHED TOWARD DRAIN CONNECTIONS, PROMOTING POSITIVE DRAINAGE TO ELIMINATE STAGNANT WATER CONDITIONS WHEN UNIT IS INSTALLED LEVEL AND TRAPPED PER MANUFACTURER'S REQUIREMENTS.

C. THE OUTLET SHALL BE LOCATED AT THE LOWEST POINT OF THE PAN AND SHALL BE SUFFICIENT DIAMETER TO PRECLUDE DRAIN PAN OVERFLOW UNDER ANY NORMALLY EXPECTED OPERATING CONDITION.

D. ALL DRAIN PAN THREADED CONNECTIONS SHALL BE VISIBLE EXTERNAL TO THE UNIT. THREADED CONNECTIONS UNDER THE UNIT FLOOR SHALL NOT BE ACCEPTED.

E. DRAIN CONNECTIONS SHALL BE OF THE SAME MATERIAL AS THE PRIMARY DRAIN PAN AND SHALL EXTEND A MINIMUM 2–1/2–INCH BEYOND THE BASE TO ENSURE ADEQUATE ROOM FOR FIELD PIPING OF CONDENSATE TRAPS.

F. THE INSTALLING CONTRACTOR IS RESPONSIBLE TO ENSURE THE UNIT IS INSTALLED LEVEL, TRAPPED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS, AND VISUALLY INSPECTED TO ENSURE PROPER DRAINAGE OF CONDENSATE.

G. COIL SUPPORT MEMBERS INSIDE THE DRAIN PAN SHALL BE OF THE SAME MATERIAL AS THE DRAIN PAN AND COIL CASING.

H. IF DRAIN PANS ARE REQUIRED FOR HEATING COILS, ACCESS SECTIONS, OR MIXING SECTIONS THEY WILL BE INDICATED IN THE PLANS.

2.06 FANS

A. FAN SECTIONS SHALL HAVE A MINIMUM OF ONE HINGED AND LATCHED ACCESS DOOR LOCATED ON THE DRIVE SIDE OF THE UNIT TO ALLOW INSPECTION AND MAINTENANCE OF THE FAN, MOTOR, AND DRIVE COMPONENTS.

B. PROVIDE FANS OF TYPE AND CLASS AS SPECIFIED ON THE SCHEDULE. ALL FANS SHALL BE STATICALLY AND DYNAMICALLY TESTED BY THE MANUFACTURER FOR VIBRATION AND ALIGNMENT AS AN ASSEMBLY AT THE OPERATING RPM TO MEET DESIGN SPECIFICATIONS. FANS THAT ARE SELECTED WITH INVERTER BALANCING SHALL FIRST BE DYNAMICALLY BALANCED AT DESIGN RPM. THE FANS THEN WILL BE CHECKED IN THE FACTORY FROM 25% TO 100% OF DESIGN RPM TO INSURE THEY ARE OPERATING WITHIN VIBRATION TOLERANCE SPECIFICATIONS, AND THAT THERE ARE NO RESONANT FREQUENCY ISSUES THROUGHOUT THIS OPERATING RANGE. INVERTER BALANCING THAT REQUIRES LOCKOUT FREQUENCIES INPUTTED INTO A VARIABLE FREQUENCY DRIVE TO IN ORDER TO BYPASS RESONANT FREQUENCIES SHALL NOT BE ACCEPTABLE. IF SUPPLIED IN THIS MANNER BY THE UNIT MANUFACTURER, THE CONTRACTOR WILL BE RESPONSIBLE FOR REBALANCING IN THE FIELD AFTER UNIT INSTALLATION. FANS SELECTED WITH INVERTER BALANCING SHALL HAVE A MAINTENANCE FREE GROUNDING ASSEMBLY INSTALLED ON THE FAN MOTOR TO DISCHARGE BOTH STATIC AND INDUCED SHAFT CURRENTS TO GROUND.

C. DIRECT DRIVE PLENUM FANS WITH INTEGRAL FRAME MOTORS, SHALL BE MOUNTED ON ISOLATION BASES. FAN SHALL BE DYNAMICALLY BALANCED THROUGHOUT THE OPERATING RANGE TO A BV–3 (0.20 IN/S) PER AMCA 204 TEST STANDARD. FAN AND MOTOR SHALL BE INTERNALLY ISOLATED WITH SPRING ISOLATORS. A FLEXIBLE CONNECTION SHALL BE INSTALLED BETWEEN FAN AND UNIT CASING TO ENSURE COMPLETE ISOLATION. FLEXIBLE CONNECTION SHALL COMPLY WITH NFPA 90A AND UL 181 REQUIREMENTS. IF FANS AND MOTORS ARE NOT INTERNALLY ISOLATED, THEN THE ENTIRE UNIT SHALL BE EXTERNALLY ISOLATED FROM THE BUILDING, INCLUDING SUPPLY AND RETURN DUCT WORK, PIPING, AND ELECTRICAL CONNECTIONS. EXTERNAL ISOLATION SHALL BE FURNISHED BY THE INSTALLING CONTRACTOR IN ORDER TO AVOID TRANSMISSION OF NOISE AND VIBRATION THROUGH THE DUCTWORK AND BUILDING STRUCTURE.

D. MOTORS AND DRIVES

1. MOTORS SHALL MEET OR EXCEED ALL NEMA STANDARDS PUBLICATION MG 1 – 2006 REQUIREMENTS AND COMPLY WITH NEMA PREMIUM EFFICIENCY LEVELS WHEN APPLICABLE. MOTORS SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF NEC AND SHALL BE UL LISTED.
2. FAN MOTORS SHALL BE HEAVY DUTY, OPEN DRIP–PROOF OPERABLE AT SCHEDULED VOLTAGE. IF APPLICABLE, MOTOR EFFICIENCY SHALL MEET OR EXCEED NEMA PREMIUM EFFICIENCIES.
3. DIRECT DRIVEN FANS UTILIZING INTEGRAL FRAME MOTORS SHALL USE 2–POLE (3600 RPM), 4–POLE (1800 RPM) OR 6–POLE (1200 RPM) MOTORS, NEMA DESIGN B, WITH CLASS B INSULATION CAPABLE TO OPERATE CONTINUOUSLY AT 104 DEG F (40 DEG C) WITHOUT TRIPPING OVERLOADS.
4. MOTORS SHALL HAVE A +/– 10 PERCENT VOLTAGE UTILIZATION RANGE TO PROTECT AGAINST VOLTAGE VARIATION.

2.07 COILS

A. COILS SECTION HEADER END PANEL SHALL BE REMOVABLE TO ALLOW FOR REMOVAL AND REPLACEMENT OF COILS WITHOUT IMPACTING THE STRUCTURAL INTEGRITY OF THE UNIT.

B. INSTALL COILS SUCH THAT HEADERS AND RETURN BENDS ARE ENCLOSED BY UNIT CASING TO ENSURE THAT IF CONDENSATE FORMS ON THE HEADER OR RETURN BENDS, IT IS CAPTURED BY THE DRAIN PAN UNDER THE COIL.

C. COILS SHALL BE MANUFACTURED WITH PLATE FINS TO MINIMIZE WATER CARRYOVER AND MAXIMIZE AIRSIDE THERMAL EFFICIENCY. FIN TUBE HOLES SHALL HAVE DRAWN AND BELLED COLLARS TO MAINTAIN CONSISTENT FIN SPACING TO ENSURE PERFORMANCE AND AIR PRESSURE DROP ACROSS THE COIL AS SCHEDULED. TUBES SHALL BE MECHANICALLY EXPANDED AND BONDED TO FIN COLLARS FOR MAXIMUM THERMAL CONDUCTIVITY. USE OF SOLDERING OR TINNING DURING THE FIN–TO–TUBE BONDING PROCESS IS NOT ACCEPTABLE DUE TO THE INHERENT THERMAL STRESS AND POSSIBLE LOSS OF BONDING AT THAT JOINT.

D. CONSTRUCT COIL CASINGS OF GALVANIZED STEEL. END SUPPORTS AND TUBE SHEETS SHALL HAVE BELLED TUBE HOLES TO MINIMIZE WEAR OF THE TUBE WALL DURING THERMAL EXPANSION AND CONTRACTION OF THE TUBE.

E. ALL COILS SHALL BE COMPLETELY CLEANED PRIOR TO INSTALLATION INTO THE AIR HANDLING UNIT. COMPLETE FIN BUNDLE IN DIRECTION OF AIRFLOW SHALL BE DEGREASED AND STEAM CLEANED TO REMOVE ANY LUBRICANTS USED IN THE MANUFACTURING OF THE FINS, OR DIRT THAT MAY HAVE ACCUMULATED, IN ORDER TO MINIMIZE THE CHANCE FOR WATER CARRYOVER.

F. STEAM HEATING COILS

1. STEAM SUPPLY, CONDENSATE RETURN, AND VACUUM BREAKER CONNECTIONS SHALL BE CLEARLY LABELED ON UNIT EXTERIOR.
2. COILS SHALL BE NON–FREEZE, STEAM DISTRIBUTING TYPE. COILS SHALL BE PITCHED IN UNITS FOR PROPER DRAINAGE OF STEAM CONDENSATE FROM COILS.
3. COILS SHALL BE PROOF TESTED TO 300 PSIG AND LEAK TESTED TO 200 PSIG AIR PRESSURE UNDER WATER.
4. HEADERS SHALL BE CONSTRUCTED OF CAST IRON.
5. TUBES SHALL CONSIST OF 11/16 INCH O.D., MINIMUM 0.031 INCH THICK, COPPER INNER TUBES AND 1 INCH O.D., MINIMUM .031 COPPER OUTER TUBES. FINS SHALL BE OF ALUMINUM MATERIAL.
6. INNER TUBES SHALL HAVE ORIFICES THAT ENSURE EVEN STEAM DISTRIBUTION THROUGHOUT THE LENGTH OF THE OUTER TUBE. ORIFICES SHALL DIRECT STEAM TOWARD RETURN CONNECTIONS TO ENSURE STEAM CONDENSATE IS PROPERLY DRAINED FROM COILS TO PREVENT FLASHING OF CONDENSATE.

G. REFRIGERANT COOLING COILS (DOAS UNITS ONLY)

1. COILS SHALL BE PROOF TESTED TO 450 PSIG AND LEAK TESTED TO 300 PSIG AIR PRESSURE UNDER WATER. AFTER TESTING, INSIDES OF TUBES SHALL BE AIR DRIED, CHARGED WITH DRY NITROGEN OR DRY AIR, AND SEALED TO PREVENT CONTAMINATION.
2. REFRIGERANT SUCTION AND LIQUID HEADERS SHALL BE CONSTRUCTED OF COPPER TUBING. SUCTION AND LIQUID CONNECTIONS SHALL PENETRATE UNIT CASINGS TO ALLOW FOR SWEAT CONNECTIONS TO REFRIGERANT LINES.
3. TUBES SHALL BE 3/8–INCH .012 COPPER, WITH ALUMINUM FINS.
4. COILS SHALL HAVE EQUALIZING TYPE VERTICAL DISTRIBUTORS SIZED IN CONJUNCTION WITH CAPACITIES OF COILS.
5. COOLING COIL WILL BE PROVIDED WITH LEV KIT TO OPERATE WITH A VRF–STYLE CONDENSING UNIT.

2.08 FILTERS

A. PROVIDE FACTORY–FABRICATED FILTER SECTION OF THE SAME CONSTRUCTION AND FINISH AS UNIT CASINGS. FILTER SECTION SHALL HAVE SIDE ACCESS FILTER GUIDES AND ACCESS DOOR(S) EXTENDING THE FULL HEIGHT OF THE CASING TO FACILITATE FILTER REMOVAL. CONSTRUCT DOORS IN ACCORDANCE WITH SECTION 2.04. PROVIDE FIXED FILTER BLOCKOFFS AS REQUIRED TO PREVENT AIR BYPASS AROUND FILTERS. BLOCKOFFS SHALL NOT NEED TO BE REMOVED DURING FILTER REPLACEMENT. FILTERS TO BE OF SIZE, AND QUANTITY NEEDED TO MAXIMIZE FILTER FACE AREA OF EACH PARTICULAR UNIT SIZE.

B. FILTER TYPE, MERV RATING, AND ARRANGEMENT SHALL BE PROVIDED AS DEFINED IN PROJECT PLANS AND SCHEDULE.

2.09 DAMPERS

A. ALL DAMPERS, WITH THE EXCEPTION OF EXTERNAL BYPASS AND MULTIZONES (IF SCHEDULED), SHALL BE INTERNALLY MOUNTED. DAMPERS SHALL BE PREMIUM ULTRA LOW LEAK AND LOCATED AS INDICATED ON THE SCHEDULE AND PLANS. BLADE ARRANGEMENT (PARALLEL OR OPPOSED) SHALL BE PROVIDED AS INDICATED ON THE SCHEDULE AND DRAWINGS. DAMPERS SHALL BE RUSKIN CD60 DOUBLE–SKIN AIRFOIL DESIGN OR EQUIVALENT FOR MINIMAL AIR LEAKAGE AND PRESSURE DROP. LEAKAGE RATE SHALL NOT EXCEED 3 CFM/SQUARE FOOT AT ONE INCH WATER GAUGE COMPLYING WITH ASHRAE 90.1 MAXIMUM DAMPER LEAKAGE AND SHALL BE AMCA LICENSED FOR CLASS 1A. ALL LEAKAGE TESTING AND PRESSURE RATINGS SHALL BE BASED ON AMCA STANDARD 500–D. MANUFACTURER SHALL SUBMIT BRAND AND MODEL OF DAMPER(S) BEING FURNISHED, IF NOT RUSKIN CD60.

2.10 ACCESS SECTIONS

A. ACCESS SECTIONS SHALL BE PROVIDED WHERE INDICATED IN THE SCHEDULE AND PLANS TO ALLOW ADDITIONAL ACCESS FOR INSPECTION, CLEANING, AND MAINTENANCE OF UNIT COMPONENTS. THE UNIT SHALL BE INSTALLED FOR PROPER ACCESS. PROCEDURE FOR PROPER ACCESS, INSPECTION AND CLEANING OF THE UNIT SHALL BE PROVIDED IN THE FCU MANUFACTURER'S MAINTENANCE MANUAL.

2.11 VARIABLE FREQUENCY DRIVES (VFDS)

A. VARIABLE FREQUENCY DRIVES SHALL BE PROVIDED, MOUNTED AND WIRED BY THE FCU MANUFACTURER AS INDICATED ON THE SCHEDULE AND DRAWINGS. ALL STANDARD AND OPTIONAL FEATURES SHALL BE INCLUDED WITHIN THE VFD ENCLOSURE, UNLESS OTHERWISE SPECIFIED. THE VFDS SHALL BE UL LISTED. THE LISTING SHALL ALLOW MOUNTING IN PLENUM OR OTHER AIR HANDLING COMPARTMENTS.

PART 3 – EXECUTION

3.01 INSTALLATION

A. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ALL OF HIS INSTALLATION REQUIREMENTS WITH THE OWNER AND THE OWNER'S SELECTED MECHANICAL CONTRACTOR TO ENSURE THAT A COMPLETE INSTALLATION FOR EACH UNIT IS BEING PROVIDED. COORDINATION EFFORTS SHALL INCLUDE SUCH ITEMS AS UNLOADING AND HOISTING REQUIREMENTS, FIELD WIRING REQUIREMENTS, FIELD PIPING REQUIREMENTS, FIELD DUCTWORK REQUIREMENTS, REQUIREMENTS FOR ASSEMBLY OF FIELD–BOLTED OR WELDED JOINTS, AND ALL OTHER INSTALLATION AND ASSEMBLY REQUIREMENTS.

B. THE FCU MANUFACTURER SHALL PROVIDE ALL SCREWS AND GASKETS FOR JOINING OF SECTIONS IN THE FIELD.

C. THE MECHANICAL CONTRACTOR SHALL VERIFY THAT THE FOLLOWING ITEMS HAVE BEEN COMPLETED PRIOR TO SCHEDULING THE FCU MANUFACTURER'S FINAL INSPECTION AND START UP:

1. ALL SPRING–ISOLATED COMPONENTS HAVE HAD THEIR SHIPPING RESTRAINTS REMOVED AND THE COMPONENTS HAVE BEEN LEVELED.
2. ON ALL FIELD–JOINED UNITS, THAT ALL INTERCONNECTIONS HAVE BEEN COMPLETED, I.E., ELECTRICAL AND CONTROL WIRING, PIPING, CASING JOINTS, BOLTING, WELDING, ETC.
3. ALL WATER AND STEAM PIPING CONNECTIONS HAVE BEEN COMPLETED AND HYDROSTATICALLY TESTED AND ALL WATER FLOW RATES HAVE BEEN SET IN ACCORDANCE WITH THE CAPACITIES SCHEDULED ON THE DRAWINGS.
4. ALL DUCTWORK CONNECTIONS HAVE BEEN COMPLETED AND ALL DUCTWORK HAS BEEN PRESSURE TESTED FOR ITS INTENDED SERVICE.
5. ALL POWER WIRING, INCLUDING MOTOR STARTERS AND DISCONNECTS, SERVING THE UNIT HAS BEEN COMPLETED.
6. ALL AUTOMATIC TEMPERATURE AND SAFETY CONTROLS HAVE BEEN COMPLETED.
7. ALL DAMPERS ARE FULLY OPERATIONAL.
8. ALL SHIPPING MATERIALS HAVE BEEN REMOVED.
9. ALL (CLEAN) FILTER MEDIA HAS BEEN INSTALLED IN THE UNITS.

3.02 FINAL INSPECTION AND START UP SERVICE

A. AFTER THE MECHANICAL CONTRACTOR HAS PROVIDED ALL WATER AND STEAM PIPING CONNECTIONS, DUCTWORK CONNECTIONS, AND FIELD CONTROL WIRING, AND ELECTRICAL CONTRACTOR HAS PROVIDED ALL THE FIELD POWER WIRING, THE MECHANICAL CONTRACTOR SHALL INSPECT THE INSTALLATION. THE MECHANICAL CONTRACTOR SHALL THEN PERFORM STARTUP OF THE EQUIPMENT.

B. THE AUTOMATIC TEMPERATURE CONTROL (BUILDING DIRECT DIGITAL CONTROL) CONTRACTOR SHALL BE SCHEDULED TO BE AT THE JOB SITE AT THE TIME OF THE EQUIPMENT START UP.

C. THE MECHANICAL CONTRACTOR, SHALL PERFORM THE FOLLOWING TESTS AND SERVICES AND SUBMIT A REPORT OUTLINING THE RESULTS:

1. RECORD DATE, TIME, AND PERSON(S) PERFORMING SERVICE.
2. LUBRICATE ALL MOVING PARTS.
3. CHECK ALL MOTOR AND STARTER POWER LUGS AND TIGHTEN AS REQUIRED.
4. VERIFY ALL ELECTRICAL POWER CONNECTIONS.
5. CONDUCT A START UP INSPECTION PER THE FCU MANUFACTURER'S RECOMMENDATIONS.
6. RECORD FAN MOTOR VOLTAGE AND AMPERAGE READINGS.
7. CHECK FAN ROTATION AND SPIN WHEEL TO VERIFY THAT ROTATION IS FREE AND DOES NOT RUB OR BIND.
8. CHECK FAN FOR EXCESSIVE VIBRATION.
9. REMOVE ALL FOREIGN LOOSE MATERIAL IN DUCTWORK LEADING TO AND FROM THE FAN AND IN THE FAN ITSELF.
10. DISENGAGE ALL SHIPPING FASTENERS ON VIBRATION ISOLATION EQUIPMENT.
11. CHECK SAFETY GUARDS TO INSURE THEY ARE PROPERLY SECURED.
12. SECURE ALL ACCESS DOORS TO THE FAN, THE UNIT AND THE DUCTWORK.
13. SWITCH ELECTRICAL SUPPLY "ON" AND ALLOW FAN TO REACH FULL SPEED.
14. PHYSICALLY CHECK EACH FAN AT START UP AND SHUT DOWN TO INSURE NO ABNORMAL OR PROBLEM CONDITIONS EXIST.
15. CHECK ENTERING AND LEAVING AIR TEMPERATURES (DRY BULB AND WET BULB) AND SIMULTANEOUSLY RECORD ENTERING AND LEAVING CHILLED WATER TEMPERATURES AND FLOW, STEAM PRESSURES AND FLOW, AND OUTSIDE AIR TEMPERATURE.
16. CHECK ALL CONTROL SEQUENCES.

PACKAGED ROOFTOP AIR CONDITIONING UNITS

PART 1 GENERAL PACKAGED ROOFTOP AIR CONDITIONING UNITS

1.01 SUBMITTALS

A. SUBMIT UNIT PERFORMANCE DATA INCLUDING: CAPACITY, NOMINAL AND OPERATING PERFORMANCE, ACCESSORIES DESCRIBING CONSTRUCTION, COMPONENTS AND OPTIONS, ELECTRICAL REQUIREMENTS AND CONNECTION POINTS.

B. SUBMIT SHOP DRAWINGS INDICATING OVERALL DIMENSIONS AS WELL AS INSTALLATION, OPERATION AND SERVICES CLEARANCES. INDICATE LIFT POINTS AND RECOMMENDATIONS AND CENTER OF GRAVITY. INDICATE UNIT SHIPPING, INSTALLATION AND OPERATING WEIGHTS INCLUDING DIMENSIONS. SHOP DRAWINGS SUBMITTED FOR APPROVAL SHALL BE ACCOMPANIED BY A COPY OF THE PURCHASE AGREEMENT BETWEEN THE CONTRACTOR AND AN AUTHORIZED SERVICE REPRESENTATIVE OF THE MANUFACTURER FOR CHECK, TEST AND START UP AND FIRST YEAR SERVICE.

PART 2 PRODUCTS

2.01 SUMMARY

A. THE CONTRACTOR SHALL FURNISH AND INSTALL PACKAGE ROOFTOP UNIT(S) AS SHOWN AND SCHEDULED ON THE CONTRACT DOCUMENTS. THE UNIT(S) SHALL BE INSTALLED IN ACCORDANCE WITH THIS SPECIFICATION AND PERFORM AT THE SPECIFIED CONDITIONS AS SCHEDULED. APPROVED MANUFACTURERS TRANE AS BASE OF DESIGN, DAIKIN.

2.02 GENERAL UNIT DESCRIPTION

A. UNIT(S) FURNISHED AND INSTALLED SHALL BE PACKAGED ROOFTOP(S) AS SCHEDULED ON CONTRACT DOCUMENTS AND THESE SPECIFICATIONS. UNIT(S) SHALL CONSIST OF INSULATED WEATHER–TIGHT CASING WITH COMPRESSOR(S), AIR–COOLED CONDENSER COIL, CONDENSER FANS, EVAPORATOR COIL, RETURN–AIR FILTERS, SUPPLY MOTORS AND UNIT CONTROLS

B. UNIT(S) SHALL BE 100% FACTORY RUN TESTED AND FULLY CHARGED WITH R–410A

C. UNIT(S) SHALL HAVE LABELS, DECALS, AND/OR TAGS TO AID IN THE SERVICE OF THE UNIT AND INDICATE CAUTION AREAS.

D. UNITS SHALL BE CONVERTIBLE AIRFLOW DESIGN AS MANUFACTURED.

E. WIRING INTERNAL TO THE UNIT SHALL BE COLORED AND NUMBERED FOR IDENTIFICATION.

2.03 UNIT CASING

A. CABINET: GALVANIZED STEEL WITH BAKED ENAMEL FINISH. STRUCTURAL MEMBERS WITH ACCESS DOORS AND REMOVABLE PANELS SHALL BE A MINIMUM 22 GAUGE.

B. UNIT'S CABINET SURFACE SHALL BE TESTED 672 HOURS IN SALT SPRAY TEST IN COMPLIANCE WITH ASTM B117.

C. CABINET CONSTRUCTION SHALL ALLOW FOR ALL SERVICE/ MAINTENANCE FROM ONE SIDE OF THE UNIT.

D. CABINET TOP COVER SHALL BE ONE PIECE CONSTRUCTION OR WHERE SEAMS EXITS, IT SHALL BE DOUBLE–HEMMED AND GASKET–SEALED.

E. ACCESS PANELS: WATER– AND AIR–TIGHT PANELS WITH HANDLES SHALL PROVIDE ACCESS TO FILTERS, HEATING SECTION, RETURN AIR FAN SECTION, SUPPLY AIR FAN SECTION, EVAPORATOR COIL SECTION, AND UNIT CONTROL SECTION.

F. UNIT'S BASE PAN SHALL HAVE A RAISED 1 1/8 INCH HIGH LIP AROUND THE SUPPLY AND RETURN OPENINGS FOR WATER INTEGRITY.

G. PROVIDE ½ INCH FOIL FACED, FIRE RETARDANT PERMANENT, ODORLESS GLASS FIBER MATERIAL. ALL EDGES MUST BE CAPTURED SO THAT THERE IS NO INSULATION EXPOSED IN THE AIR STREAM.

H. THE BASE PAN SHALL HAVE NO PENETRATIONS WITHIN THE PERIMETER OF THE CURB OTHER THAT THE RAISED 1 1/8 INCH HIGH DOWN FLOW SUPPLY/RETURN OPENINGS TO PROVIDE AND ADDED WATER INTEGRITY PRECAUTION.

I. PROVIDE OPENINGS EITHER ON SIDE OF UNIT OR THROUGH THE BASE FOR POWER, CONTROL, CONDENSATE, AND GAS CONNECTIONS.

J. THE BASE OF THE UNIT SHALL HAVE 3 SIDES FOR FORKLIFT PROVISIONS. THE BASE OF THE UNITS SHALL HAVE RIGGING/LIFTING HOLES FOR CRANE MANEUVERING.

2.04 AIR FILTERS

A. AIR FILTERS: FACTORY INSTALLED FILTERS SHALL MOUNT INTEGRAL WITHIN THE UNIT AND SHALL BE ACCESSIBLE THROUGH ACCESS PANELS. TWO–INCH THICK GLASS FIBER DISPOSABLE MEDIA FILTERS SHALL BE PROVIDED.

2.05 FANS AND MOTORS

A. PROVIDE EVAPORATOR FAN SECTION WITH FORWARD CURVED, DOUBLE WIDTH, DOUBLE INLET, CENTRIFUGAL TYPE FAN.

B. PROVIDE SELF–ALIGNING, GREASE LUBRICATED, BALL OR SLEEVE BEARINGS WITH PERMANENT LUBRICATION FITTINGS.

C. OUTDOOR AND INDOOR FAN SHALL BE PERMANENTLY LUBRICATED AND HAVE INTERNAL THERMAL OVERLOAD PROTECTION.

D. OUTDOOR FANS SHALL BE DIRECT DRIVE, STATICALLY AND DYNAMICALLY BALANCED, DRAW THROUGH IN THE VERTICAL DISCHARGE POSITION.

E. PROVIDE SHAFTS CONSTRUCTED OF SOLID HOT ROLLED STEEL, GROUND AND POLISHED, WITH KEY–WAY, AND PROTECTIVELY COATED WITH LUBRICATING OIL.

2.06 EVAPORATOR COIL & SECTION

A. EVAPORATOR COIL SHALL BE CONSTRUCTED OF COPPER TUBES, MECHANICALLY BONDED TO ALUMINUM FINS.

A. PROVIDE AN INDEPENDENT EXPANSION DEVICE FOR EACH REFRIGERATION CIRCUIT. FACTORY PRESSURE TESTED AT 600 PSIG AND LEAK TESTED AT 465 PSIG.

B. PROVIDE A REMOVABLE, REVERSIBLE, CLEANABLE DOUBLE SLOPED DRAIN PAN FOR BASE OF EVAPORATOR COIL CONSTRUCTED OF PVC.

2.08 CONDENSER SECTION

A. PROVIDE VERTICAL DISCHARGE, DIRECT DRIVE FANS WITH ALUMINUM BLADES. FANS SHALL BE STATICALLY BALANCED. MOTORS SHALL BE PERMANENTLY LUBRICATED, WITH INTEGRAL THERMAL OVERLOAD PROTECTION IN A WEATHER TIGHT CASING.

B. CONDENSER COIL SHALL BE ALL ALUMINUM MICROCHANNEL.

C. PROVIDE TOOL–LESS FACTORY INSTALLED CORROSION RESISTANT LOUVERED HAIL/VANDALISM GUARDS TO PROTECT CONDENSER COILS FROM HAIL OR PHYSICAL DAMAGE.

2.09 REFRIGERATION SYSTEM

A. ALL UNITS SHALL HAVE DIRECT DRIVE HERMETIC, SCROLL TYPE COMPRESSORS WITH CENTRIFUGAL TYPE OIL PUMPS. MOTOR SHALL BE SUCTION GAS COOLED AND SHALL HAVE A VOLTAGE UTILIZATION RANGE OF PLUS OR MINUS 10 PERCENT OF UNIT NAMEPLATE.

B. PROVIDE HIGH EFFICIENCY UNIT WITH 3 STAGES OF COOLING.

2.10 OUTDOOR AIR SECTION

F. PROVIDE ECONOMIZER WITH COMPARATIVE ENTHALPY CONTROL.

G. PROVIDE ADJUSTABLE MINIMUM POSITION CONTROL LOCATED IN THE ECONOMIZER SECTION OF THE UNIT.

H. PROVIDE SPRING RETURN MOTOR FOR OUTSIDE AIR DAMPER CLOSURE DURING UNIT SHUT DOWN OR POWER INTERRUPTION.

I. PROVIDE REMOTE POTENTIOMETER FOR MINIMUM POSITION SETTING OF THE ECONOMIZER

2.11 OPERATING CONTROLS

A. GENERAL: MICROPROCESSOR CONTROLS SHALL BE PROVIDED FOR ALL 24 VOLT CONTROL FUNCTIONS. THE RESIDENT CONTROL ALGORITHMS SHALL MAKE ALL HEATING, COOLING AND VENTILATION DECISIONS IN RESPONSE TO ELECTRONIC SIGNALS FROM SENSORS MEASURING INDOOR AND OUTDOOR TEMPERATURES. THE CONTROL ALGORITHM MAINTAINS ACCURATE TEMPERATURE CONTROL, MINIMIZES DRIFT FROM SETPOINT AND PROVIDES BETTER BUILDING COMFORT. A CENTRALIZED MICROPROCESSOR SHALL PROVIDE ANTI–SHORT CYCLE TIMING AND TIME DELAY BETWEEN COMPRESSORS TO PROVIDE A HIGHER LEVEL OF MACHINE PROTECTION.

B. CONSTANT VOLUME CONTROLS: PROVIDE ALL NECESSARY CONTROLS TO OPERATE ROOFTOP FROM A ZONE BASED TEMPERATURE SENSOR, INCLUDING MICROPROCESSOR UNIT CONTROL AND ECONOMIZER CONTROL.

PART 3 EXECUTION

3.01 INSTALLATION

A. CONTRACTOR SHALL INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. MOUNT UNITS ON FACTORY BUILT ROOF MOUNTING FRAME PROVIDING WATERTIGHT ENCLOSURE TO PROTECT DUCTWORK AND UTILITY SERVICES. INSTALL ROOF MOUNTING CURB LEVEL.

PACKAGED ROOFTOP ENERGY RECOVERY VENTILATORS

PART I – GENERAL

A. PRODUCT SPECIFICATION

1. ENERGY RECOVERY VENTILATOR (ERV) SHALL BE A PACKAGED UNIT AS MANUFACTURED BY RENEWAIRE AND SHALL TRANSFER BOTH HEAT AND HUMIDITY USING STATIC PLATE CORE TECHNOLOGY. APPROVED MANUFACTURERS: RENEWAIRE AS BASE OF DESIGN, OXIGEN 8.

B. QUALITY ASSURANCE

1. THE ERV CORE SHALL BE WARRANTED TO BE FREE OF MANUFACTURING DEFECTS AND TO RETAIN ITS FUNCTIONAL CHARACTERISTICS, UNDER CIRCUMSTANCES OF NORMAL USE, FOR A PERIOD OF TEN YEARS FROM THE DATE OF PURCHASE. THE BALANCE–OF–UNIT SHALL BE WARRANTED TO BE FREE OF MANUFACTURING DEFECTS AND TO RETAIN ITS FUNCTIONAL CHARACTERISTICS, UNDER CIRCUMSTANCES OF NORMAL USE, FOR A PERIOD OF TWO YEARS FROM THE DATE OF PURCHASE.

PART II – PERFORMANCE

A. ENERGY TRANSFER

THE ERV SHALL BE CAPABLE OF TRANSFERRING BOTH SENSIBLE AND LATENT ENERGY BETWEEN AIRSTREAMS. LATENT ENERGY TRANSFER SHALL BE ACCOMPLISHED BY DIRECT WATER VAPOR TRANSFER FROM ONE AIR STREAM TO THE OTHER, WITHOUT EXPOSING TRANSFER MEDIA IN SUCCEEDING CYCLES DIRECTLY TO THE EXHAUST AIR AND THEN TO THE FRESH AIR.

B. PASSIVE FROST CONTROL

THE ERV CORE SHALL PERFORM WITHOUT CONDENSING OR FROSTING UNDER NORMAL OPERATING CONDITIONS (DEFINED AS OUTSIDE TEMPERATURES ABOVE –10°F AND INSIDE RELATIVE HUMIDITY BELOW 40%). OCCASIONAL MORE EXTREME CONDITIONS SHALL NOT AFFECT THE USUAL FUNCTION, PERFORMANCE OR DURABILITY OF THE CORE. NO CONDENSATE DRAINS WILL BE ALLOWED.

C. CONTINUOUS VENTILATION

UNIT SHALL HAVE THE CAPACITY TO OPERATE CONTINUOUSLY WITHOUT THE NEED FOR BYPASS, RECIRCULATION, PRE–HEATERS, OR DEFROST CYCLES UNDER NORMAL OPERATING CONDITIONS.

D. POSITIVE AIRSTREAM SEPARATION

WATER VAPOR TRANSFER SHALL BE THROUGH MOLECULAR TRANSPORT BY HYDROSCOPIC RESIN AND SHALL NOT BE ACCOMPLISHED BY "POROUS PLATE" MECHANISMS. EXHAUST AND FRESH AIRSTREAMS SHALL TRAVEL AT ALL TIMES IN SEPARATE PASSAGES, AND AIRSTREAMS SHALL NOT MIX.

E. LAMINAR FLOW

AIRFLOW THROUGH THE ERV CORE SHALL BE LAMINAR OVER THE PRODUCTS ENTIRE OPERATING AIRFLOW RANGE, AVOIDING DEPOSITION OF PARTICULATES ON THE INTERIOR OF THE ENERGY EXCHANGE PLATE MATERIAL.

PART III – PRODUCT

A. CONSTRUCTION

1. THE ENERGY RECOVERY COMPONENT SHALL BE OF FIXED–PLATE CROSS–FLOW CONSTRUCTION, WITH NO MOVING PARTS.
2. NO CONDENSATE DRAIN PANS OR DRAINS SHALL BE ALLOWED AND UNIT SHALL BE CAPABLE OF OPERATING IN BOTH WINTER AND SUMMER CONDITIONS WITHOUT GENERATING CONDENSATE.
3. THE UNIT CASE SHALL BE CONSTRUCTED OF G90 GALVANIZED, 20–GAUGE STEEL, WITH LAPPED CORNERS AND ZINC PLATED SCREW FASTENERS. THE UNIT ROOF SHALL BE ONE PIECE OR HAVE WATERTIGHT STANDING SEAM JOINTS AND SHALL OVERLAP WALL PANELS AND DOORS IN ORDER TO POSITIVELY SHED WATER.
4. ACCESS DOORS SHALL PROVIDE EASY ACCESS TO BLOWERS, ERV CORES, AND FILTERS. DOORS SHALL HAVE AN AIRTIGHT COMPRESSION SEAL USING CLOSED CELL FOAM GASKETS RATED FOR OUTDOOR EXPOSURE. PRESSURE TAPS, WITH CAPTIVE PLUGS, SHALL BE PROVIDED ALLOWING CROSS–CORE PRESSURE MEASUREMENT ALLOWING FOR ACCURATE AIRFLOW MEASUREMENT.
5. WEATHERHOODS SHALL BE SCREENED TO EXCLUDE BIRDS AND ANIMALS. INLET WEATHERHOODS SHALL BE SIZED TO MAINTAIN INLET VELOCITIES BELOW 500 FPM, AND EQUIPPED WITH RAIN EXCLUDER BAFFLES.
6. CASE WALLS AND DOORS SHALL BE INSULATED WITH 1 INCH, 4 POUND DENSITY, FOIL/SCRIM FACED, HIGH–DENSITY FIBERGLASS BOARD INSULATION, PROVIDING A CLEANABLE SURFACE AND ELIMINATING THE POSSIBILITY OF EXPOSING THE FRESH AIR TO GLASS FIBERS, AND WITH MINIMUM R–VALUE OF 4.3 (HRFT2°F/BTU).
7. THE ERV CORES SHALL BE PROTECTED BY A MERV–8 RATED, 2" NOMINAL, PLEATED, DISPOSABLE FILTER IN BOTH AIRSTREAMS.
8. UNIT SHALL HAVE SINGLE–POINT POWER CONNECTION AND A SINGLE–POINT 24 VAC CONTACTOR CONTROL CONNECTION.
9. BLOWER MOTORS SHALL BE PREMIUM EFFICIENCY, EISA COMPLIANT FOR ENERGY EFFICIENCY. THE BLOWER MOTORS SHALL BE TOTALLY ENCLOSED (TEFC) AND BE SHALL BE SUPPLIED WITH FACTORY INSTALLED MOTOR STARTERS (HE6X AND HE8X 208–230/460V MODELS ARE OPEN DRIP–PROOF). DIRECT DRIVE MODELS (EV450 AND HE1X MODELS) SHALL BE EISA–COMPLIANT FOR ENERGY EFFICIENCY WITH OPEN DRIP PROOF DESIGN AND INTEGRAL THERMAL PROTECTION.
10. BLOWERS SHALL BE QUIET RUNNING, FORWARD CURVE TYPE AND BE EITHER DIRECT DRIVE (EV450 AND HE1X ONLY) OR BELT DRIVE. HE1.5X SHALL BE BACKWARD INCLINE, MOTORIZED IMPELLER TYPE PACKAGES. HE6X AND HE8X UNITS USE BACKWARD INCLINE, BELT DRIVE BLOWER PACKAGES. BELT DRIVE MOTORS SHALL BE PROVIDED WITH ADJUSTABLE PULLEYS AND MOTOR MOUNTS ALLOWING FOR BLOWER SPEED ADJUSTMENT, PROPER MOTOR SHAFT ORIENTATION AND PROPER BELT TENSIONING.
11. THE UNIT ELECTRICAL BOX SHALL INCLUDE A FACTORY INSTALLED, NON–FUSED DISCONNECT SWITCH AND A 24 VAC, CLASS II TRANSFORMER/RELAY PACKAGE.
12. THE ERV SHALL BE PROVIDED "INVERTER–READY" ALLOWING FOR APPLICATIONS OF INVERTERS SUPPLIED AND INSTALLED BY OTHERS.

B. OPTIONS (SELECT OPTIONS BASED ON APPLICATION REQUIREMENTS)

1. PROVIDE UNIT AND DUCT CONNECTION ORIENTATION PER PROJECT SCHEDULE.
2. PROVIDE DOUBLE WALL CONSTRUCTION WITH 24–GAUGE GALVANIZED STEEL LINER.
3. UNITS ARE AVAILABLE SINGLE OR THREE PHASE AT A FULL RANGE OF OPERATING VOLTAGES. SEE PROJECT SCHEDULE.
4. PROVIDE MOTOR HORSEPOWER AS SPECIFIED IN PROJECT SCHEDULE.
5. PROVIDE FACTORY INSTALLED DISCONNECT FUSES.
6. PROVIDE FACTORY INSTALLED VARIABLE FREQUENCY DRIVES (AVAILABLE FOR HE1X (3 PHASE) AND ALL MODELS HE2X AND LARGER) ALLOWING EITHER PRESET OR VARIABLE SPEED OPERATION WITH APPROPRIATE 0–10 VOLT DC OR DDC CONTROL SIGNAL.
7. PROVIDE ECM CONTROLLED MOTORS (AVAILABLE FOR EV450, HE1X AND HE1.5X MODELS) ALLOWING EITHER TWO PRESET SPEEDS OR VARIABLE SPEED OPERATION WITH A 0–10 VOLT DC CONTROL SIGNAL.
8. PROVIDE FACTORY INSTALLED ISOLATION DAMPERS FOR EITHER OR BOTH AIR STREAMS (AVAILABLE FOR ALL MODELS EXCEPT EV450RT, AND RTC MODELS). THE INSULATED DAMPERS SHALL BE OF A LOW LEAKAGE DESIGN AND SHALL NOT RESTRICT THE AIRSTREAM, REDUCING AIRFLOW, IN ANY WAY. THE DAMPERS SHALL BE OPENED WITH A MOTOR ACTUATOR POWERED BY THE STANDARD UNIT TRANSFORMER PACKAGE AND HAVE A SPRING RETURN FOR LOW OFF–POSITION POWER CONSUMPTION.
9. PROVIDE FACTORY INSTALLED FILTER MONITORS FOR EACH AIRSTREAM.
10. PROVIDE MERV–13 FILTERS FOR FINAL INSTALLATION AFTER CONSTRUCTION PHASE.
11. PROVIDE 14 INCH HIGH, NON–PITCHED ROOF CURBS AS AVAILABLE FROM THE FACTORY. PITCHED CURBS, VIBRATION CURBS, SEISMIC CURBS AND OTHER CUSTOM CURBS ARE AVAILABLE DIRECTLY FROM CURB MANUFACTURER.
12. RTC (ROOFTOP CONNECT) UNITS SHALL HAVE RETURN AIR AND FRESH AIR DUCTS CONFIGURED TO PERMIT DIRECT TIE–IN TO ROOFTOP AIR HANDLERS USING FACTORY OFFERED TRANSITION PIECE. (SEE SEPARATE SPECIFICATION FOR FACTORY TRANSITION AVAILABILITY.)
13. PROVIDE HIGH WIND TIE–DOWN KIT.

PART IV – INSTALLATION

A. UNIT LOCATION AND PLACEMENT

1. LOCATE AND ORIENT UNIT TO PROVIDE THE SHORTEST AND MOST STRAIGHT DUCT CONNECTIONS.PROVIDE SERVICE CLEARANCES AS INDICATED ON THE PLANS. LOCATE UNITS DISTANT FROM SOUND CRITICAL OCCUPANCIES.
2. INSTALL A STRUCTURALLY SOUND, WEATHERTIGHT, LEVEL AND PROPERLY INSULATED ROOF CURB WITH NAILERS, CURB GASKET AND TIE–DOWNS TO MEET LOCAL WIND LOAD REQUIREMENTS.
3. INSURE ROOF DECKING PENETRATIONS INSIDE CURB ARE PROPERLY POSITIONED AND SIZED FOR DUCTS. SEAL ALL PENETRATIONS AND GAPS BETWEEN DUCTS AND DECKING WITH APPROPRIATE FIRE, WEATHER AND ACOUSTIC SEALANT SYSTEM.
4. INSTALL FIBERGLASS BATT INSULATION OVER THE DECKING INSIDE THE CURB. INSULATION THICKNESS TO BE DETERMINED BY LOCAL THERMAL REQUIREMENTS.
5. USE PROPER RIGGING, INCLUDING SPREADER BARS, FOR SAFE LIFTING AND PLACEMENT.

B. VIBRATION ISOLATION

1. PROVIDE SPRING TYPE VIBRATION RAILS OR CURB TO MATCH THE SPECIFIC UNIT CORNER WEIGHTS.
2. PROVIDE FLEXIBLE DUCT CONNECTIONS AT UNIT DUCT FLANGES.

C. DUCT DESIGN

1. ALL DUCTWORK SHALL BE DESIGNED, CONSTRUCTED, SUPPORTED AND SEALED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND PRESSURE CLASSIFICATIONS.
2. DUCTWORK SHALL BE INSTALLED TO THE CURB DUCT ADAPTORS BEFORE UNIT IS SET IN PLACE.
3. BOTH THE RETURN AND THE SUPPLY DUCTS SHALL BE THERMALLY INSULATED AT LEVELS APPROPRIATE TO THE LOCAL CLIMATE FROM THE UNIT THROUGH THE CURB AND CONTINUOUS UNTIL AT LEAST THE FIRST ELBOW OR TEE. A CONTINUOUS VAPOR BARRIER SHALL ALSO BE PROVIDED ON WARM SURFACE OF THE INSULATION.

D. SOUND CONTROL

1. TO CONTROL SOUND ASSOCIATED WITH THE TWO BLOWER OUTLETS:
   a. PROVIDE STRAIGHT, GRADUAL TRANSITION DUCTWORK FOR A MINIMUM OF 2–1/2 DUCT DIAMETERS DOWNSTREAM FROM THE BLOWER OUTLET FOR AIR VELOCITIES OF LESS THAN 2,500 FEET PER MINUTE.
   b. PROVIDE CONTINUOUS ACOUSTIC INSULATION TREATMENT OF THE DUCT UNTIL AFTER THE FIRST ELBOW OR TEE.
   c. PROVIDE ENGINEERED SOUND ATTENUATION DUCTWORK TO MEET NOISE CRITERIA (NC) REQUIREMENTS.

E. TEST AND BALANCING

1. TEST AND BALANCING MAY NOT BEGIN UNTIL 100% OF THE INSTALLATION IS COMPLETE AND FULLY FUNCTIONAL.
2. FOLLOW NATIONAL COMFORT INSTITUTE (NCI) AIR TEST AND BALANCE PROCEDURES SPECIFIC TO HEAT RECOVERY VENTILATOR BALANCING PROCEDURE INCLUDING STANDARD REPORTS TO THE OWNER'S REPRESENTATIVE.

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE

252 East Avenue
Norwalk, CT 06855
(203) 866-4626 Tel
(203) 866-8019 Fax

LFG
LANDMARK
FACILITIES
GROUP, INC.

WARDE FAIRFIELD HIGH SCHOOL
.
, FAIRFIELD, CT

SCALE: AS NOTED
DATE: 7/16/21
APPROVED BY:
DRAWN BY: AD
CHECKED BY: RS

MECHANICAL SPECIFICATION

FILE NAME: \DIR\DWG
JOB NUMBER: .
DRAWING NUMBER: M-601

(E) PANEL SCHEDULE "LH-B (SECTION #1)"

PANEL	"LH-B"			BUS	400 AMP MAIN CIRCUIT BREAKER				VOLTAGE	277/480V, 3PH, 4 WIRE				
LOAD	–			POLES	90				FED FROM:	MDP (CKT#1 400A C/B)				
MOUNTING	SURFACE			SPEC	–				AIC SYMM	–				

DESCRIPTION	WIRE	GRD.	COND.	TRIP	CKT.	VA A PHASE	VA B PHASE	VA C PHASE	CKT.	TRIP	COND.	GRD.	WIRE	DESCRIPTION
LIGHTING	12	12	3/4"	20A	1	2700	3100		2	20A	3/4"	12	12	LIGHTING
LIGHTING	12	12	3/4"	20A	3		2700	2300	4	20A	3/4"	12	12	LIGHTING
LIGHTING	12	12	3/4"	20A	5			1500	6	20A	3/4"	12	12	LIGHTING
LIGHTING	12	12	3/4"	20A	7	2200	2000		8	20A	3/4"	12	12	LIGHTING
LIGHTING CORRIDOR/ACTIVITIES	12	12	3/4"	20A	9		1600	2000	10	20A	3/4"	12	12	LIGHTING
LIGHTING CORRIDOR/ACTIVITIES	12	12	3/4"	20A	11			1200	12	20A	3/4"	12	12	LTGS CAFE FACULTY/LOCKERS
LIGHTING CAFETERIA DINING	12	12	3/4"	20A	13	2700	1300		14	20A	3/4"	12	12	LTGS CAFE FACULTY/GALLERY
LIGHTING CAFETERIA DINING	12	12	3/4"	20A	15		2400	1800	16	20A	3/4"	12	12	LTGS SERVING AREA/STORAGE
LIGHTING CAFETERIA DINING	12	12	3/4"	20A	17			2400	18	20A	3/4"	12	12	LIGHTING SERVING AREA
RTU-A-1	10	10	3/4"	25A	19	3100	6900		20	50A	1"	8	6	RTU-A-2
					21		3100	6900	22					
					23			3100	24					
RTU-B-1	12	12	3/4"	15A	25	2400	3900		26	35A	3/4"	10	8	RTU-A-4
					27		2400	3900	28					
					29			2400	30					
EF-A-2	12	12	3/4"	20A	31	900	5400		32	45A	1"	8	6	RTU-B-2
					33		900	5400	34					
					35			900	36					
SPARE				175A	37	–	–		38	225A				SPARE
					39		–	–	40					
					41			–	42					
SUBTOTAL						–	–	–						
TOTAL CONNECTED LOAD						– va		– amps						
TOTAL DESIGN LOAD						– va		– amps						
125% TOTAL LOAD						– kva		– amps						

$\left(\frac{XXX\ KVA}{480V * \sqrt{3}}\right)$ = AMPERES

(E) PANEL SCHEDULE "LH-B (SECTION #2)"

PANEL	"LH-B"			BUS	400 AMP MAIN CIRCUIT BREAKER				VOLTAGE	277/480V, 3PH, 4 WIRE				
LOAD	–			POLES	90				FED FROM:	MDP (CKT#1 400A C/B)				
MOUNTING	SURFACE			SPEC	–				AIC SYMM	–				

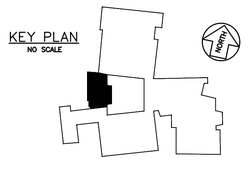
DESCRIPTION	WIRE	GRD.	COND.	TRIP	CKT.	VA A PHASE	VA B PHASE	VA C PHASE	CKT.	TRIP	COND.	GRD.	WIRE	DESCRIPTION
RTU-B-3	12	12	3/4"	20A	43	2600	1300		44	20A	3/4"	12	12	KX-B-1
					45			2600	46					
					47				48					
EF-B-1	12	12	3/4"	20A	49	1300	300		50	20A	3/4"	12	12	DWX-B-1
					51		1300	300	52					
					53			1300	54					
DUST COLLECTOR	8	10	3/4"	70A	55	9900	5500		56	20A	3/4"	12	12	RTU-A-3
					57		9900	5500	58					
					59			9900	60					
AHU-B-1				15A	61	–	–		62	20A				SPARE
					63		–	–	64	20A				SPARE
					65			–	66	20A				SPARE
GRAPHIC ARTS LIGHTS				20A	67	–	–		68	20A				SPARE
GRAPHIC ARTS LIGHTS				20A	69		–	–	70	20A				SPARE
SPARE				20A	71			–	72	20A				SPARE
SOCCER FIELD IRRIGATION PUMP				20A	73	–	–		74	20A				SPARE
					75		–	–	76	20A				SPARE
					77			–	78	20A				SPARE
SPARE				20A	79	–	–		80	20A				SPARE
SPARE				20A	81		–	–	82	20A				SPARE
SPARE				20A	83			–	84	20A				SPARE
SPARE				175A	85	–	–		86	225A	2-1/2"	4	4/0	150 KVA TRANSFORMER (TX-B)
					87		–	–	88					
					89			–	90					
SUBTOTAL						–	–	–						
TOTAL CONNECTED LOAD						– va		– amps						
TOTAL DESIGN LOAD						– va		– amps						
125% TOTAL LOAD						– kva		– amps						

$\left(\frac{XXX\ KVA}{480V * \sqrt{3}}\right)$ = AMPERES

DEMOLISH HATCHED AREA

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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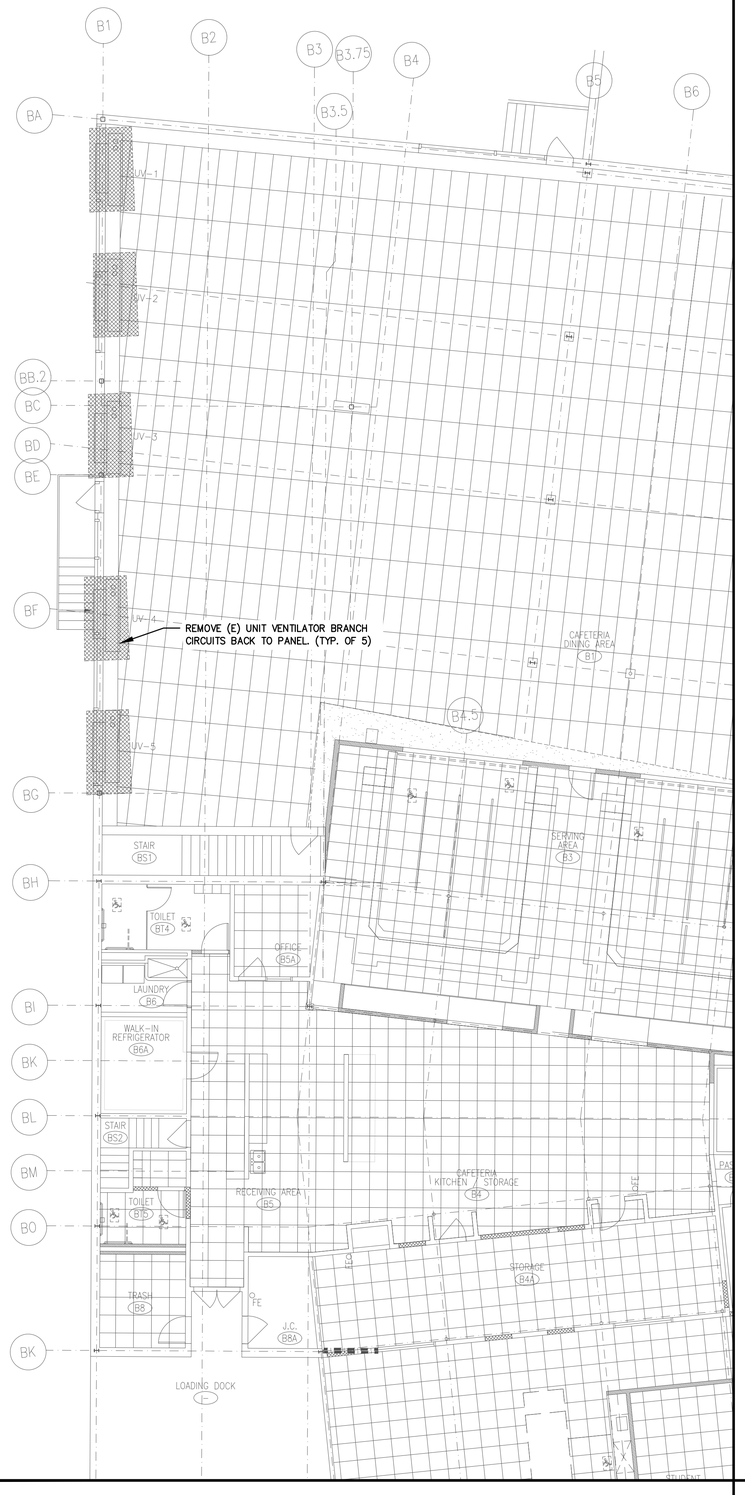
WARDE FAIRFIELD HIGH SCHOOL
.
, FAIRFIELD, CT

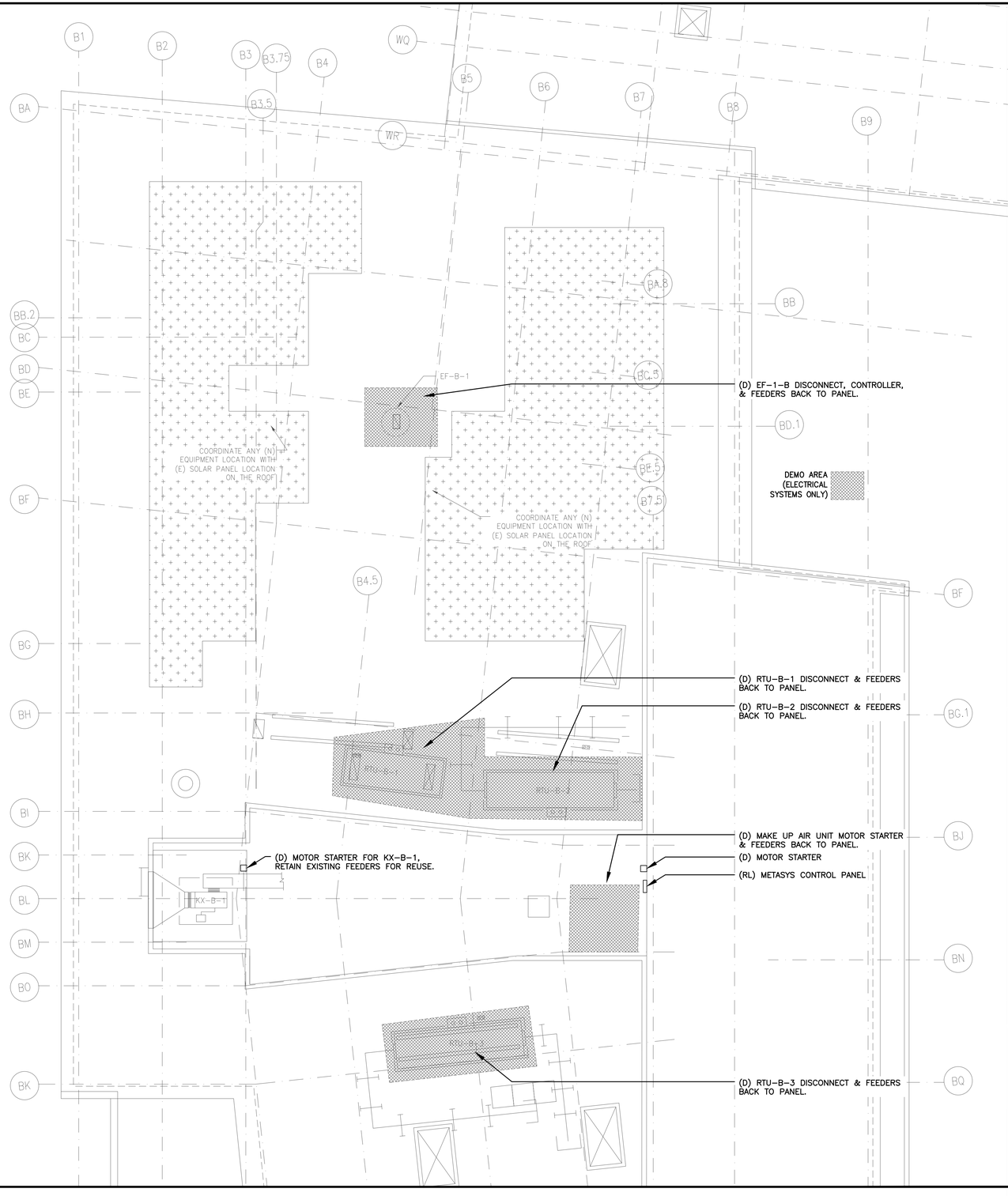
SCALE: AS NOTED	APPROVED BY:	DRAWN BY: LC
DATE: 7/16/21		CHECKED BY: RS

ELECTRICAL PANEL SCHEDULE DEMOLITION

FILE NAME: \DIR\DWG	JOB NUMBER: .	DRAWING NUMBER: ED-001



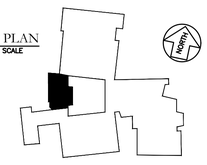
01 DEMOLITION ELECTRICAL FIRST FLOOR PLAN
1/8" = 1'-0"



01 DEMOLITION ELECTRICAL ROOF PLAN
1/8" = 1'-0"

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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ELECTRICAL DEMO PLAN

FILE NAME: \DIR\DWG	JOB NUMBER: -	DRAWING NUMBER: ED-100

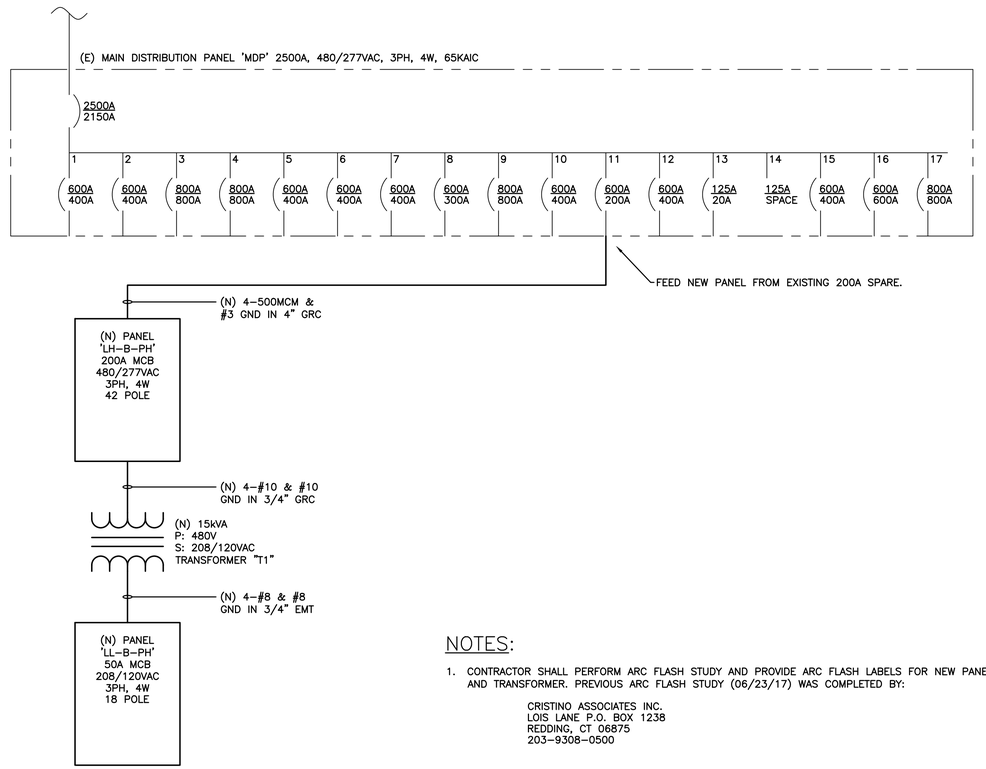
ELECTRICAL LEGEND

- DUPLEX RECEPTACLE
- DOUBLE-DUPLEX RECEPTACLE
- DEDICATED RECEPTACLE
- LP/XX — HOMERUN
- JUNCTION BOX
- LOCKABLE DISCONNECT SWITCH
- PANEL
- RECESSED PANEL
- SWITCH
- SWITCH, 2 POLE, 208V RATED, MOTOR RATED
- CONDUIT UP
- CONDUIT DOWN

ABBREVIATIONS:

RMC	RIGID METAL CONDUIT
GRC	GALVANIZED RIGID STEEL CONDUIT (NEC RMC)
IMC	INTERMEDIATE METAL CONDUIT
EMT	ELECTRICAL METAL TUBING
PVC	RIGID POLYVINYL CHLORIDE CONDUIT (SCHEDULE 40 U.N.O.)
U.N.O.	UNLESS NOTES OTHERWISE
TYP.	TYPICAL
gfi	GROUND FAULT CIRCUIT INTERRUPTER TYPE
afi	ARC FAULT CIRCUIT INTERRUPTER TYPE
WP	WEATHER-PROOF WHILE IN USE TYPE
UP	CONDUIT UP
DN	CONDUIT DN
C	CONDUIT
GND	GROUND
LF	LINEAR FEET
ARCH.	ARCHITECT
COORD.	COORDINATE
SCC	PROSPECTIVE SHORT CIRCUIT CURRENT
MCA	MINIMUM CIRCUIT AMPACITY
FLA	FULL LOAD AMPERES
RLA	RATED LOAD AMPERES
LRA	LOCKED ROTOR AMPERES
MOCP	MAXIMUM OVER CURRENT PROTECTION
RFS	RECOMMENDED FUSE SIZE
(N)	NEW
(E)	EXISTING TO REMAIN
(RL)	RELOCATE EXISTING
(R)	REPLACE EXISTING IN LOCATION
(D)	DEMOLISH EXISTING

Part One Line Diagram



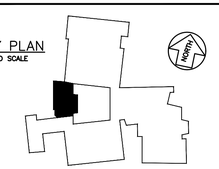
NOTES:

1. CONTRACTOR SHALL PERFORM ARC FLASH STUDY AND PROVIDE ARC FLASH LABELS FOR NEW PANELS AND TRANSFORMER. PREVIOUS ARC FLASH STUDY (06/23/17) WAS COMPLETED BY:

   CRISTINO ASSOCIATES INC.
   LOIS LANE P.O. BOX 1238
   REDDING, CT 06875
   203-9308-0500

REV	DATE	DESCRIPTION
-	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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ELECTRICAL LEGEND
AND ONE LINE DIAGRAM

FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\DWG	.	E-001

(E) PANEL SCHEDULE "LH-B (SECTION #1)"

PANEL "LH-B" | BUS 400 AMP MAIN CIRCUIT BREAKER | VOLTAGE 277/480V, 3PH, 4 WIRE
LOAD – | POLES 90 | FED FROM: MDP (CKT#1 200A C/B)
MOUNTING SURFACE | SPEC – | AIC SYMM –

DESCRIPTION	WIRE	GRD.	COND.	TRIP	CKT.	VA A PHASE	VA B PHASE	VA C PHASE	CKT.	TRIP	COND.	GRD.	WIRE	DESCRIPTION
LIGHTING	12	12	3/4"	20A	1	2700	3100		2	20A	3/4"	12	12	LIGHTING
LIGHTING	12	12	3/4"	20A	3		2700	2300	4	20A	3/4"	12	12	LIGHTING
LIGHTING	12	12	3/4"	20A	5			1500	2000	6	20A	3/4"	12	12	LIGHTING
LIGHTING	12	12	3/4"	20A	7	2200	2000		8	20A	3/4"	12	12	LIGHTING
LIGHTING CORRIDOR/ACTIVITIES	12	12	3/4"	20A	9		1600	2000	10	20A	3/4"	12	12	LIGHTING
LIGHTING CORRIDOR/ACTIVITIES	12	12	3/4"	20A	11			1200	2700	12	20A	3/4"	12	12	LTGS CAFE FACULTY/LOCKERS
LIGHTING CAFETERIA DINING	12	12	3/4"	20A	13	2700	1300		14	20A	3/4"	12	12	LTGS CAFE FACULTY/GALLERY
LIGHTING CAFETERIA DINING	12	12	3/4"	20A	15		2400	1800	16	20A	3/4"	12	12	LTGS SERVING AREA/STORAGE
LIGHTING CAFETERIA DINING	12	12	3/4"	20A	17			2400	1000	18	20A	3/4"	12	12	LIGHTING SERVING AREA
RTU-A-1	10	10	3/4"	25A	19	3100	6900		20	50A	1"	8	6	RTU-A-2
					21		3100	6900	22					
					23			3100	6900	24					
SPARE				15A	25	–	3900		26	35A	3/4"	10	8	RTU-A-4
					27		–	3900	28					
					29			–	3900	30					
EF-A-2	12	12	3/4"	20A	31	900	–		32	45A				**SPARE**
					33		900	–	34					
					35			900	–	36				
SPARE				175A	37	–	–		38	225A				SPARE
					39		–	–	40					
					41			–	–	42				
SUBTOTAL						–	–	–						
TOTAL CONNECTED LOAD						– va		– amps						
TOTAL DESIGN LOAD						– va		– amps						

$\left(\frac{XXX\ KVA}{480V * \sqrt{3}}\right)$ = AMPERES

(E) PANEL SCHEDULE "LH-B (SECTION #2)"

PANEL "LH-B" | BUS 400 AMP MAIN CIRCUIT BREAKER | VOLTAGE 277/480V, 3PH, 4 WIRE
LOAD – | POLES 90 | FED FROM: MDP (CKT#1 400A C/B)
MOUNTING SURFACE | SPEC – | AIC SYMM –

DESCRIPTION	WIRE	GRD.	COND.	TRIP	CKT.	VA A PHASE	VA B PHASE	VA C PHASE	CKT.	TRIP	COND.	GRD.	WIRE	DESCRIPTION
RTU-B-3	**12**	**12**	**3/4"**	20A	43	4986	1300		44	20A	3/4"	12	12	KX-B-1
					45			4986	1300	46				
					47				4986	1300	48			
EF-B-1	12	12	3/4"	20A	49	1300	300		50	20A	3/4"	12	12	DWX-B-1
					51		1300	300	52					
					53			1300	300	54				
DUST COLLECTOR	8	10	3/4"	70A	55	9900	5500		56	20A	3/4"	12	12	RTU-A-3
					57		9900	5500	58					
					59			9900	5500	60				
MUA-1 1	**10**	**10**	**3/4"**	**25A**	61	4321	–		62	20A				SPARE
					63		4321	–	64	20A				SPARE
					65			4321	–	66	20A			SPARE
GRAPHIC ARTS LIGHTS				20A	67	–	–		68	20A				SPARE
GRAPHIC ARTS LIGHTS				20A	69		–	–	70	20A				SPARE
SPARE				20A	71			–	–	72	20A				SPARE
SOCCER FIELD IRRIGATION PUMP				20A	73	–	–		74	20A				SPARE
					75		–	–	76	20A				SPARE
					77			–	–	78	20A			SPARE
SPARE				20A	79	–	–		80	20A				SPARE
SPARE				20A	81		–	–	82	20A				SPARE
SPARE				20A	83			–	–	84	20A			SPARE
SPARE				175A	85	–	–		86	225A	2-1/2"	4	4/0	150 KVA TRANSFORMER (TX-B)
					87		–	–	88					
					89			–	–	90				
SUBTOTAL						–	–	–						
TOTAL CONNECTED LOAD						– va		– amps						
TOTAL DESIGN LOAD						– va		– amps						

$\left(\frac{XXX\ KVA}{480V * \sqrt{3}}\right)$ = AMPERES

EXISTING PANEL SCHEDULE LEGEND:

LIGHT TEXT IS EXISTING

BOLD TEXT IS NEW

(E) MAIN DISTRIBUTION PANEL SCHEDULE

SERVICE: 480/277V, 3PH, 4W | MAINS: 2500A/2150A M.C.B. 65,000 AIC

CKT. NO.	NAMEPLATE INFORMATION	CIRCUIT BREAKER FRAME	TRIP	POLES	FEEDERS
1	PANEL "LH-B"	600	400	3	(2) SETS OF: 4-500 MCM & #1/0 GND IN 3-1/2"C
2	PANEL "LH-ECC"	600	400	3	–
3	EDP PANEL TRANSFER SWITCH	800	800	3	–
4	?	800	800	3	–
5	PANEL "LH-W"	600	400	3	–
6	PANEL "LH-L"	600	400	3	–
7	PANEL "LH-E"	600	400	3	–
8	PANEL "LH-D"	600	300	3	–
9	500KVA TRANSFORMER	800	800	3	–
10	PANEL "LH-C"	600	400	3	–
11	**PANEL "LH-B-PH"**	600	200	3	**4-500 MCM & #3 GND IN 4"C**
12	225KVA PAD MTD	600	400	3	–
13	JOCKEY PUMP	125	20	3	–
14	SPARE	125	–	3	–
15	PANEL "LH-F"	600	400	3	–
16	PANEL "LH-SL"	600	600	3	–
17	PHOTOVOLTAIC SYSTEM	800	800	3	–

(N) PANEL SCHEDULE "LH-B-PH"

PANEL "LH-B-PH" | BUS 200 AMP MAIN CIRCUIT BREAKER | VOLTAGE 277/480V, 3PH, 4 WIRE
LOAD 144 kVA | POLES 42 | FED FROM: MDP (CKT#11 200A C/B)
MOUNTING SURFACE | SPEC – | AIC SYMM 22,000

DESCRIPTION	WIRE	GRD.	COND.	TRIP	CKT.	VA A PHASE	VA B PHASE	VA C PHASE	CKT.	TRIP	COND.	GRD.	WIRE	DESCRIPTION
DOAS-B-1 1	12	12	3/4"	15A	1	1662	720		2	15A	3/4"	12	12	DOAS-B-2 1
					3		1662	720	4					
					5			1662	720	6				
ERV-B-1 1	12	12	3/4"	20A	7	4598	776		8	15A	3/4"	12	12	ERV-B-2 1
					9		4598	776	10					
					11			4598	776	12				
HP-1A 1	8	10	3/4"	35A	13	7174	7174		14	35A	3/4"	10	8	HP-1B 1
					15		7174	7174	16					
					17			7174	7174	18				
HP-2A 1	8	10	3/4"	40A	19	7728	7728		20	40A	3/4"	10	8	HP-2B 1
					21		7728	7728	22					
					23			7728	7728	24				
HP-B-1 1	8	10	3/4"	35A	25	7174	3675		26	25A	3/4"	10	10	PANEL "LL-B-PH"
					27		7174	4206	28					15kVA TRANSFORMER
					29			7174	2325	30				
SPACE					31	–	–		32					SPACE
SPACE					33		–	–	34					SPACE
SPACE					35			–	–	36				SPACE
SPACE					37	–	–		38					SPACE
SPACE					39		–	–	40					SPACE
SPACE					41			–	–	42				SPACE
SUBTOTAL						48406		48940		47059				
TOTAL CONNECTED LOAD						144406 va		173 amps						
TOTAL DESIGN LOAD						144406 va		173 amps						

$\left(\frac{XXX\ KVA}{480V * \sqrt{3}}\right)$ = AMPERES

(N) PANEL SCHEDULE "LL-B-PH"

PANEL "LL-B-PH" | BUS 50 AMP MAIN CIRCUIT BREAKER | VOLTAGE 120/208V, 3PH, 4 WIRE
LOAD 10 kVA | POLES 18 | FED FROM: LH-B-PH (CKT#26,28,30 15kVA XFMR)
MOUNTING SURFACE | SPEC – | AIC SYMM 10,000

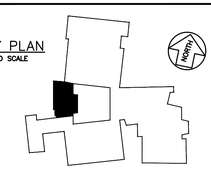
DESCRIPTION	WIRE	GRD.	COND.	TRIP	CKT.	VA A PHASE	VA B PHASE	VA C PHASE	CKT.	TRIP	COND.	GRD.	WIRE	DESCRIPTION
HP-B-2 (ROOF) 1	12	12	3/4"	20A	1	1980	1248		2	15A	1/2"	12	12	CAFETERIA AH-1.1 TO 1.8 1
					3		1980	1248	4					
BS-2.1, BS-2.2 1	12	12	1/2"	15A	5			135	312	6	15A	1/2"	12	12	SERVING AREA AH-2.1 TO 2.2 1
					7	135	312		8					
SPARE				20A	9		–	978	10	15A	1/2"	12	12	STUDENT AREA AH-3.1 TO 3.8 1
RCPT-ROOF MECH. SERVICE	12	12	3/4"	20A	11			900	978	12				
SPACE					13	–	–		14					SPACE
SPACE					15		–	–	16					SPACE
SPACE					17			–	–	18				SPACE
SUBTOTAL						3675		4206		2325				
TOTAL CONNECTED LOAD						10206 va		28 amps						
TOTAL DESIGN LOAD						10206 va		28 amps						

$\left(\frac{XXX\ KVA}{208V * \sqrt{3}}\right)$ = AMPERES

KEYED NOTES:
1. PROVIDE HACR TYPE CIRCUIT BREAKERS
2. PROVIDE LOCKING CLIPS
3. VERIFY POWER REQUIREMENTS FOR ACTUAL EQUIPMENT BEFORE INSTALLATION.
4. PROVIDE GFI CIRCUIT BREAKER.
5. CIRCUIT CONTROLLED VIA TIMECLOCK

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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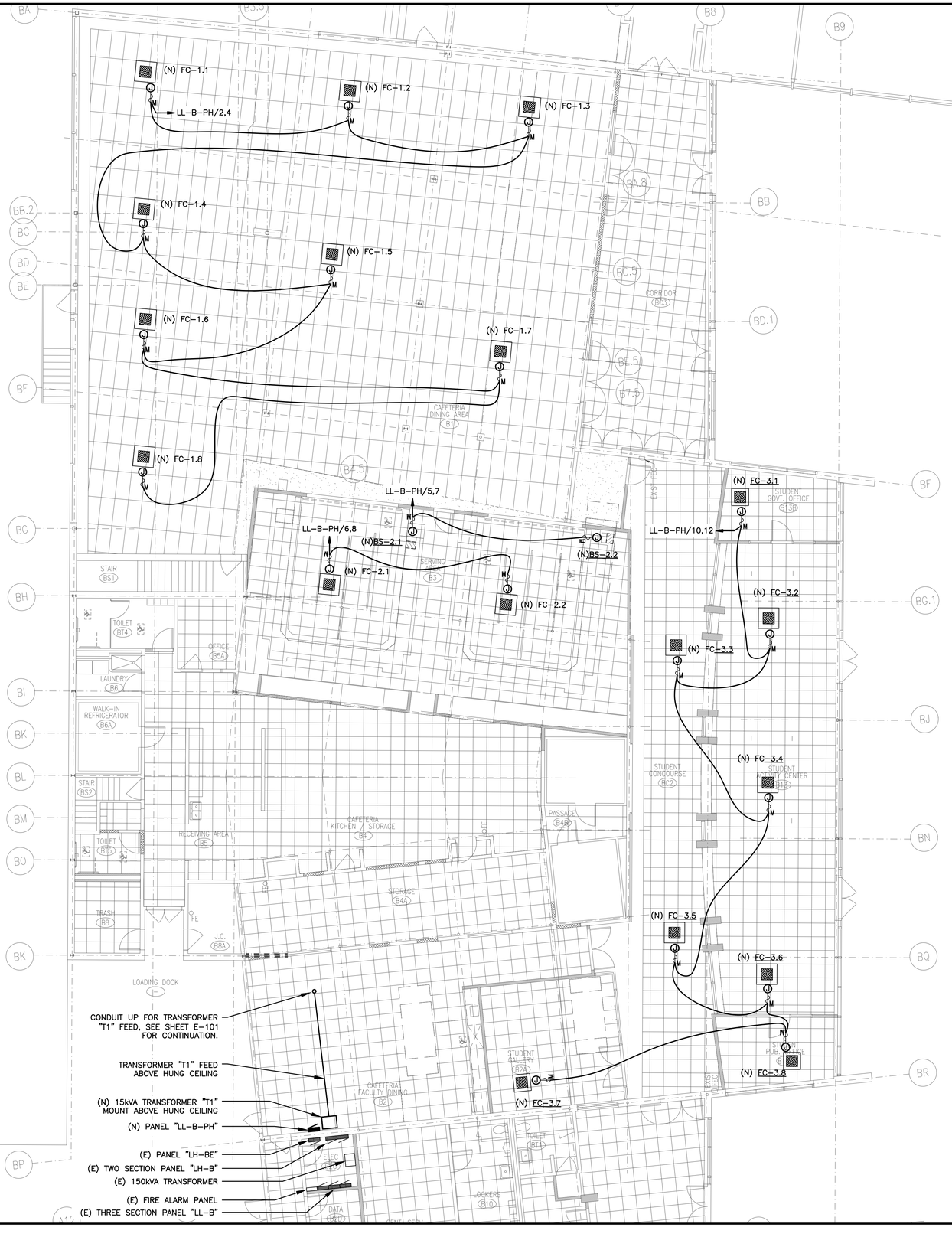
DATE: 7/16/21		CHECKED BY: RS

ELECTRICAL
PANEL SCHEDULES

FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\DWG	.	E-002



01 PROPOSED ELECTRICAL FIRST FLOOR PLAN
1/8" = 1'-0"

GENERAL NOTES:

1. ALL DISCONNECTS, MOTOR STARTERS, AND VFDS FOR MECHANICAL EQUIPMENT, FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR.
2. CONTRACTOR SHALL RUN ALL CIRCUITS FROM ROOF EQUIPMENT DOWN INTO FIRST FLOOR CEILING. REFER TO STRUCTURAL DRAWINGS FOR ROOF PENETRATION DETAIL.

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE

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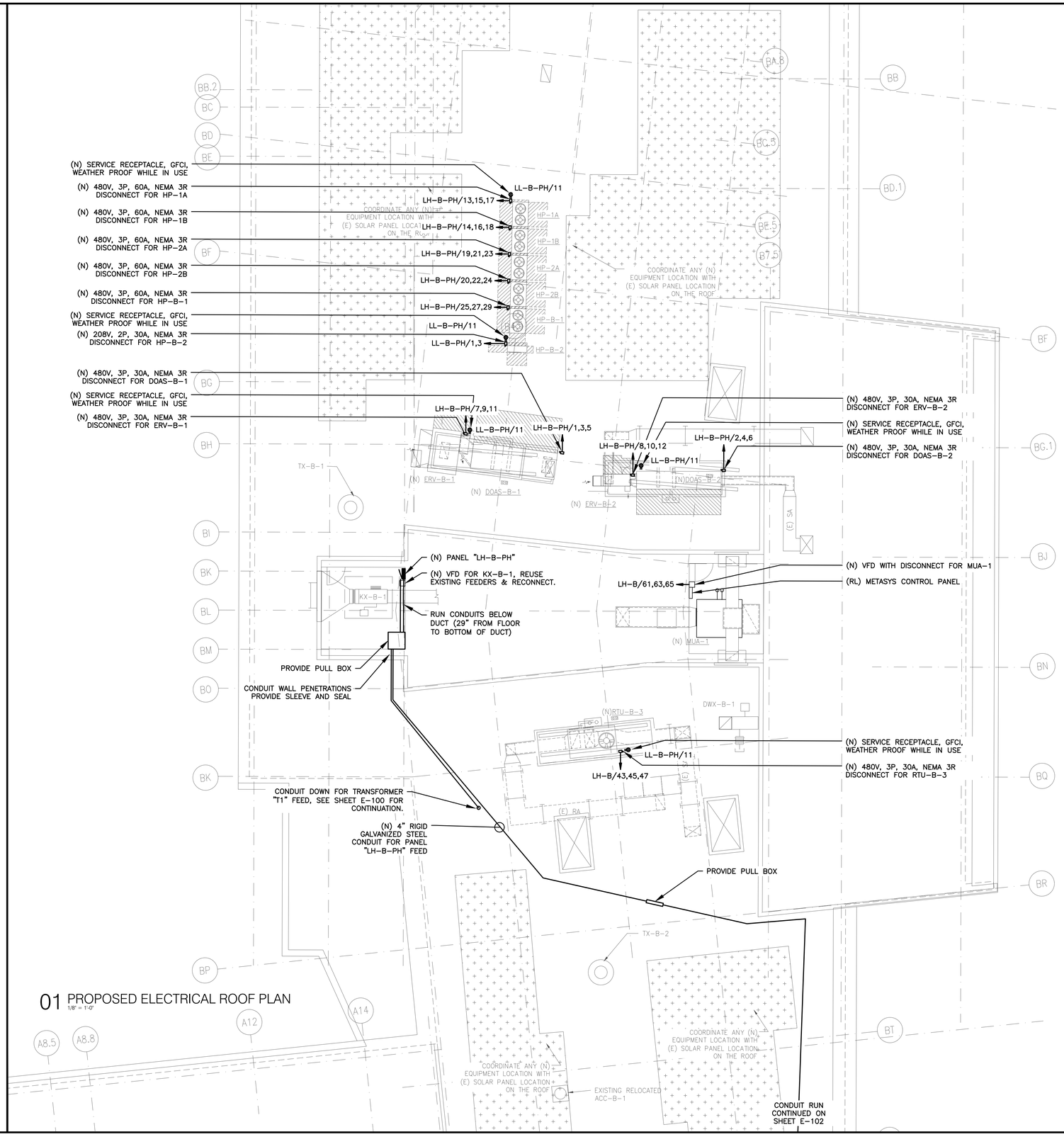
ELECTRICAL PLAN
FIRST FLOOR

FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\DWG	·	E-100



01 PROPOSED ELECTRICAL ROOF PLAN
1/8" = 1'-0"

GENERAL NOTES:

1. ALL CONDUIT/RACEWAYS ON ROOF SHALL BE IN GALVANIZED RIGID STEEL CONDUIT.
2. SUPPORT CONDUIT AND PULL BOXES WITH NON-PENETRATIVE ROOF SUPPORTS. EATON DURA-BLOK DB SERIES OR APPROVED EQUAL.
3. CONTRACTOR SHALL PROVIDE CONDUIT EXPANSION FITTINGS DESIGNED FOR USE WITH RIGID STEEL CONDUIT AND RATED FOR WET LOCATIONS.
4. ALL DISCONNECTS, MOTOR STARTERS, AND VFDS FOR MECHANICAL EQUIPMENT, FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR.
5. ALL ROOF PENETRATIONS SHALL BE MADE BY ROOFING CONTRACTOR WHO HOLDS ROOF WARRANTY.
6. CONTRACTOR SHALL RUN ALL CIRCUITS FROM ROOF EQUIPMENT DOWN INTO FIRST FLOOR CEILING. REFER TO STRUCTURAL DRAWINGS FOR ROOF PENETRATION DETAIL.

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE

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ELECTRICAL PLAN
ROOF

FILE NAME: \DIR\DWG	JOB NUMBER: .	DRAWING NUMBER: E-101

01 PROPOSED ELECTRICAL ROOF PLAN
1/16" = 1'-0"

GENERAL NOTES:

1. SUPPORT CONDUIT AND PULL BOXES WITH NON-PENETRATIVE ROOF SUPPORTS. EATON DURA-BLOK DB SERIES OR APPROVED EQUAL.
2. CONTRACTOR SHALL PROVIDE CONDUIT EXPANSION FITTINGS DESIGNED FOR USE WITH RIGID STEEL CONDUIT AND RATED FOR WET LOCATIONS

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE

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SCALE: AS NOTED	APPROVED BY:	DRAWN BY: LC
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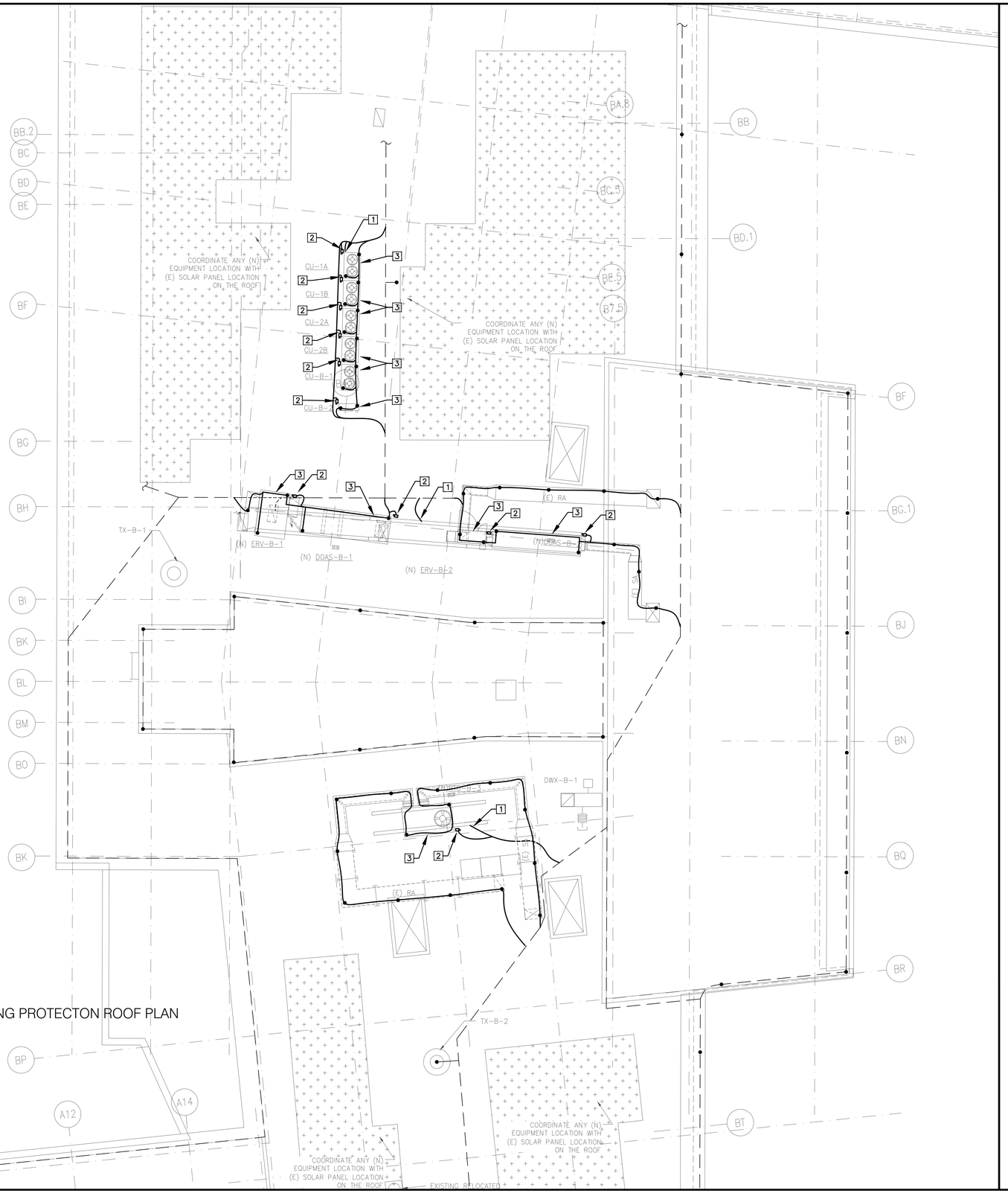
ELECTRICAL PLAN
ROOF

FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\.DWG	·	E-102



01 PROPOSED LIGHTING PROTECTON ROOF PLAN
1/8" = 1'-0"

LIGHTING PROTECTION SYSTEM NOTES:

1. DRAWINGS ARE DIAGRAMMATIC, DO NOT SCALE.
2. CONTRACTOR SHALL REVISE EXISTING LIGHTING PROTECTION SYSTEM TO FACILITATE THE INSTALLATION OF NEW MECHANICAL EQUIPMENT.
3. CONTRACTOR SHALL PROVIDE ALL NEW CABLE, FASTENERS, AND AIR TERMINALS.
4. EACH NEW PIECE OF EQUIPMENT SHALL BE PROVIDED TWO AIR TERMINALS ON OPPOSITE ENDS.
5. DUCTWORK SHALL HAVE CABLE RUN ON PERIMETER WITH AIR TERMINALS EVERY 8'.
6. EACH NEW PIECE OF EQUIPMENT SHALL BE BONDED TO LIGHTING PROTECTION SYSTEM. NEW DUNNAGE SHALL BE BONDED TO LIGHTING PROTECTION SYSTEM. NEW DISCONNECT SWITCHES SHALL BE BONDED TO LIGHTING PROTECTION SYSTEM.

CODED NOTES:

1. CONTRACTOR SHALL BOND TO DUNNAGE
2. CONTRACTOR SHALL BOND TO DISCONNECT
3. CONTRACTOR SHALL BOND TO EQUIPMENT

LEGEND:

- AIR TERMINAL
- NEW (BOLD LINE)
- EXISTING (LIGHT LINE)

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE

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SCALE: AS NOTED	APPROVED BY:	DRAWN BY: LC
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LIGHTING PROTECION PLAN ROOF

FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\.DWG	·	E-103

ELECTRICAL SPECIFICATIONS

NOTES:

1. THE WORK OF THIS DIVISION SHALL INCLUDE ALL LABOR, MATERIALS AND APPARATUS NECESSARY FOR THE COMPLETION OF ALL ELECTRICAL WORK AS SHOWN ON THE DRAWINGS AND AS HEREINAFTER SPECIFIED, LEFT READY FOR SATISFACTORY OPERATION.

2. ANY APPLIANCE, MATERIALS OR LABOR THAT ARE OBVIOUSLY A PART OF THE ELECTRICAL WORK NECESSARY TO ITS PROPER PERFORMANCE, ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS, SHALL BE FURNISHED AND INSTALLED AS IF CALLED FOR IN DETAIL WITHOUT ADDITIONAL COST.

3. WITHOUT INTENDING TO LIMIT AND/OR RESTRICT THE VOLUME OF WORK REQUIRED AND SOLELY FOR THE CONVENIENCE OF THE CONTRACTOR, THE WORK OF THIS DIVISION SHALL, IN GENERAL COMPRISE THE FOLLOWING:
A. FURNISHING AND INSTALLATION OF NEW LIGHTING FIXTURES INCLUDING LAMPS AND ASSOCIATED BRANCH CIRCUITRY.
B. FURNISHING AND INSTALLATION OF RECEPTACLES AND ASSOCIATED BRANCH CIRCUITRY WIRING.
C. FURNISHING AND INSTALLATION OF NEW PANELS.
D. CONNECTION (WIRING) OF HVAC UNITS.
E. EMPTY CONDUIT RACEWAYS FOR TELEPHONE AND DATA WIRING.
F. CONFORMING TO ALL EXISTING CONDITIONS AT THE SITE.
G. TEMPORARY FACILITIES (LIGHTING AND POWER).

SHOP DRAWINGS:
SUBMIT TO ENGINEER COMPLETE SHOP DRAWINGS, CATALOG CUTS, WIRING DIAGRAMS AND ASSOCIATED DATA, FOR ALL MAJOR ELEMENTS OF THE ELECTRICAL WORK FOR REVIEW, CHECKING AND APPROVAL. NO EQUIPMENT SHALL BE FABRICATED, DELIVERED, ERECTED OR RECONNECTED OTHER THAN FROM DRAWINGS APPROVED BY THE ENGINEER. SHOP DRAWINGS IN THE NUMBER DIRECTED SHALL BE SUBMITTED FOR NOT LESS THAN THE FOLLOWING:
1. NEW PANELS.
2. TRANSFORMER
3. LIGHTING FIXTURES.
4. WIRING DEVICES.
IT SHALL BE UNDERSTOOD THAT APPROVAL OF DRAWINGS WILL NOT BIND THE ENGINEER OR THE OWNER TO THE FINAL ACCEPTANCE OF SUCH EQUIPMENT AS THE COMPLETED INSTALLATION AND TEST OF EQUIPMENT AS A WHOLE MUST BE PROVIDED AND GUARANTEED HEREIN AS SPECIFIED.

MATERIALS:
1. GENERAL
A. ELECTRIC RACEWAY AND SUPPORTING SYSTEMS SHALL BE FURNISHED AND INSTALLED COMPLETE, WITH ALL MATERIALS, FITTINGS, CONNECTIONS AND ACCESSORIES NECESSARY TO PROVIDE IN EACH INSTANCE, A COMPLETE OPERATING INSTALLATION, AS DESCRIBED HEREIN, AND INDICATED ON THE DRAWINGS.
B. THE DRAWINGS ARE DIAGRAMMATIC AND GENERALLY INDICATIVE OF THE WORK TO BE INSTALLED, BUT DO NOT SHOW ALL BENDS, FITTINGS, AND BOXES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL HIS WORK AND ARRANGE SAME ACCORDINGLY, FURNISHING SUCH FITTINGS, BOXES AND SIMILAR ITEMS AS MAY BE REQUIRED TO MEET SUCH CONDITIONS.

2. WIRING:
A. ALL WIRE AND CABLE, AS INDICATED, SPECIFIED OR REQUIRED, SHALL BE INSTALLED COMPLETE, INCLUDING ALL NECESSARY SPLICES AND CONNECTIONS TO EQUIPMENT DEVICES.
B. ALL WIRE NO. 8 WIRE AND LARGER SHALL BE SINGLE CONDUCTOR STRANDED COPPER OF NOT LESS THAN 98% CONDUCTIVITY, WITH 600 VOLT WITH THHN INSULATION (THWN FOR DAMP LOCATIONS). WIRE NO. 10 AWG AND SMALLER SHALL BE SOLID COPPER.
C. WIRE AND CABLE SHALL BE NO. 12 AWG MINIMUM, UNLESS, U.O.N
D. 15A AND 20A BRANCH CIRCUITS SHALL UTILIZE #12 L & N CONDUCTORS, U.O.N.
E. 25A AND 30A BRANCH CIRCUITS SHALL UTILIZE #10 L & N CONDUCTORS, U.O.N
F. 35A THROUGH 50A BRANCH CIRCUITS SHALL UTILIZE #8 L & N CONDUCTORS, U.O.N.
G. ALL BRANCH CIRCUITS SHALL HAVE GROUND CONDUCTORS IN ACCORDANCE WITH TABLE 250–122 OF THE NEC, U.O.N.
H. SUB FEEDERS AND BRANCH CIRCUITS IN EXCESS OF 100LF AND LESS THAN 200LF SHALL UTILIZE THE NEXT LARGER SIZE CONDUCTOR, U.O.N.
I. BRANCH CIRCUIT NUMBERS INDICATED ON THE DRAWINGS ARE FOR IDENTIFICATION PURPOSES ONLY AND DO NOT NECESSARILY REFER TO PANELBOARD CIRCUIT NUMBERS. BRANCH CIRCUITS SHALL BE CONNECTED TO CIRCUITS ON PANELBOARDS SO AS TO SECURE A REASONABLE BALANCE ON THE THREE PHASES. WHERE MORE THAN ONE CIRCUIT, WITH A COMMON NEUTRAL IS INSTALLED IN THE SAME CONDUIT, EACH PHASE WIRE SHALL BE CONNECTED TO A DIFFERENT LEG OF THE SYSTEM.
J. ALL CONDUCTORS SHALL BE COLOR CODED THROUGHOUT AND NUMBERED AND TAGGED AT EACH JUNCTION BOX, PULL BOX, PANEL AND DEVICE WITH SUITABLE FIREPROOF TAGS OR ADHESIVE IDENTIFICATION BANDS.

3. CONDUIT:
A. EXCEPT AS OTHERWISE INDICATED OR SPECIFIED, ALL WIRING INSIDE AND BEYOND CONFINES OF ELECTRIC CLOSET SHALL BE INSTALLED IN EMT (ELECTROGALVANIZED STEEL ELECTRICAL METALLIC TUBING).
B. GRC (RMC) SHALL BE UTILIZED FOR EXTERIOR INSTALLATIONS WHERE EXPOSED AND SUBJECT TO SEVERE PHYSICAL DAMAGE.
C. PVC MAY BE USED FOR INSTALLATION WHERE BURIED BELOW GRADE AND WHERE EMBEDDED IN A COVER OF AT LEAST 2"s OF CONCRETE
D. LIQUIDTIGHT FLEXIBLE, GALVANIZED STEEL CONDUIT, WITH CONTINUOUS COPPER BONDING CONDUCTOR, SHALL BE USED FOR CONNECTIONS, NOT EXCEEDING 18" IN LENGTH, TO MOTORS AND AT A OTHER LOCATIONS WHERE VIBRATION, OR MOVEMENT ARE ENCOUNTERED.
E. UNLESS OTHERWISE INDICATED OR SPECIFIED, ALL WIRING SHALL BE INSTALLED CONCEALED IN CEILINGS, WALLS, SLABS, PIPE CHASES AND FURRED SPACES WHENEVER POSSIBLE.
F. CONDUIT AND FITTINGS SHALL CONFORM TO LATEST ACCEPTABLE CODE.
G. CONDUIT SHALL BE 1/2" TRADE SIZE MINIMUM, U.O.N
H. ALL CONDUITS WHICH ARE TO REMAIN EMPTY FOR FUTURE INTRODUCTION OF CONDUCTORS SHALL BE PROVIDED WITH A #12 NYLON DRAG WIRE WITH IDENTIFICATION TAG AT BOTH ENDS.
I. METAL CLAD CABLE (MC) CAN BE USED FOR FINAL CONNECTION OF LIGHTING.
J. CONDUIT FITTINGS SHALL BE APPROPRIATE FOR USE WITH THE CONDUIT TYPE AND LOCATION – COMPRESSION OR TWO SCREW FITTINGS FOR EMT, THREADED FITTINGS FOR RGS, SOCKET FITTINGS FOR PVC, ETC...

4. EXPANSION–JOINT FITTINGS:
A. INSTALL IN EACH RUN OF ABOVEGROUND RNC THAT IS LOCATED WHERE ENVIRONMENTAL TEMPERATURE CHANGE MAY EXCEED 30 DEG F AND THAT HAS STRAIGHT–RUN LENGTH THAT EXCEEDS 25 FEET.
B. INSTALL TYPE AND QUANTITY OF FITTINGS THAT ACCOMMODATE TEMPERATURE CHANGE LISTED FOR EACH OF THE FOLLOWING LOCATIONS:
1. OUTDOOR LOCATIONS NOT EXPOSED TO DIRECT SUNLIGHT: 125 DEG F TEMPERATURE CHANGE.
2. OUTDOOR LOCATIONS EXPOSED TO DIRECT SUNLIGHT: 155 DEG F TEMPERATURE CHANGE.
3. INDOOR SPACES CONNECTED WITH OUTDOORS WITHOUT PHYSICAL SEPARATION: 125 DEG F TEMPERATURE CHANGE.
4. ATTICS: 135 DEG F TEMPERATURE CHANGE.
C. INSTALL FITTING(S) THAT PROVIDE EXPANSION AND CONTRACTION FOR AT LEAST 0.00041 INCH PER FOOT OF LENGTH OF STRAIGHT RUN PER DEGREE F OF TEMPERATURE CHANGE FOR PVC CONDUITS.
D. INSTALL EXPANSION FITTINGS AT ALL LOCATIONS WHERE CONDUITS CROSS BUILDING OR STRUCTURE EXPANSION JOINTS.
E. INSTALL EACH EXPANSION–JOINT FITTING WITH POSITION, MOUNTING, AND PISTON SETTING SELECTED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR CONDITIONS AT SPECIFIC LOCATION AT TIME OF INSTALLATION. INSTALL CONDUIT SUPPORTS TO ALLOW FOR EXPANSION MOVEMENT.

5. JUNCTION BOXES:
A. JUNCTION BOXES AND PULL BOXES SHALL BE PROVIDED WHERE INDICATED OR SPECIFIED, WHERE REQUIRED BY CODE AND WHERE NECESSARY TO FACILITATE THE INSTALLATION OF EQUIPMENT OR WIRING
B. THEY SHALL BE NEMA 3R FOR EXTERIOR LOCATIONS
C. THEY SHALL BE APPROPRIATE FOR USE WITH THE CONDUIT TYPE AND LOCATION – PLASTIC FOR PVC, SHEET METAL FOR EMT AND CAST STL OR DUCTIL IRON FOR RGS, ETC...

6. OUTLET BOXES:
A. EACH OUTLET FOR LIGHTING FIXTURE, WALL SWITCH, WALL RECEPTACLE, TELEPHONE OR OTHER USE SHALL BE PROVIDED WITH AN OUTLET BOX SUITABLE FOR THE USE FOR WHICH THE OUTLET IS TO BE INSTALLED AND TO THE LOCATION IN WHICH IT OCCURS, SECURED FIRMLY IN PLACE AND SET TRUE AND SQUARE WITH THE FINISHED SURFACE.
B. THEY SHALL BE NEMA 3R FOR EXTERIOR LOCATIONS
C. THEY SHALL BE APPROPRIATE FOR USE WITH THE CONDUIT TYPE AND LOCATION – SHEET METAL FOR EMT AND CAST STL OR DUCTIL IRON FOR RGS, ETC...

7. FASTENINGS, SUPPORTS AND HANGERS:
A. ALL PARTS OF THE ELECTRICAL INSTALLATION SHALL BE ADEQUATELY SUPPORTED FROM THE BUILDING CONSTRUCTION USING APPROVED CLAMP SCREWS WITH INSERTS OR EXPANSION ANCHORS, EXPANSION BOLTS AND TOGGLE BOLTS "IN NO CASE SHALL THE HUNG CEILING MEMBERS OR WIRES BE USED TO SUPPORT CONDUIT".
B. ALL FASTENINGS, SUPPORTS, CLAMPS, ANCHORS, AND SIMILAR ITEMS SHALL BE OF TYPE SUITABLE FOR THE PURPOSE – IF SUPPORTING LOADS IN TENSION IN EXCESS OF 200#S OR LOADS IN SHEAR IN EXCESS OF 400#S THE CONTRACTOR SHALL PROVIDE A REPORT CERTIFIED BY AN ENGINEER ATTESTING TO THE VORACITY OF HIS SELECTION

8. WIRING DEVICES:
ALL DEVICES SHALL BE SPECIFICATION GRADE, U.L. APPROVED.
A. DUPLEX RECEPTACLE 20 AMP, 2 POLE, 3 WIRE, 125 V, GRD. TYPE HUBBELL #5362W, OR APP. EQUAL.
B. SINGLE RECEPTACLE 20 AMP, 2 POLE, 3 WIRE, 125 V, GRD. TYPE HUBBELL #5361W, OR APP. EQUAL.
C. SINGLE POLE SWITCH 20 AMP, 125 V, GRD. TYPE, HUBBELL #1221 WHI, OR APP. EQUAL.
D. THREE WAY SWITCH 20 AMP, 125 V, GRD. TYPE, HUBBELL #1223 WHI, OR APP. EQUAL.
E. PLATE FOR SINGLE SWITCH – SMOOTH NYLON WHITE, HUBBELL #PIW, OR APP. EQUAL.
F. PLATE FOR DUPLEX RECEPTACLE – SMOOTH NYLON WHITE, HUBBELL #P8W, PR APP. EQUAL.
G. PLATE FOR SINGLE RECEPTACLE – SMOOTH NYLON WHITE, HUBBELL #P7W, OR APP.
H. WHERE MORE THAN ONE SWITCH OR RECEPTACLE ARE PLACED IN THE SAME LOCATION CONTRACTOR SHALL GANG DEVICES AND USE COMMON MULTI GANG PLATES.
I. ALL SWITCHES SHALL BE QUIET TYPE.
J. ALL DEVICES AND PLATES SHALL BE FURNISHED AS INDICATED BY THE ARCHITECT

9. PANELBOARD SCHEDULES
A. PROVIDE A TYPED PANELBOARD SCHEDULE ENCLOSED IN A PLASTIC ENVELOPE ON THE INSIDE OF THE PANEL DOOR, INDICATING CIRCUIT NUMBERS AND CORRESPONDING LOADS AS SHOWN ON THE PANELBOARD SCHEDULE. APPLIES TO NEW AND EXISTING PANELS.

10. SELECTION OF OVERCURRENT PROTECTION AND SWITCHING DEVICES FOR LIGHT AND POWER DISTRIBUTION
A. DEVICES SHALL HAVE VOLTAGE RATINGS SUITABLE FOR THE SUPPLY CHARACTERISTICS TO WHICH THEY ARE APPLIED.
B. SHORT CIRCUIT CURRENT RATINGS, AND THE MANUFACTURER'S LABELS ATTESTING TO THESE RATINGS (BASED ON U.L. LISTINGS), SHALL BE REQUIRED FOR OVERCURRENT PROTECTION AND SWITCHING DEVICES, WHERE THEY ARE INDIVIDUALLY MOUNTED (AS FUSED SWITCHES OR AS FUSED SWITCH BUS DUCT PLUG–IN DEVICES). AND FOR THE EQUIPMENT ASSEMBLIES WHEN THEY ARE INCORPORATED IN PANELS. SWITCHBOARDS, ETC. SUCH RATINGS SHALL BE IN ACCORDANCE WITH THE FOLLOWING:–
1. IN ORDER TO INSURE THAT THEY ARE AT LEAST EQUAL TO THE AVAILABLE FAULT CURRENT, MINIMUM RATINGS HAVE BEEN SPECIFIED HEREIN FOR THE INDIVIDUAL OVERCURRENT DEVICE TYPES, AND OTHER ASSEMBLIES OF DEVICES. "SERIES CONNECTED RATINGS" WILL BE ACCEPTABLE FOR CIRCUIT BREAKER TYPE PANELBOARDS, THESE MINIMUM RATINGS ARE BASED ON THE USE OF UPSTREAM FUSES WHICH SHALL BE SPECIFICALLY TESTED WITH THE EC'S SELECTED CIRCUIT BREAKERS, AND SHALL BE U.L. LISTED ACCORDINGLY, PROVIDE THE ENGINEER ALL PERTINENT U.L. DOCUMENTATION AND ARRANGE TO REPLACE EXISTING SERVICE SWITCH FUSES AS REQUIRED TO OBTAIN REQUIRED SERIES RATING.
2. WHERE SUCH FUSE–CIRCUIT BREAKER SERIES RATINGS ARE NOT AVAILABLE FROM A PARTICULAR MANUFACTURER, A CURRENT LIMITING CIRCUIT BREAKER MAY BE UTILIZED AS THE UPSTREAM DEVICE IN ORDER TO OBTAIN THE REQUIRED SERIES RATED. SUCH CURRENT LIMITING BREAKERS SHALL BE INCORPORATED AS MAIN DEVICES IN THE PANELBOARDS, AS PART OF UPSTREAM PANELBOARDS, METERING ASSEMBLIES, OR AS INDIVIDUALLY MOUNTED DEVICES OR BUS DUCT PLUG–IN–DEVICES, AS THE CASE MAY BE. WHERE THE REQUIRED RATINGS CAN BE MET WITH MAIN OR UPSTREAM NON–CURRENT LIMITING BREAKERS HAVING APPROPRIATE INTERRUPTING CAPACITIES AS APPROVED BY U.L., SUCH ARRANGEMENTS WILL ALSO BE CONSIDERED ACCEPTABLE.

C. IN ADVANCE OF, OR IN CONJUNCTION WITH, THE SUBMISSION OF SHOP DRAWINGS FOR APPROVAL, PROVIDE DATA DEFINING IN DETAIL HOW THE REQUIRED SHORT CIRCUIT CURRENT RATINGS WILL BE ACHIEVED WITH THE EQUIPMENT BEING FURNISHED. THE DATA SHALL, IN NARRATIVE OR GRAPHIC FASHION, FULLY DEFINE HOW THE VARIOUS DEVICES, INDIVIDUALLY, OR IN COMBINATION WITH THE "FULLY RATED" OR "SERIES CONNECTED" SHORT CIRCUIT REQUIREMENTS. INCLUDE SPECIFICATIONS FROM MANUFACTURER AS TO THE U.L. APPROVALS FOR THESE RATINGS FOR ALL PROPOSED EQUIPMENT. ALL OVERCURRENT PROTECTION AND SWITCHING DEVICES SHALL BE U.L. LISTED AS SUITABLE FOR THE TERMINATION OF 75°C CONDUCTORS, SIZED IN ACCORDANCE WITH THEIR 75°C AMPACITY RATINGS. DEVICES SHALL BE SPECIFICALLY IDENTIFIED ACCORDINGLY AND SHALL BEAR THE DESIGNATION "60°/75°C" OR "75°C", REGARDLESS OF WHETHER INCORPORATED IN PANELBOARDS, SWITCHBOARDS, OR OTHER ASSEMBLIES OR WHETHER INDIVIDUALLY MOUNTED.

D. SELECT OVERCURRENT PROTECTION AND SWITCHING DEVICES AS FOLLOWS:

CATEGORY OF APPLICATION	ACCEPTABLE DEVICE TYPES (SEE LEGEND BELOW)
MAIN OR BRANCH UNIT IN DISTRIBUTION PANEL OR POWER PANEL	SW–QMQB/CF, EXCEPT, CLCB IF NEEDED IN ORDER TO MEET THE SPECIFIED SERIES CONNECTED RATING OF DOWNSTREAM LIGHTING OR PPLIANCE PANEL.
MAIN UNIT IN LIGHTING OR APPLIANCE PANEL	CB–SMC, EXCEPT CLCB OF NEEDED IN ORDER TO MEET SPECIFIED SERIES CONNECTED RATING OF THE PANEL.
BRANCH UNIT IN LIGHTING OR APPLIANCE PANEL	CB–SMC

E. EXPLANATION OF ABBREVIATIONS USED ABOVE IS AS FOLLOWS:

ABBREVIATION	DESCRIPTION
SW–BP	DISTRIBUTION SWITCH;BOLTED PRESSURE TYPE.
SW–QMQB	DISTRIBUTION SWITCH; QUICK–MAKE, QUICK–BREAK TYPE. /FUSIBLE––FUSED WITH.
CLCB–MC	CURRENT LIMITING CIRCUIT BREAKER; MOLDED CASE TYPE.

G. SELECT QUICK–MAKE, QUICK–BREAK TYPE DISTRIBUTION SWITCHES IN ACCORDANCE WITH THE FOLLOWING:

1. THEY SHALL EQUAL OR EXCEED THE PERFORMANCE REQUIRED FOR NEMA TYPE H.D HORSEPOWER RATED SWITCHES.

2. THEY SHALL HAVE ARC QUENCHERS AND CIRCUIT BREAKER TYPE PRESSURE CONTACTS.

3. WHERE INTENDED FOR PANELBOARDS OR SWITCHBOARD MOUNTING, THEY SHALL BE OF THE "BOLTED–IN" TYPE.

4. WHERE OF THE FUSIBLE TYPE. THEY SHALL BE DESIGNED FOR USE ONLY WITH CLASS "J" FUSES UP TO 600 AMPS, AND CLASS "L" FUSES ABOVE 600 AMPS, AND SHALL INCORPORATE FACTORY INSTALLED CLIPS DESIGNED TO INSURE THE USE OF PROPER FUSES. COORDINATE TO INSURE THAT FUSES SUPPLIED FOR THE PROJECT MATCH THESE FUSE GAPS.

H. SELECT CARTRIDGE FUSES IN ACCORDANCE WITH THE FOLLOWING:

1. REGARDLESS OF THE ACTUAL AVAILABLE FAULT CURRENT THEY SHALL, AT FULL RECOVERY VOLTAGE, BE CAPABLE OF SAFELY INTERRUPTING FAULT CURRENTS OF 200,000 AMPERES RMS SYMMETRICAL DELIVERABLE AT THE LINE SIDE OF THE FUSE.
2. EXCEPT AS NOTED HEREINAFTER, IN SIZES OVER 600 AMPS, THEY SHALL BE OF THE CURRENT LIMITING TYPE, U.L. LISTED AS "CLASS L".
3. THEY SHALL BE SUITABLE FOR APPLICATION TO FUSE GAPS WHICH REJECT OTHER TYPES OF FUSING. COORDINATE WITH SUPPLIER(S) OF ALL FUSIBLE SWITCH UNITS (IN PANELS, SWITCHBOARDS, ETC.) FOR THE PROJECT TO INSURE THAT FUSE GAPS MATCH THE SPECIFIED FUSE TYPES.

I. SELECT STANDARD, MOLDED CASE TYPE CIRCUIT BREAKERS IN ACCORDANCE WITH THE FOLLOWING:

1. THEY SHALL CONSIST OF MANUALLY OPERATED QUICK–MAKE, QUICK–BREAK MECHANICALLY TRIP FREE OPERATING MECHANISMS FOR SIMULTANEOUS OPERATION OF ALL POLES, WITH CONTACTS, ARC INTERRUPTERS AND TRIP ELEMENTS FOR EACH POLE, ALL ENCLOSED IN MOLDED PHENOLIC PLASTIC CASES.
2. THEIR TRIPPING UNITS SHALL BE OF THE "THERMAL MAGNETIC" TYPE HAVING BIMETALLIC ELEMENTS FOR TIME DELAY OVERLOAD PROTECTION, AND MAGNETIC ELEMENTS FOR SHORT CIRCUIT PROTECTION.
3. THEY SHALL BE MANUALLY OPERABLE BY MEANS OF TOGGLE TYPE OPERATING HANDLES HAVING "TRIPPED" POSITIONS MIDWAY BETWEEN THE "ON–OFF" POSITION.
4. THEY SHALL EACH BE CONTAINED IN AN INDIVIDUAL CASE ENCLOSING ONLY THE NUMBER OF POLES REQUIRED FOR THE PARTICULAR BREAKER.
5. WHERE NO FRAME SIZES ARE INDICATED, THEIR INTERRUPTING CAPACITIES (IN RMS SYMMETRICAL AMPERES) SHALL BE NOT LESS THAN THE FOLLOWING:

WHERE INSTALLED	INTERRUPTING CAPACITY
120/208V LIGHTING OR APPLIANCE PANEL	22,000A

6. WHERE FRAME SIZES ARE INDICATED, THE INTERRUPTING CAPACITIES SHALL BE NO LESS THAN THE FOLLOWING:

WHERE INDICATED FRAME SIZE	MINIMUM ACCEPTABLE SYMMETRICAL AMPERES INTERRUPTING RATING IN
100	22,000
225	22,000
400	42,000
600	42,000
800	42,000

7. THE MINIMUM INTERRUPTING CAPACITY IN SYMMETRICAL RMS AMPERES OF THE CIRCUIT BREAKERS INTENDED FOR USE IN PANELBOARDS SHALL BE AS NOTED ABOVE. WHERE NECESSARY IN ORDER TO PROVIDE THE U.L. APPROVED "SERIES CONNECTED" SHORT CIRCUIT PANEL RATINGS SPECIFIED ELSEWHERE, BREAKERS WITH HIGHER INTERRUPTING CAPACITIES SHALL BE PROVIDED AS REQUIRED.
8. WHERE NECESSARY TO ACCOMMODATE OTHER REQUIREMENTS (E.G., PANELBOARDS TO BE CONVERTIBLE TYPE), THEIR FRAME SIZES SHALL BE INCREASED TO CONFORM TO SUCH REQUIREMENTS, FRAME SIZES BEING INDICATED ONLY AS A REFERENCE TO THE MINIMUM ACCEPTABLE INTERRUPTING RATING NOTED ABOVE.
9. THEY SHALL HAVE INTERCHANGEABLE TRIPS IN ALL SIZES FOR WHICH SUCH TRIPS ARE MANUFACTURED AS STANDARD.
10. THEY SHALL BE EQUIPPED WITH AMBIENT TEMPERATURE COMPENSATING FEATURES EXTENDED TO 40°C.
11. THEY SHALL BE EQUIPPED WITH 5 MILI AMP SENSITIVITY GROUND FAULT INTERRUPTING FEATURES WHERE SO INDICATED, AND/ OR WHERE THEY SUPPLY STANDARD CONVENIENCE RECEPTACLES IN BATHROOMS AND OTHER SUCH CODE MANDATORY LOCATIONS.
12. WHERE SINGLE POLE IN TRIP SIZES 20 AMPS OR LESS, THEY SHALL BE RATED FOR SWITCH DUTY.

J. IF REQUIRED TO PROVIDE "SERIES CONNECTED" RATINGS (AS SPECIFIED ELSEWHERE) WHERE FUSE–BREAKER RATINGS HAVE NOT BEEN LISTED BY U.L., SELECTED MOLDED CASE TYPE CURRENT LIMITING CIRCUIT BREAKERS IN ACCORDANCE WITH THE FOLLOWING:
1. IN FRAME SIZES UP TO 400 AMPS, THEY SHALL EACH BE OF THE FUSE–LESS TYPE AND HAVE AN INTERRUPTING CAPACITY OF 200,000 AMPS SYMMETRICAL AT 120/208 (240) VOLTS.
2. IN FRAME SIZES LARGER THAN 400 AMPS, THEY SHALL EACH CONSISTING OF A MOLDED CASE CIRCUIT BREAKER WITH A CURRENT LIMITING FUSE CONNECTED IN EACH POLE, AS NOTED BELOW:
   a. THEIR FUSES SHALL BE EQUIPPED WITH RELEASE BUTTONS ARRANGED TO TRIP OPEN THE LATCHES OF THEIR CIRCUIT BREAKER ELEMENTS.
   b. SIZING OF THE FUSES SHALL BE AS DIRECTED.
   c. EACH SHALL HAVE ITS FUSES AND BREAKER ELEMENTS INTEGRALLY MOUNTED IN A SINGLE OVERALL MOLDED PHENOLIC PLASTIC CASE.
3. THEIR BREAKER ELEMENTS SHALL CONSIST OF MANUALLY OPERATED, QUICK–MAKE, QUICK–BREAK, MECHANICALLY TRIP FREE OPERATING MECHANISMS FOR SIMULTANEOUS OPERATION OF ALL POLES, WITH CONTACTS, ARC INTERRUPTERS AND TRIP ELEMENTS FOR EACH POLE.
4. THEIR BREAKER TRIPPING UNITS SHALL BE OF THE "THERMALMAGNETIC" TYPE HAVING BIMETALLIC ELEMENTS FOR TIME DELAY OVERLOAD PROTECTION, AND MAGNETIC ELEMENTS FOR SHORT CIRCUIT PROTECTION.
5. THEY SHALL BE MANUALLY OPERABLE BY MEANS OF TOGGLE TYPE OPERATING HANDLES HAVING "TRIPPED" POSITIONS MIDWAY BETWEEN THE "ON–OFF" POSITION.
6. THEY SHALL BE OF THE "BOLTED–IN" TYPE.
7. THEY SHALL HAVE INTERCHANGEABLE TRIPS.
8. THEY SHALL BE EQUIPPED WITH AMBIENT TEMPERATURE COMPENSATING FEATURES EXTENDED TO 40°C.

K. THE FUSE TO BE USED IN CURRENT LIMITING CIRCUIT BREAKER SHALL, REGARDLESS OF ACTUAL AVAILABLE FAULT CURRENT, AT FULL RECOVERY VOLTAGE, BE CAPABLE OF SAFELY INTERRUPTING FAULT CURRENTS IN THE ORDER OF 200,000 AMPERE RMS SYMMETRICAL OF 280,000 AMPERES RMS ASYMMETRICAL, THE CURRENT LIMITING FUSES SHALL COORDINATE WITH AND BACK UP THE CIRCUIT BREAKERS THEY ARE ASSOCIATED WITH SO THAT ALL FAULT OVERLOAD CURRENTS ACCRUING WITHIN THE SAFE CAPABILITY OF THE BREAKERS SHALL CAUSE THE BREAKERS TO OPEN, AND ALL CURRENTS OCCURRING BEYOND THE SAFE CAPABILITY OF THE BREAKERS SHALL CAUSE THE FUSES TO OPEN; THE OPENING OF THE FUSES BEING SUCH AS TO PREVENT DAMAGE TO ANY CIRCUIT BREAKER COMPONENT PARTS. WHERE DIRECTED, FUSES SHALL BE REDUCED IN SIZE SO AS TO PROVIDE BACKUP PROTECTION FOR DOWNSTREAM OVERCURRENT DEVICES.

L. ALL APPLICATIONS OF FUSES SHALL BE ON A "SINGLE FUSE PER PHASE LEG" (I.E., EXCLUDE FUSES IN MULTIPLE).

M. FUSES SHALL BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL.

N. WHERE THE SIZE OF THE OVERCURRENT PROTECTION AND SWITCHING DEVICES ARE INDICATED BY MEANS OF SINGLE NUMBER AMPERAGES, IT SHALL BE UNDERSTOOD THAT THESE AMPERAGES REPRESENT AS APPLICABLE THE SIZE OF THE TRIPS OF FUSES SUPPLIED IN THE SMALLEST CIRCUIT BREAKER FRAMES OR SWITCHES THAT WILL HOLD THEM.

O, FURNISHED AND DEPOSIT SPARE FUSES AT THE JOB SITE AS FOLLOWS:

1. THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF 60 AMPERES, USED FOR INITIAL FUSING.
2. TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60 AMPERES, USED FOR INITIAL FUSING. (IN NO CASE SHALL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED).

P. WHERE FUSES ARE REQUIRED TO BE INSTALLED IN FUSE GAPS WHICH ARE TOO LARGE OR ARE OTHERWISE NOT MATCHED TO THE FUSES, UTILIZE SINGLE STEP REDUCERS OR ADAPTORS TO ACCOMMODATE THE MOUNTING. IN ADDITION, PROVIDE CLIP CLAMPS TO ANCHOR THE REDUCERS OR ADAPTORS INTO THE FUSE GAPS.

Q. DISTRIBUTION SWITCHES OF THE QUICK–MAKE, QUICK–BREAK TYPE SHALL BE MANUFACTURED BY SIEMENS, GENERAL ELECTRIC, WESTINGHOUSE, OR SQUARE D OR OTHER APPROVED.

R. CIRCUIT BREAKERS SHALL BE MANUFACTURED BY WESTINGHOUSE, GENERAL ELECTRIC, SIEMENS, OR SQUARE D OR OTHER APPROVED.

S. FUSES SHALL BE MANUFACTURED BY BUSSMAN, OR GOULD–SHAWMUTT OR OTHER APPROVED.

11. SAFETY SWITCHES
A. SAFETY SWITCHES SHALL BE OF SIZE NOTED ON THE DRAWINGS, OR AS REQUIRED, FUSIBLE OR NON FUSIBLE AND EACH CONTAINED IN A GENERAL PURPOSE NEMA I ENCLOSURE WHEN INSTALLED INDOORS AND NEMA 3R ENCLOSURE FOR OUTDOOR INSTALLATION. ALL SWITCHES SHALL BE HEAVY DUTY TYPE AND SHALL HAVE QUICK MAKE QUICK BREAK MECHANISM
B. ALL SWITCHES SHALL BE OF PROPER HORSEPOWER RATING AS APPLICABLE AND HAVE DUAL INTERLOCKS DESIGNED TO INTERLOCK THE SWITCH BOX DOOR WITH THE SWITCH OPERATING MECHANISM.

12. GROUNDING
A. ALL ELECTRICAL WORK SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250
B. PROVIDE BOTH SYSTEM AND EQUIPMENT GROUNDING IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL INSPECTION AUTHORITIES: USE COPPER STRAPS, WIRES, AND CABLES BRAZED OR BOLTED TO CLAMPS, BUSHINGS, LUGS OR FITTINGS APPROVED FOR THE PURPOSE.
C. ALL ENCLOSURES AND OTHER NON CURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS AND EQUIPMENT GROUND BUSES SHALL BE EFFECTIVELY GROUNDED TO THE BUILDING GROUNDING SYSTEMS THROUGH THE SYSTEM GROUND CONDUCTORS, METALLIC CONDUITS AND OTHER RACEWAYS AND ENCLOSURES FOR CONDUCTORS SHALL BE METALLICALLY JOINED TOGETHER INTO A CONTINUOUS ELECTRICAL CONDUCTOR, AS TO PROVIDE EFFECTIVE ELECTRICAL CONTINUITY.
D. EQUIPMENT LOCATED REMOTELY FROM THE GROUND CONDUCTORS SHALL BE GROUNDED TO THE NEAREST AVAILABLE COLD WATER PIPING, MOTOR FRAMES SHALL BE GROUNDED THROUGH THEIR CONDUITS.

GENERAL:

A. ALL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH THE NEC, AND AS APPROVED BY THE AUTHORITY HAVING JURISDICTION
B. CONTRACTOR SHALL CHECK ALL EXISTING CONDITIONS IN THE FIELD. RELOCATE ALL EXISTING WIRING WHICH INTERFERES WITH NEW INSTALLATION AND MUST BE MAINTAINED.
C. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ADDITIONAL CONDUITS, CABLES AND PULL BOXES AS REQUIRED FOR ROUTING OF CONDUITS AND PULLING OF CABLES.
D. ELECTRICAL CONTRACTOR SHALL FILE AND OBTAIN AN APPROVED ELECTRICAL CERTIFICATE FROM THE BUILDING DEPT.
E. LOCATION OF ALL ELECTRICAL EQUIPMENT IS APPROXIMATE, EXACT LOCATION TO BE VERIFIED IN THE FIELD.
F. STUDY OTHER SECTIONS OF THE SPECIFICATIONS AND DRAWINGS COOPERATE WITH OTHER TRADES. COORDINATE WORK TO AVOID INTERFERENCES. WHEN IN DOUBT, CONSULT ENGINEER BEFORE PERFORMANCE.
G. PERFORM ALL NECESSARY CUTTING AND PATCHING. LEAVE PREMISES IN CONDITION SATISFACTORY TO THE ENGINEER/ARCHITECT.
H. OBTAIN PERMISSION OF ARCHITECT BEFORE CUTTING STRUCTURAL MEMBERS.
I. NOTIFY ENGINEER OF CONFLICTS BETWEEN DRAWINGS AND SPECIFICATIONS BEFORE BIDDING. THE ENGINEER'S DECISION WILL GOVERN EITHER BEFORE OR AFTER BIDDING.
J. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC EXCEPT WHERE DIMENSIONED. DO NOT SCALE. FOLLOW ARCHITECTURAL, STRUCTURAL AND MANUFACTURER'S SHOP DRAWINGS FOR GREATER ACCURACY. CONSULT ENGINEER IN CASE OF DOUBT OR CONFLICT. UNLESS NOTED, FIXED DIMENSIONS ARE BASED ON THE PRODUCT OF ONE MANUFACTURER, VERIFY DIMENSIONS WITH THE PRODUCT OF THE SHOP DRAWINGS OF THE MATERIALS ACTUALLY APPROVED OR PURCHASED. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL COST AND DELAYS IN THE WORK RESULTING FROM SUBSTITUTION UNDER THIS DIVISION; INCLUDING, BUT NOT LIMITED TO, ANY CHANGES IN DECISION, INSTALLATION,
K. EQUIPMENT, SUCH AS PANELS, JUNCTION BOXES, SAFETY SWITCHES, MOTOR STARTERS, CIRCUIT BREAKERS, AND SIMILAR ITEMS SHALL BE IDENTIFIED BY NAME, WITH ENGRAVED LAMINATED PHENOLIC NAMEPLATES NOT SMALLER TAN 1" X 3" WITH CHARACTERS NOT LESS THAN 1/2" AND FASTENED WITH COUNTER OVAL HEAD BRASS MACHINE SCREWS OR RIVETS. 18. TELEPHONE & SIGNAL REQUIREMENTS
L. EMPTY CONDUIT SHALL BE OF SIZE INDICATED AND STUB UP 6" ABOVE HUNG CEILING FROM OUTLET BOX.
M. CONDUIT SHALL BE 1/2" MIN. UNLESS OTHERWISE NOTED.
N. COLOR, FINISH AND TYPE OF PLATES SHALL BE APPROVED BY THE ARCHITECT PRIOR TO PURCHASE.
O. ALL CUTTING PATCHING AND FIRE–STOPPING REQUIRED FOR WORK OF THIS DIVISION IS INCLUDED HEREIN. COORDINATION WITH GENERAL CONTRACTOR AND OTHER TRADES IS IMPERATIVE. CONTRACTOR SHALL BEAR THE RESPONSIBILITY FOR AND THE ADDED EXPENSE OF ADJUSTING FOR IMPROPER HOLES, SUPPORTS, ETC.
P. THE CONTRACTOR SHALL FURNISH THE ENGINEER TWO SETS OF AS BUILT DRAWINGS IN HARD COPY AND ACAD 2016 FOR REVIEW AND APPROVAL. AFTER THE ENGINEERS APPROVAL OF THE DRAWINGS, THE CONTRACTOR SHALL FURNISH THE OWNER WITH ACAD 2016 AND REPRODUCIBLE SETS OF THE SAME FOR HIS RECORDS. THE AS–BUILT DRAWINGS SHALL SHOW THE FOLLOWING INFORMATION:
   1. LOCATION OF ALL RECEPTACLES, SWITCHES AND LIGHTING FIXTURES.
   2. LOCATION OF JUNCTION BOXES, PULL BOXES AND PANELS.
   3. LOCATION (ROUTING) OF ALL BRANCH CIRCUITS AND PANELS.
   4. DESIGNATION OF ALL BRANCH CIRCUITS.
   5. WIRE SIZES WHERE WIRE LARGER THAN #12 AWG IS USED.
   6. CONDUIT SIZE
   7. LOCATION OF ALL FIRE ALARM DEVICES.
   8. FIELD ANNOTATED (CORRECTED) CONTRACT DRAWINGS ARE NOT ACCEPTABLE AS "AS–BUILT" OR "SHOP DRAWINGS".
T. IN THE EVENT OF ANY CONFLICT BETWEEN INFORMATION ON THE DRAWINGS AND INFORMATION ON THE SPECS, THE MOST COSTLY ALTERNATIVE WILL GOVERN.

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE

252 East Avenue
Norwalk, CT 06855
(203) 866–4626 Tel
(203) 866–8019 Fax

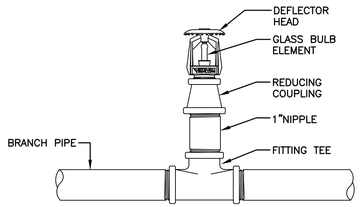
LFG
LANDMARK
FACILITIES
GROUP, INC.

WARDE FAIRFIELD HIGH SCHOOL
.
, FAIRFIELD, CT

SCALE: AS NOTED
DATE: 7/16/21
APPROVED BY:
DRAWN BY: LC
CHECKED BY: RS

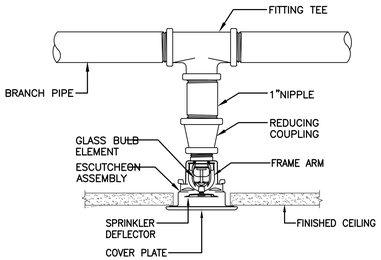
ELECTRICAL
SPECIFICATIONS

FILE NAME: \DIR\DWG
JOB NUMBER: .
DRAWING NUMBER: E–200



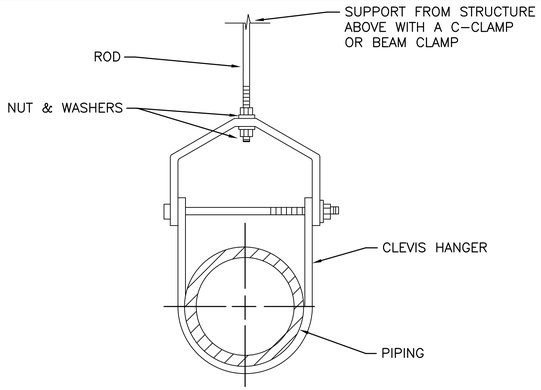
UPRIGHT SPRINKLER HEAD DETAIL

NO SCALE



CONCEALED SPRINKLER HEAD DETAIL

NO SCALE



TYP. PIPE HANGER

NO SCALE

PIPING AND MATERIALS SCHEDULE

PIPING SYSTEM	SIZE RANGE	PIPE MATERIALS	JOINTS	FITTINGS	INSULATION	SHUTOFF VALVES
WET PIPING	2" & SMALLER	STEEL, SCH 40, ASTM A53/A53M	THREADED	150# MALLEABLE-IRON	NA	NA
WET PIPING	2 1/2" & LARGER	STEEL, SCH 40, ASTM A53/A53M	GROOVED	VICTAULIC STYLE 77	NA	NA

NOTES:
REFER TO SPECIFICATIONS ON DRAWING FOR ADDITIONAL DETAILS

SPRINKLER LEGEND

	DRAIN PIPING
SPK	WET SPRINKLER PIPING
	EXISTING PIPING TO REMAIN
	EXISTING PIPING TO BE REMOVED
	DIRECTION OF FLOW
	BOTTOM OF PIPE TAKE-OFF CONNECTION
	PIPE RISE OR UP THRU SLAB
	PIPE DROP OR DOWN THRU SLAB
	TOP OF PIPE TAKE-OFF CONNECTION
	DIRECTION OF FLOW
	NIPPLE & CAP AUXILIARY DRAIN
	PRESSURE GAUGE
	UNION
	TEST VALVE & DRAIN
	OUTSIDE SCREW & YOKE VALVE (OS&Y)
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	PRESSURE REDUCING VALVE
	OUTSIDE SCREW & YOKE (OS&Y) W/ TAMPER SWITCH
	CHECK VALVE
	HOSE VALVE
	FLOW SWITCH
	TAMPER SWITCH
	POINT OF NEW CONNECTION TO EXISTING
TYP	TYPICAL

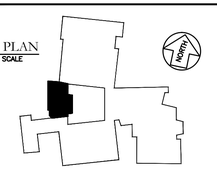
SPRINKLER PIPE SIZING

1. BRANCH PIPE SIZING AS FOLLOWS:

1 SP. HEAD	1"
2 SP. HEAD	1"
3 SP. HEAD	1 1/4"
4 SP. HEAD	1 1/2"
5 SP. HEAD	1 1/2"
6 SP. HEAD	2"
|	|
10 SP. HEAD	2"
11 SP. HEAD	2 1/2"

REV	DATE	DESCRIPTION
-	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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WARDE FAIRFIELD HIGH SCHOOL
.
, FAIRFIELD, CT

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: AD
DATE: 7/16/21		CHECKED BY: RS

FIRE PROTECTION
NOTES AND DETAILS

FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\DWG	.	FP-001

1. GENERAL:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.

C. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM BUILDING OWNER AND TENANT AT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.

D. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. PIPE ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF PIPE TO AVOID OBSTRUCTIONS. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.

E. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

F. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP THE WORK PROPOSAL.

G. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION.

H. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

I. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

J. THE LOCATIONS OF THE EXISTING SERVICES ARE BELIEVED TO BE AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION OF THESE SERVICES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING ANY WORK.

K. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH NON-SHRINKING FIRE PROOF CAULKING OR OTHER NON COMBUSTIBLE MATERIAL.

L. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPING AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS REQUIRED.

M. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

N. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

O. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.

P. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

Q. UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

R. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

S. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING PIPE SIZES, CLEARANCES, ETC. AND CONDITIONS.

T. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

U. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

2. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE INTERNATIONAL BUILDING CODE NFPA 13 AND ALL OTHER APPLICABLE NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS HEREIN SPECIFIED.

B. THE BASE BUILDING DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

3. SHOP DRAWINGS

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT PROVIDE COMPLETE SET OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1. PROJECT NAME AND LOCATION
2. NAME OF ARCHITECT AND ENGINEER
3. ITEM IDENTIFICATION
4. APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

1. SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT THE ORIGINAL AND ONE COPY TO THE ENGINEER. SIMULTANEOUSLY SUBMIT ONE COPY TO THE ARCHITECT. ALL CATALOG CUTS SHALL BE COMPLETE.

2. SUBMISSIONS LARGER THAT 11 IN. X 17 IN.: SUBMIT TWO PRINT AND ONE REPRODUCIBLE TO THE ENGINEER. SIMULTANEOUSLY SUBMIT ONE PRINT TO THE ARCHITECT.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1. PIPE AND FITTINGS
2. SPRINKLER HEADS
3. PIPING HEADS
4. HYDRAULIC CALCULATIONS
5. SUPPORTS, HANGERS AND GUIDES

4. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

5. GENERAL PROVISIONS FOR FIRE PROTECTION WORK:

A. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

B. DEFINITIONS:

1. "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2. "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

3. "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4. "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

5. "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

6. "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

7. "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

C. QUALITY ASSURANCE

1. QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS LABORATORIES, INC., OR BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2. GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF WORK.

D. PRODUCT DELIVERY, STORAGE AND HANDLING

1. MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2. ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED. CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW.

E. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED. CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

F. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

G. SPRINKLER SYSTEM DESIGN CRITERIA:

1. LIGHT HAZARD OCCUPANCIES: 196 SQ FT/HEAD MAXIMUM COVERAGE; 0.10 GPM/SQ FT DENSITY OVER THE MOST REMOTE 1,500 SQ FT OF THE SYSTEM.

2. ORDINARY HAZARD OCCUPANCIES: 130 SQ FT/HEAD MAXIMUM COVERAGE; 0.16/SQ FT DENSITY OVER THE MOST REMOTE 1,500 SQ FT OF THE SYSTEM.

6. PRODUCTS:

A. ESCUTCHEONS:

1. ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, PARTITIONS AND CEILINGS SHALL BE PROVIDED WITH CHROME PLATED CAST BRASS ESCUTCHEONS HELD IN PLACE WITH SET SCREWS.

7. PIPE AND FITTINGS:

A. SCHEDULE 40 STANDARD WEIGHT BLACK STEEL PIPE, WELDED OR SEAMLESS, WITH STANDARD FLAT AND THREADED MALLEABLE IRON COUPLINGS OR RIGID ROLLED GROOVE STANDARD WEIGHT MECHANICAL COUPLINGS.

B. SCHEDULE 10 LIGHT WEIGHT BLACK STEEL PIPE, WELDED OR SEAMLESS, WITH RIGID GROOVE STANDARD WEIGHT MECHANICAL COUPLINGS.

C. THE FOLLOWING PRODUCTS ARE NOT ACCEPTABLE:

1. FIT PIPING SYSTEM.
2. PLAIN END PIPING SYSTEM.
3. BOLTLESS COUPLINGS.
4. HOOKER FITTINGS.

D. ACCEPTABLE MANUFACTURERS: VICTAULIC CO., STOCKHAM.

8. SPRINKLER HEADS:

A. 1. GENERAL: ALL SPRINKLERS SHALL BE NEW AUTOMATIC TYPE, UPRIGHT, CONCEALED PENDENT OR SIDEWALL TO MEET CONDITIONS AND PROPER TEMPERATURE RATING. DEFLECTOR TO BE MARKED TO INDICATE POSITION.

B. 1. SPRINKLER HEADS

A. SHALL MATCH EXISTING RATING AND TYPE, BUT IN NO CASE BE LESS THAN STANDARD REQUIRED TYPE BY NFPA 13.
B. CONCEALED TYPE TYCO MODEL QUICK RESPONSE TYPE SPRINKLER HEAD WITH COVER PLATE. ORDINARY TEMPERATURE RATING (135'F/165'F), 5.6 K-FACTOR AND, 1/2" ORIFICE, COLOR WHITE COVER PLATE.
C. UPRIGHT TYPE TYCO BRONZE WITH GLASS BULB.
D. SIDEWALL TYPE TYCO HSW WITH WALL FLANGE

HEAD GUARDS: AS REQUIRED FOR HEADS SUBJECT TO MECHANICAL INJURY.

SPARE HEADS: NOT LESS THAN 12. TOTAL NUMBER BASED ON ONE SPARE HEAD OF EACH TYPE.

SPARE HEAD CABINET: BAKED ENAMELED STEEL CABINET, HINGED COVER, OF ADEQUATE SIZE TO CONTAIN HEADS AND WRENCH

HEAD WRENCH: PROVIDE AT LEAST ONE,WITH SUITABLE OPENINGS.

B. INSTALLATION:

1. COORDINATE SPRINKLER HEAD LOCATIONS WITH THE CEILING GRID, LIGHT FIXTURES, DIFFUSERS, AUDIO EQUIPMENT AND ALL OTHER COMPONENTS OF THE REFLECTED CEILING PLAN.

2. INSTALL SPRINKLER HEADS IN THE CENTER OF CEILING TILES AND IN A TRUE AXIS LINE IN BOTH DIRECTIONS WITH A MAXIMUM DEVIATION OF 1/2 IN. PLUS OR MINUS FROM THE AXIS LINE AS ESTABLISHED BY THE ARCHITECT FOR USE OF ALL TRADES. AT THE COMPLETION OF THE INSTALLATION, REMOVE AND REINSTALL ANY HEADS FOUND TO EXCEED THE ABOVE MENTIONED TOLERANCE. INSTALL FLUSH PLATE SPRINKLER HEADS WITHIN MANUFACTURE'S TOLERANCES. PRIOR TO INSTALLATION OF FLUSH PLATES, NOTIFY ARCHITECT AND CONSULTING ENGINEER FOR VERIFICATION OF INSTALLATION. ANY HEADS FOUND OUT OF TOLERANCE SHALL BE REMOVED AND REINSTALLED.

9. PIPING SUPPORTS:

A. SUPPORT ALL PIPING FROM BUILDING CONSTRUCTION BY PROVIDED INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), AND ACCEPTABLE BRACKETS. SUBMIT ALL METHODS FOR REVIEW.

B. PROVIDE ADDITIONAL FRAMING WHERE BUILDING CONSTRUCTION IS INADEQUATE. SUBMIT FOR REVIEW.

C. SUSPENDED HORIZONTAL PIPING:

1. SUPPORT ALL PIPING INDEPENDENTLY FROM STRUCTURE USING HEAVY IRON-HINGED TYPE HANGERS, SIMILAR TO GRINNELL CLEVIS NO. 260.

2. PROVIDE ELECTROPLATED SOLID BAND HANGERS SIMILAR TO AUTO-GRIP, FOR TWO-INCH AND SMALLER PIPE.

3. PROVIDE WALL BRACKETS FOR WALL SUPPORTED PIPING AND PROVIDE PIPE SADDLES FOR FLOOR MOUNTED PIPING.

4. SUSPEND PIPING FROM INSERTS, USING BEAM CLAMPS WITH RETAINING CLAMP OR LOCKNUT, STEEL FISHPLATES, CANTILEVER BRACKETS OR OTHER ACCEPTED MEANS. BEAM CLAMPS SHALL BE SIMILAR TO GRINNELL FIGURES 61, 87, 131, OR 225.

5. SUSPEND PIPING BY RODS WITH DOUBLE NUTS.

6. PROVIDE ADDITIONAL STEEL FRAMING AS REQUIRED AND ACCEPTED WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING HANGER RODS IN REQUIRED LOCATIONS.

7. MAXIMUM HANGER SPACING AS INDICATED.

a. PIPE 1 INCH AND SMALLER SHALL BE EVERY 8 FEET.

b. PIPE 1-1/4 INCH AND LARGER SHALL BE EVERY 10 FEET.

8. VERTICAL PIPING:

a. PROVIDE EXTENSION PIPE CLAMPS BOLTED TO BARE PIPE ON EACH SIDE AND BEARING EQUALLY ON STRUCTURE OR WELDED TO BEAM.

b. PROVIDE SPACING AS INDICATED.

1.) THREADED AND PIPING GROOVED PIPING SHALL BE EVERY OTHER FLOOR LEVEL, AT MAXIMUM OF 25 FEET ON CENTERS.

D. EXPANSION ANCHORS:

1. PROVIDE SMOOTH WALL, NON-SELF-DRILLING INTERNAL PLUG EXPANSION TYPE ANCHORS CONSTRUCTED OF AISC 12L14 STEEL AND ZINC PLATED IN ACCORDANCE WITH FED. SPEC. 11-A-325 TYPE 1, CLASS 3.

2. DO NOT EXCEED 1/4 OF AVERAGE VALVES FOR A SPECIFIC ANCHOR SIZE USING 2000 PSIG (13,800 KPA) CONCRETE ONLY, FOR MAXIMUM WORKING LOADS.

3. PROVIDE SPACING AND INSTALL ANCHORS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

4. EXPANSION ANCHORS SHALL BE U.L. LISTED AND SIMILAR TO HILTI HDI.

10. INSTALLATION:

A. DURING CONSTRUCTION, PROPERLY CAP ALL LINES AND EQUIPMENT NOZZLES SO AS TO PREVENT THE ENTRANCE OF DIRT, DEBRIS, ETC.

B. EACH SYSTEM OF PIPING SHALL BE FLUSHED (FOR THE PURPOSE OF MOVING DIRT, DEBRIS, ETC., FROM THE PIPING) FOR AS LONG A TIME AS IS REQUIRED TO THOROUGHLY CLEAN THE SYSTEM.

11. TESTS:

A. FIRE PROTECTION SYSTEM PIPING SHALL BE TESTED HYDROSTATICALLY AT A PRESSURE OF 200 PSI FOR A DURATION OF TWO HOURS WITHOUT A LOSS IN PRESSURE.

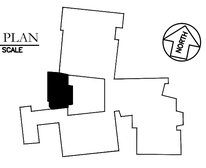
B. DEFECTS DISCLOSED BY THE TESTS SHALL BE REPAIRED OR REPLACED TESTS SHALL BE REPEATED AS DIRECTED UNTIL ALL WORK IS PROVEN SATISFACTORY.

C. TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO THE BUILDING AND ITS CONTENTS AS A RESULT OF SUCH TESTS. REPAIR ANY DAMAGE CAUSED.

D. ARRANGE AND COORDINATE TESTS WITH OWNER 48 HOURS IN ADVANCE. NOTIFY ENGINEER AND ARCHITECT OF TEST DATE AND TIME.

REV	DATE	DESCRIPTION
-	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



252 East Avenue
Norwalk, CT 06855
(203) 866-4626 Tel
(203) 866-8019 Fax

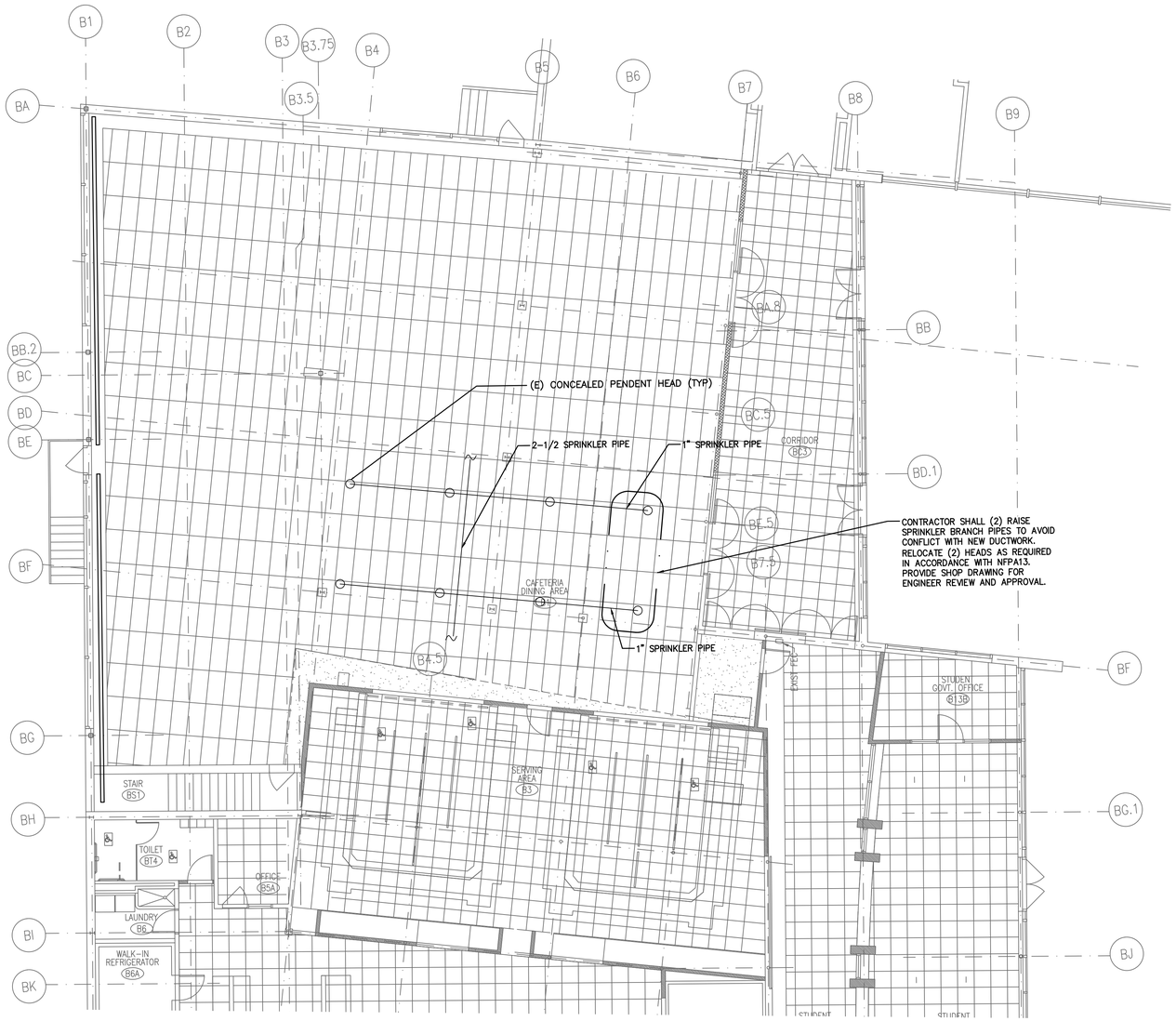
LFG
LANDMARK FACILITIES GROUP, INC.

WARDE FAIRFIELD HIGH SCHOOL
.
, FAIRFIELD, CT

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: AD
DATE: 7/16/21		CHECKED BY: RS

FIRE PROTECTION SPECIFICATIONS

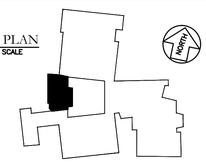
FILE NAME:	JOB NUMBER:	DRAWING NUMBER:
\DIR\.DWG	.	FP-002



01 PROPOSED FIRE PROTECTION FIRST FLOOR PLAN
1/8" = 1'-0"

REV	DATE	DESCRIPTION
–	11-12-21	ISSUED FOR BID

KEY PLAN
NO SCALE



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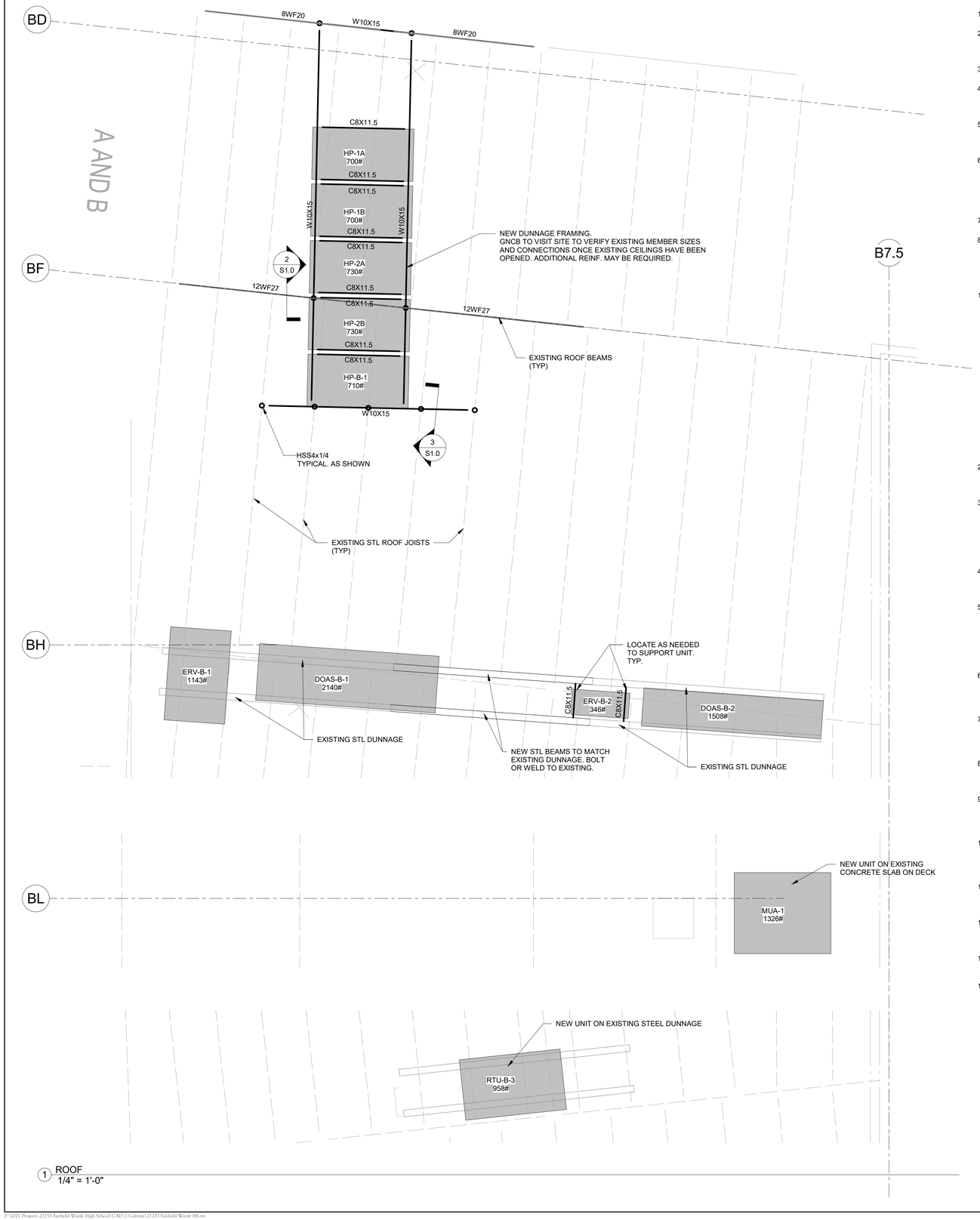
LANDMARK
FACILITIES
GROUP, INC.

WARDE FAIRFIELD HIGH SCHOOL
·
, FAIRFIELD, CT

SCALE: AS NOTED	APPROVED BY:	DRAWN BY: AD
DATE: 7/16/21		CHECKED BY: RS

FIRE PROTECTION
FIRST FLOOR

FILE NAME: \DIR\DWG	JOB NUMBER: ·	DRAWING NUMBER: FP-100



1 ROOF
1/4" = 1'-0"

GENERAL

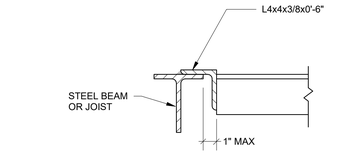
1. 2018 STATE OF CONNECTICUT STATE BUILDING CODE AND SUPPLEMENT.
2. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING AND BRACING TO MAINTAIN THE STABILITY, SAFETY, AND LATERAL LOAD RESISTANCE OF THE BUILDING AND ITS INDIVIDUAL COMPONENTS THROUGHOUT CONSTRUCTION.
3. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST ARCHITECTURAL DRAWINGS.
4. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES. OPENINGS NOT SPECIFICALLY SHOWN SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER.
5. FOR RENOVATIONS AND ADDITIONS, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AND NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES PRIOR TO PERFORMING WORK.
6. DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE GENERALLY OBTAINED FROM THE ARCHITECT AND ARE INCLUDED AS INFORMATION COMPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. LAYOUT OF BUILDING FOUNDATIONS OR OTHER ITEMS MAY BE MADE USING THE DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ONLY IF THE CONTRACTOR HAS COMPARED THESE DRAWINGS WITH THE ARCHITECTURAL DRAWING AND HAS RECEIVED CLARIFICATION, FROM THE ARCHITECT, REGARDING ANY ERRORS, INCONSISTENCIES, OR OMISSIONS.
7. DO NOT SCALE DRAWINGS TO OBTAIN INFORMATION.
8. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR WATER/DAMP-PROOFING AND FIREPROOFING REQUIREMENTS.

STEEL

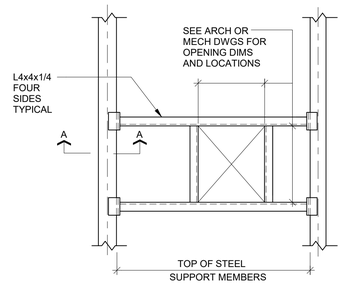
1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS NOTED OTHERWISE ON THE DRAWINGS:

ROLLED WIDE FLANGE SECTIONS:	ASTM A572 OR A992, GRADE 50
ALL OTHER ROLLED SECTIONS:	ASTM A36
TUBULAR SECTIONS:	ASTM A500, GRADE B
PIPE SECTIONS:	ASTM A53, GRADE B
ANCHOR RODS:	ASTM F1554, GRADE 55
MOMENT FRAME CONNECTION PLATES:	ASTM A572, GRADE 50
MISC. PLATES AND CONNECTION MATERIALS:	ASTM A36

2. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC SPECIFICATION FOR STRUCTURAL STEEL
3. GRAVITY CONNECTIONS: CONNECTIONS NOT OTHERWISE DETAILED SHALL BE DOUBLE ANGLE FRAMED CONNECTIONS OR SEATED CONNECTIONS WITH TOP CLIP ANGLE STABILIZER. ALL BEAM TO COLUMN CONNECTIONS ARE TO BE MADE WITH HIGH STRENGTH BOLTS. ALL CONNECTIONS SHALL BE DESIGNED TO RESIST 50% OF THE MAXIMUM ALLOWABLE UNIFORM LOAD CAPACITY (70% FOR COMPOSITE BEAM) UNLESS OTHERWISE NOTED ON THE DRAWINGS.
4. WIND/SEISMIC CONNECTIONS: LATERAL LOAD CONNECTIONS INDICATED ON THE DRAWING ARE IN ADDITION TO THE GRAVITY CONNECTIONS REQUIRED.
5. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE CURRENT SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS AS ENDORSED BY AISC. ALL BEAM TO COLUMN CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH BOLTS AND SHALL BE FULLY TENSIONED. ALL OTHER HIGH STRENGTH BOLTED CONNECTIONS MAY BE SNUG TIGHT UNLESS NOTED AS SLIP CRITICAL ON DRAWING.
6. THE STRUCTURAL STEEL FABRICATOR SHALL SUBMIT CALCULATIONS FOR EACH TYPE OF CONNECTION UTILIZED ON THE PROJECT. CONNECTIONS SPECIFICALLY DETAILED ON STRUCTURAL DRAWINGS ARE EXCLUDED FROM THIS REQUIREMENT.
7. CALCULATIONS SHALL BE PREPARED BY A REGISTERED PROFESSIONAL ENGINEER. CONNECTIONS INCLUDE, BUT ARE NOT LIMITED TO, GRAVITY FRAME CONNECTIONS, MOMENT CONNECTIONS, AND BRACED FRAMING CONNECTIONS.
8. UNLESS SPECIFICALLY NOTED, STEEL DETAILS SHOWN ON THE DRAWINGS ARE FOR CONCEPT ONLY AND DO NOT INDICATE THE REQUIRED NUMBER OF BOLTS, SIZE OF WELD, ETC.
9. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY (AWS) STRUCTURAL WELDING CODE - STEEL D1.1, LATEST EDITION. USE E70XX ELECTRODES UNLESS NOTED OTHERWISE.
10. ALL STEEL DECK SHALL BE DETAILED, ERECTED AND FASTENED IN ACCORDANCE WITH THE MANUFACTURER'S SUGGESTED SPECIFICATIONS AND THE CURRENT STEEL DECK INSTITUTE SPECIFICATIONS.
11. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES, AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
12. STEEL JOISTS AND BRIDGING SHALL BE DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH STEEL JOIST INSTITUTE, SJI, SPECIFICATIONS.
13. STEEL JOISTS AND BRIDGING SHALL BE DESIGNED FOR A MIN NET UPLIFT OF 15 PSF U.N.O.
14. ALL STEEL EXPOSED TO WEATHER, INCLUDING LINTELS IN EXTERIOR WALLS SHOULD BE HOT DIP GALVANIZED U.NO.

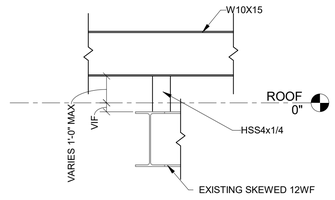


SECTION A

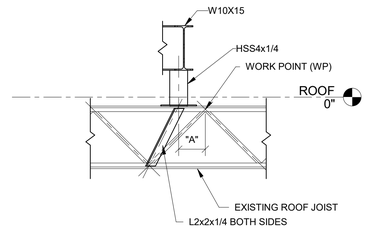


PLAN

TYPICAL WELDED ANGLE FRAME DETAIL FOR ROOF OPENINGS



2 SECTION @ DUNNAGE SUPPORT OVER STL BEAM
3/4" = 1'-0"



NOTES:
1. WHEN DIMENSION "A">4" REINFORCE JOIST TOP CHORD AS SHOWN.
2. WELD REINF ANGLES IN PLACE. WELD SIZE AND LENGTH TO BE DETERMINED BY FIELD CONDITIONS.

3 SECTION @ DUNNAGE SUPPORT OVER STL BAR JOIST
3/4" = 1'-0"

GNCB
Consulting Engineers, P.C.
1358 BOSTON POST ROAD
POST OFFICE BOX 802
OLD SAYBROOK
CONNECTICUT 06475
PHONE: 860 388 1224
GNCBENGINEERS.COM

No.	DESCRIPTION	DATE

ISSUED DRAWINGS

NOTES:

FAIRFIELD WARDE
HIGH SCHOOL

755 MELVILLE AVE
FAIRFIELD, CT

ROOF PLAN, NOTES,
AND DETAILS

SCALE:	As indicated
PROJECT NUMBER:	21253
DATE:	11/17/21
DRAWN BY:	RC
CHECKED BY:	

S1.0

Fairfield Public Schools

FY 2021 - 2022

Third Quarter Financial Report as of March 31, 2022

Summary

Overall, we are projecting a surplus of $432,200, representing about 0.23% of the overall education budget. This assumes that the schools spend the full balance of the school accounts, all full-time staff remain employed until year end, the insurance trends as is with no major life event changes, the remaining contracts in special education are billed, and that we have a small balance in support expenses. The main driver for the balance is the net result of higher than anticipated attrition, including a greater number of retirees, as well as vacant positions mainly in the paraeducator title. This results in a balance in the insurance accounts, as well. The surplus in personnel and benefits offsets the need in special education. There are minor additional balances in support expense (lower than projected employee reimbursed tuition, magnet school tuition) and operations, mainly due to lower projected electricity usage. This will be refined as we receive the final quarter bills.

Personnel Services

The Personnel category includes all full and part time staff, to include substitutes, extracurricular staffing, and interns. The staffing projection accounts for all steps and anticipated changes (such as degree changes and union settlements). Staffing is projected at current staff levels plus an assumption about vacancies. The balance in personnel services of $1,391,018 is mainly due to the staff replacement category (attrition) a surplus in the intern program.

Fixed Charges

The largest cost of the fixed costs, health insurance, is based on single, two-person and family rates, and depends on the election for each employee. Staff turnover and life events will alter costs. This is monitored on a monthly basis and will be reported each quarter. With the current vacancies the projected balance is estimated at $1,035,933.

Pupil Personnel Expenses

All special education costs are included in this category except for salaries and capital. The projection includes all anticipated outplacement costs and settlement agreements, related service needs, and the projected corresponding revenues - Medicaid, Excess Cost, and IDEA funds. The initial excess cost reimbursement, which will be received in February, is based on service costs filed in December. The SPED expense balance of ($3,072,872) is due to higher than predicted need for services, including settlements, outplacements, nursing and evaluations.

School Expenses

These expenditures support instruction and activities at the building level and include supplies, materials, textbooks, copying, sports and other activities. We are currently projecting that schools will utilize the full budget with the exception of copying, which is the source of the $26,564 balance.

Support Expenses

Program implementation centrally funded instructional programs, non-special education tuition and central support operations are included here. There is $242,687 projected savings in this category, mainly due to lower than anticipated payment for tuition to the magnet schools, based on the 10/1 enrollment. The prior estimate did not include the anticipated billing; this is reflected here. In addition, there were products budgeted for remote learning that will not require purchase, as well as $11,341 in copier charges that will be saved based on lower usage. The lower usage is reflected in the upcoming FY2022-23 budget.

Maintenance/Operation/Transportation

Nearly $4.4 million is budgeted in this category for utilities, but we typically hold this flat until we receive the first winter heating bills. As of the end of Q3 we had only received invoices through February, and the heating season is current. Electric and heating generation rates were budgeted at contractual rates for the entire fiscal year. However, the contract was discontinued in January and the distribution and transportation charges for these utilities are not contracted and remain variable as is usage. This will be updated in the Q4 report; any surpluses will be utilized to offset other gaps within maintenance, if needed..

Capital

The largest portion of the capital budget is for technology equipment, and almost 85% of that budget has been expended. There is an additional $390,000 budgeted for school and department equipment replacement which is expended based on need, however, the majority of equipment purchases are deferred until the spring and are being purchased now.

Submitted: May 5, 2022
Courtney LeBorious

Fairfield Public Schools Statement of Account

Fiscal Year 2021-2022 by Major Classification, Balances as of 3/31/2022 (SUMMARY)

	A	B	C	E	F	G	H	I	J
Projected Balance	**Q1**	**Q2**	**Q3**	**Q4**	**Transfers**	**Year End**	**Approp. as Adopted**	**Transfers**	**Approp. as Amended**
Personnel Services	454,335	1,389,796	1,391,018				119,368,059	30,324	119,398,383
Fixed Charges	361,052	746,524	1,035,933				33,157,777	-	33,157,777
Pupil Personnel	(2,289,760)	(2,879,319)	(2,537,099)				15,113,836	-	15,113,836
School Expense	41,525	24,447	26,564				2,655,623	(716)	2,654,907
Support Expense	314,049	101,246	242,687				4,618,003	(37,215)	4,580,788
Maint/Oper/Trans	196,835	224,557	292,618				15,628,054	2,100	15,630,154
Capital	41,280	392,749	(19,521)				1,542,868	5,507	1,548,375
Total	**(880,683)**	**0**	**432,200**	**-**	**-**	**-**	**192,084,220**	**-**	**192,084,220**

	A	B	C	E	F	G	H	I	J
Unencumbered Balance	**Q1**	**Q2**	**Q3**	**Q4**	**Transfers**	**Year End**	**Approp. as Adopted**	**Transfers**	**Approp. as Amended**
Personnel Services	5,962,233	4,043,138	2,477,974				119,368,059	30,324	119,398,383
Fixed Charges	23,071,028	15,542,489	7,793,867				33,157,777	-	33,157,777
Pupil Personnel	(2,445,761)	(6,124,984)	(2,351,585)				15,113,836	-	15,113,836
School Expense	1,821,134	1,276,077	611,048				2,655,623	(716)	2,654,907
Support Expense	1,895,237	1,248,538	669,677				4,618,003	(37,215)	4,580,788
Maint/Oper/Trans	6,120,072	4,196,353	2,213,867				15,628,054	2,100	15,630,154
Capital	686,756	523,699	230,509				1,542,868	5,507	1,548,375
Total	**37,110,697**	**20,705,308**	**11,645,357**	**-**	**-**	**-**	**192,084,220**	**-**	**192,084,220**

Statement of Account
Fairfield Public Schools
Fiscal Year 2021-2022
Summary by Major Classification, Balances as of 3/31/2022 Q3 Projection

	MAJOR CLASSIFICATION	BUDGET 2021-2021	PROJECTED (a/o 9/30/2021)	PROJECTED (a/o 1/6/2022)	PROJECTED (a/o 03/29/2022)	Comments	
	PERSONNEL SERVICES						
1	Salaries / Staff Replacement	114,169,495	571,797	1,270,486	1,341,572		PER
2	Substitutes (Includes Clerical Subs)	1,649,833	(125,021)		(89,769)		PER
3	Sped Substitutes	332,150	(11,740)		120,502		PER
4	Degree Changes	54,694	20,423	20,567	54,694		PER
5	Custodial OT	400,000	-	-	-		PER
6	Interns	346,800	144,927	116,700	110,428		PER
7	Sped Summer Scl Sal / Clerical Ext / Interns	390,000	(127,969)	(25,722)	(102,802)		PER
8	Cmnty, Dept Liais/Mentor/Securit /Extra Cur	1,722,092	(25,847)	-	(30,462)		PER
9	Wage & Benefit	333,319	7,765	7,765	(13,145)		PER
10	**Total Personnel Services**	**$ 119,398,383**	**$ 454,335**	**$ 1,389,796**	**$ 1,391,018**		
	FIXED CHARGES						
11	Life Insurance / Disability	296,620	11,645	9,524	10,293		BEN
12	Health Insurance	27,855,714	292,875	670,000	992,560		BEN
13	FICA / Medicare	2,749,348	16,532	(3,000)	3,019		BEN
14	Pension/401(a)	2,256,095	40,000	70,000	30,061		BEN
15	**Total Fixed Charges**	**$ 33,157,777**	**$ 361,052**	**$ 746,524**	**$ 1,035,933**		
	PUPIL PERSONNEL EXPENSES						
16	SPED Expenses	10,730,369	(2,499,191)	(3,181,670)	(3,072,872)		SPED
17	Trans - Bus Aide	772,058	16,407	16,407	16,407		SPED
18	Trans - Contract	3,313,242	90,110	183,030	460,225		SPED
19	Trans - Summer School	298,167	102,914	102,914	59,141		SPED
20	**Total Pupil Personnel Expenses**	**$ 15,113,836**	**$ (2,289,760)**	**$ (2,879,319)**	**$ (2,537,099)**		
	SCHOOL EXPENSES						
21	School Balances	2,404,036	-	-	-		SCLE
22	Sch Copying / Inst Supp & Copying	250,871	41,525	24,447	26,564		SCLE
23	**Total School Expenses**	**$ 2,654,907**	**$ 41,525**	**$ 24,447**	**$ 26,564**		
	SUPPORT EXPENSES						
24	Prof Growth Tuition & Other HR Accounts	268,870	-	-	83,146		HR
25	BOE Dues and Fees/NEASC	22,078	-	-	-		HR
26	Legal Business Svcs	530,000	-	-	(525)		HR
27	Tech Software - Instructional / Info Mngt	1,580,271	31,272	31,471	35,282		TECH
28	Tech Supplies - District	98,125	0	0	(0)		TECH
29	Magnet School Tuition	346,250	270,129	51,041	51,041		OTH
30	Postage /Copying /Med Supp Bus Sv Office Supp /Records / Info Svcs Printing/CED Tuition/Athletic Training/Inst Supp	262,084	26,264	11,341	17,312		SSRV
31	Security Purchase Expense	247,112	(14,526)	-	(8,330)		MNT
32	Instrl Services - Matls / PD / Prgm Asses	1,186,773	1,159	5,142	61,561		INS
33	Bus Sv - Prof Mtg Reim /Dues & Fees /Pub & Rsrch	14,150	(250)	2,250	3,200		MNT
34	BOE Svc/Ex Adm	22,488	-	-	-		OTH
35	**Total Support Expenses**	**$ 4,578,201**	**$ 314,049**	**$ 101,246**	**$ 242,687**		

Statement of Account
Fairfield Public Schools
Fiscal Year 2021-2022
Summary by Major Classification, Balances as of 3/31/2022 Q3 Projection

	MAJOR CLASSIFICATION	BUDGET 2021-2021	PROJECTED (a/o 9/30/2021)	PROJECTED (a/o 1/6/2022)	PROJECTED (a/o 03/29/2022)	Comments	
	MAINT / OPS / TRANS						
36	Tech System & Equip Maint / Svc Contract / Infrastructure	1,038,923	60,001	60,000	-		TECH
37	Tech Training	40,830	-	-	20,594		TECH
38	Pupil Trans - Contract	4,840,094	12,000	27,545	28,539		GET
39	Pupil Trans - VOAG, Vo-Tech and Magnet Schools	265,255	-	38,824	824		GET
40	Pupil Trans - Other Contracted Charges	176,125	-	(6,497)	17,253		GET
41	Maintenance Service Accounts	4,781,902	121,898	104,979	21,660		MNT
42	Travel Expense/Mtg Reimbursement						OTH
43	Equipment Repair - Schools	57,695	2,936	(294)	1,223		SSRV
44	Telephone	44,400	-	-	-		TECH
45	Electric	2,862,944	-	-	156,000		UTL
46	Commercial Gas/Heat	1,335,386	-	-	25,000		UTL
47	Water	186,600	-	-	21,525		UTL
48	**Total Main/ Ops /Transport**	**$ 15,630,154**	**$ 196,835**	**$ 224,557**	**$ 292,618**		
	CAPITAL OUTLAY						
49	Special Ed Equipment	75,673	-	(3,011)	(3,941)		SPED
50	Technology Equipment	1,163,127	-	225,000	0		TECH
51	School Equipment	252,162	21,280	150,760	1		SSRV
52	Oper Plant & Equip / Risk Management	60,000	20,000	20,000	(15,581)		MNT
53	**Total Capital Outlay**	**$ 1,550,962**	**$ 41,280**	**$ 392,749**	**$ (19,521)**		
54	**TOTAL**	**$ 192,084,220**	**$ (880,683)**	**$ 0**	**$ 432,200**	**0.23%**	

Statement of Account
Fairfield Public Schools
Fiscal Year 2021-2022
Summary by Major Classification, Balances as of 3/31/2022 Q3 Projection

	MAJOR CLASSIFICATION	BUDGET 2021-2021	PROJECTED (a/o 9/30/2021)	PROJECTED (a/o 1/6/2022)	PROJECTED (a/o 03/29/2022)	Comments	
55	Personnel Services	$ 119,398,383	$ 454,335	$ 1,389,796	$ 1,391,018		PER
56	SPED	$ 10,806,042	$ (2,499,191)	$ (3,184,681)	$ (3,076,813)		SPED
57	SPED Transportation	$ 4,383,467	$ 209,431	$ 302,351	$ 535,773		SPED
58	General Education Transportation	$ 5,281,474	$ 12,000	$ 59,872	$ 46,616		GET
59	Technolgy	$ 3,965,676	$ 91,274	$ 316,472	$ 55,876		TECH
60	Maintenance	$ 5,103,164	$ 127,122	$ 127,229	$ 950		MNT
61	Human Resources	$ 798,870	$ -	$ -	$ 82,621		HR
62	School Services	$ 571,941	$ 50,480	$ 161,807	$ 18,536		SSRV
63	Utilities	$ 4,384,930	$ -	$ -	$ 202,525		UTL
64	Instruction	$ 1,186,773	$ 1,159	$ 5,142	$ 61,561		INS
65	School Balances (Includes copying)	$ 2,654,907	$ 41,525	$ 24,447	$ 26,564		SCLE
66	Fixed Charges	$ 33,157,777	$ 361,052	$ 746,524	$ 1,035,933		BEN
67	All Other Accounts	$ 390,816	$ 270,129	$ 51,041	$ 51,041		OTH
68	**TOTAL**	**$ 192,084,220**	**$ (880,683)**	**$ 0**	**$ 432,200**		

Statement of Account
Summary by Major Classification
Fairfield Public Schools
Fiscal Year 2021-2022

4/29/2022
4:38:26PM

Major Classification	Appropriation As Adopted	Budget Transfers	Appropriation Amended	Total Expenditure	Outstanding Encumbrance	Outstanding Requisitions	Unencumbered Balance	% Used
PERSONNEL SERVICES	$119,368,059	$30,324	$119,398,383	$87,338,383.12	$29,582,026.02	$0.00	$2,477,973.86	97.92%
FIXED CHARGES	$33,157,777	$0	$33,157,777	$25,363,910.16	$0.00	$0.00	$7,793,866.84	76.49%
PUPIL PERSONNEL	$15,113,836	$0	$15,113,836	$11,381,105.71	$5,944,276.55	$140,038.73	($2,351,584.99)	115.56%
SCHOOL EXPENSE	$2,655,623	($716)	$2,654,907	$1,614,368.58	$386,448.50	$43,041.57	$611,048.35	76.98%
SUPPORT EXPENSE	$4,618,003	($37,215)	$4,580,788	$3,334,848.23	$484,461.26	$91,801.61	$669,676.90	85.38%
MAINT/OPER/TRANS	$15,628,054	$2,100	$15,630,154	$11,758,087.30	$1,615,051.65	$43,147.75	$2,213,867.30	85.84%
CAPITAL	$1,542,868	$5,507	$1,548,375	$999,579.97	$133,795.61	$184,490.72	$230,508.70	85.11%
GRAND TOTAL	$192,084,220	$0	$192,084,220	$141,790,283.07	$38,146,059.59	$502,520.38	$11,645,356.96	93.94%

Statement of Account - Summary by Major Classification and Summary Object

Fairfield Public Schools

Fiscal Year 2021-2022

4/29/2022
4:36:14PM

Sum Obj	Description	Appropriation As Adopted	Budgret Transfers	Appropriation Amended	Total Expenditures	Outstanding Encumbrances	Outstanding Requisitions	Unencumbered Balance	% Used
PERSONNEL SERVICES									
101	TEACHING STAFF	$78,779,427	($1,283,122)	$77,496,305	$55,304,069.09	$22,192,191.81	$0.00	$44.12	100.00%
103	CERTIFIED SUPPORT STAFF	$9,339,229	$108,300	$9,447,529	$6,803,353.23	$2,644,179.29	$0.00	($3.52)	100.00%
105	SCHOOL ADMIN STAFF	$6,789,723	$39,044	$6,828,767	$5,784,812.72	$1,043,957.92	$0.00	($3.64)	100.00%
107	CENTRAL ADMINISTRATION STAFF	$773,284	$15,466	$788,750	$667,403.96	$121,346.16	$0.00	($0.12)	100.00%
109	DIRECTOR/SUPERVISOR/MGR	$949,158	$79,356	$1,028,514	$884,795.46	$143,718.02	$0.00	$0.52	100.00%
111	SECRETARIAL/CLERICAL STAFF	$3,602,960	($50,385)	$3,552,575	$2,808,112.36	$744,464.61	$0.00	($1.97)	100.00%
113	PARAPROFESSIONAL STAFF	$4,273,694	($222,405)	$4,051,289	$3,223,357.35	$827,907.76	$0.00	$23.89	100.00%
115	CUSTODIAN STAFF	$4,490,072	($149,593)	$4,340,479	$3,678,528.47	$661,951.84	$0.00	($1.31)	100.00%
117	MAINTENANCE STAFF	$1,102,630	($104,595)	$998,035	$849,717.58	$148,316.56	$0.00	$0.86	100.00%
121	SUPPORT STAFF	$3,165,744	($70,442)	$3,095,302	$2,553,586.68	$541,714.14	$0.00	$1.18	100.00%
125	SE TRAINER STAFF	$1,148,043	($28,813)	$1,119,230	$949,523.13	$169,707.12	$0.00	($0.25)	100.00%
129	PART-TIME EMPLOYMENT	$3,351,888	($1,783)	$3,350,105	$2,655,540.12	$67,432.43	$0.00	$627,132.45	81.28%
131	WAGE/BENEFIT RESERVE	$436,860	($103,541)	$333,319	$29,430.00	$0.00	$0.00	$303,889.00	8.83%
133	STAFF REPLACEMENT	($630,000)	$2,029,393	$1,399,393	$0.00	$0.00	$0.00	$1,399,392.98	0.00%
135	DEGREE CHANGES	$281,250	($226,556)	$54,694	$0.00	$0.00	$0.00	$54,694.00	0.00%
307	OTHER SERVICES	$1,514,097	$0	$1,514,097	$1,146,152.97	$275,138.36	$0.00	$92,805.67	93.87%
TOTAL	**PERSONNEL SERVICES**	$119,368,059	$30,324	$119,398,383	$87,338,383.12	$29,582,026.02	$0.00	$2,477,973.86	97.92%
FIXED CHARGES									
201	HEALTH INSURANCE	$27,855,714	$0	$27,855,714	$20,865,100.69	$0.00	$0.00	$6,990,613.31	74.90%
203	LIFE/DISABILITY INSURANCE	$296,620	$0	$296,620	$215,975.94	$0.00	$0.00	$80,644.06	72.81%
205	SOCIAL SECURITY	$2,749,348	$0	$2,749,348	$2,119,873.92	$0.00	$0.00	$629,474.08	77.10%
207	PENSION/RETIREMENT	$2,256,095	$0	$2,256,095	$2,162,959.61	$0.00	$0.00	$93,135.39	95.87%
TOTAL	**FIXED CHARGES**	$33,157,777	$0	$33,157,777	$25,363,910.16	$0.00	$0.00	$7,793,866.84	76.49%
PUPIL PERSONNEL									
301	INSTRUCTIONAL SERVICES	$116,000	$0	$116,000	$178,774.35	$33,286.65	$0.00	($96,061.00)	182.81%
303	PUPIL PERSONNEL SERVICES	$4,758,828	$0	$4,758,828	$3,930,119.44	$1,516,599.42	$56,209.65	($744,100.51)	115.64%
307	OTHER SERVICES	$25,000	$0	$25,000	$12,500.00	$12,500.00	$0.00	$0.00	100.00%
313	MAINTENANCE SERVICES	$1,500	$0	$1,500	$1,075.00	$0.00	$0.00	$425.00	71.67%
315	RENTALS	$27,000	$0	$27,000	$19,130.00	$0.00	$0.00	$7,870.00	70.85%
317	STUDENT TRANSPORTATION	$4,383,467	$0	$4,383,467	$1,979,870.63	$1,771,895.52	$52,154.21	$579,546.64	86.78%
319	CONFERENCE & TRAVEL	$110,796	$0	$110,796	$52,048.49	$54,156.53	$0.00	$4,590.98	95.86%
327	PRINTING/COPYING	$6,987	$0	$6,987	$4,896.12	$1,570.40	$0.00	$520.48	92.55%
329	TUITION	$5,580,958	$0	$5,580,958	$5,134,706.64	$2,546,428.86	$31,141.00	($2,131,318.50)	138.19%
401	INSTRUCTIONAL SUPLS/MATLS	$57,500	$0	$57,500	$49,304.30	$3,032.96	$0.00	$5,162.74	91.02%
404	SPLS, BKS, MATLS-DIST SUPPORT	$37,500	$0	$37,500	$13,241.79	$4,806.21	$533.87	$18,918.13	49.55%
411	TEXTBOOKS	$5,000	$0	$5,000	$5,056.95	$0.00	$0.00	($56.95)	101.14%
415	OTHER SUPPLIES/MATERIALS	$2,250	$0	$2,250	$382.00	$0.00	$0.00	$1,868.00	16.98%
601	DUES AND FEES	$1,050	$0	$1,050	$0.00	$0.00	$0.00	$1,050.00	0.00%
TOTAL	**PUPIL PERSONNEL**	$15,113,836	$0	$15,113,836	$11,381,105.71	$5,944,276.55	$140,038.73	($2,351,584.99)	115.56%
SCHOOL EXPENSE									
301	INSTRUCTIONAL SERVICES	$25,512	$1,000	$26,512	$17,353.72	$153.40	$0.00	$9,004.88	66.03%
307	OTHER SERVICES	$75,990	$9,650	$85,640	$16,642.22	$36,917.02	$3,412.80	$28,667.96	66.53%
315	RENTALS	$136,072	$0	$136,072	$32,450.97	$36,676.51	$0.00	$66,944.52	50.80%
317	STUDENT TRANSPORTATION	$40,550	($4,907)	$35,643	$5,960.40	$1,179.66	$0.00	$28,502.94	20.03%
319	CONFERENCE & TRAVEL	$52,008	($2,150)	$49,858	$21,096.17	$1,098.48	$1,017.00	$26,646.35	46.56%
327	PRINTING/COPYING	$237,858	$0	$237,858	$185,987.28	$35,132.63	$0.00	$16,738.09	92.96%
400	SUPPLIES, BOOKS & MATERIALS	$1,374,044	($929)	$1,373,115	$939,651.06	$184,395.20	$28,655.47	$220,413.27	83.95%
402	INSTRUCTIONAL SPLS-DIST SUPPRT	$28,513	($1,500)	$27,013	$5,349.05	$6,552.52	$0.00	$15,111.43	44.06%
409	STUDENT ACTIVITY EXPENSES	$639,480	($4,473)	$635,007	$353,416.18	$81,744.22	$9,956.30	$189,890.30	70.10%
415	OTHER SUPPLIES/MATERIALS	$16,888	$1,413	$18,301	$9,870.56	$2,509.86	$0.00	$5,920.58	67.65%
601	DUES AND FEES	$28,708	$1,180	$29,888	$26,590.97	$89.00	$0.00	$3,208.03	89.27%
TOTAL	**SCHOOL EXPENSE**	$2,655,623	($716)	$2,654,907	$1,614,368.58	$386,448.50	$43,041.57	$611,048.35	76.98%

Statement of Account - Summary by Major Classification and Summary Object

Fairfield Public Schools

Fiscal Year 2021-2022

Sum Obj	Description	Appropriation As Adopted	Budgret Transfers	Appropriation Amended	Total Expenditures	Outstanding Encumbrances	Outstanding Requisitions	Unencumbered Balance	% Used
SUPPORT EXPENSE									
301	INSTRUCTIONAL SERVICES	$273,592	($4,680)	$268,912	$224,905.74	$100.00	$4,650.00	$39,256.26	85.40%
305	PROFESSIONAL/TECHNICAL SVCS	$698,800	$0	$698,800	$496,496.77	$174,200.04	$0.00	$28,103.19	95.98%
307	OTHER SERVICES	$25,750	$0	$25,750	$24,309.00	$0.00	$0.00	$1,441.00	94.40%
309	SECURITY SVCS/EXPENSES	$247,112	$0	$247,112	$158,603.38	$101,498.02	$0.00	($12,989.40)	105.26%
313	MAINTENANCE SERVICES	$995,754	$0	$995,754	$890,371.93	$67,851.35	$0.00	$37,530.72	96.23%
319	CONFERENCE & TRAVEL	$35,580	$0	$35,580	$14,230.50	$8,273.08	$0.00	$13,076.42	63.25%
321	PROFESSIONAL DEVELOPMENT	$744,603	($35,785)	$708,818	$315,578.14	$61,061.88	$33,002.70	$299,175.28	57.79%
323	POSTAGE	$40,460	$0	$40,460	$27,455.12	$4,309.32	$0.00	$8,695.56	78.51%
325	PERSONNEL/RECRUITMENT EXP	$56,000	($34,207)	$21,793	$7,543.39	$610.22	$0.00	$13,639.39	37.41%
327	PRINTING/COPYING	$60,824	$0	$60,824	$42,323.09	$8,176.83	$0.00	$10,324.08	83.03%
329	TUITION	$346,250	$0	$346,250	$295,208.68	$0.00	$0.00	$51,041.32	85.26%
401	INSTRUCTIONAL SUPLS/MATLS	$918,235	$37,262	$955,497	$748,388.93	$17,864.97	$48,380.86	$140,862.24	85.26%
403	OFFICE/GENERAL SUPPLIES	$14,000	$0	$14,000	$6,833.67	$1,984.31	$68.41	$5,113.61	63.47%
411	TEXTBOOKS	$7,270	$0	$7,270	$2,003.78	$760.24	$0.00	$4,505.98	38.02%
415	OTHER SUPPLIES/MATERIALS	$101,625	$0	$101,625	$46,866.10	$29,549.00	$5,699.64	$19,510.26	80.80%
424	OTHER SUPPLIES	$5,000	$0	$5,000	$1,165.13	$0.00	$0.00	$3,834.87	23.30%
601	DUES AND FEES	$47,148	$195	$47,343	$32,564.88	$8,222.00	$0.00	$6,556.12	86.15%
TOTAL SUPPORT EXPENSE		$4,618,003	($37,215)	$4,580,788	$3,334,848.23	$484,461.26	$91,801.61	$669,676.90	85.38%
MAINT/OPER/TRANS									
305	PROFESSIONAL/TECHNICAL SVCS	$200,000	$0	$200,000	$16,312.75	$41,283.25	$0.00	$142,404.00	28.80%
311	UTILITY SERVICES	$4,715,165	$4,320	$4,719,485	$3,534,196.07	$36,626.34	$0.00	$1,148,662.59	75.66%
313	MAINTENANCE SERVICES	$4,360,197	($4,320)	$4,355,877	$2,737,783.32	$1,009,901.85	$43,147.75	$565,044.08	87.03%
317	STUDENT TRANSPORTATION	$5,278,174	$0	$5,278,174	$4,965,036.59	$271,578.37	$0.00	$41,559.04	99.21%
319	CONFERENCE & TRAVEL	$35,800	$0	$35,800	$21,475.91	$16,835.55	$0.00	($2,511.46)	107.02%
321	PROFESSIONAL DEVELOPMENT	$45,230	$2,100	$47,330	$18,863.25	$6,813.00	$0.00	$21,653.75	54.25%
424	OTHER SUPPLIES	$275,000	$0	$275,000	$227,189.06	$86,603.77	$0.00	($38,792.83)	114.11%
429	MAINTENANCE/REPAIR SUPPLIES	$718,488	$0	$718,488	$237,230.35	$145,409.52	$0.00	$335,848.13	53.26%
TOTAL MAINT/OPER/TRANS		$15,628,054	$2,100	$15,630,154	$11,758,087.30	$1,615,051.65	$43,147.75	$2,213,867.30	85.84%
CAPITAL									
501	CAPITAL OUTLAY	$383,730	$1,518	$385,248	$134,386.10	$93,963.66	$11,224.32	$145,673.92	62.19%
503	TECHNOLOGY	$1,159,138	$3,989	$1,163,127	$865,193.87	$39,831.95	$173,266.40	$84,834.78	92.71%
TOTAL CAPITAL		$1,542,868	$5,507	$1,548,375	$999,579.97	$133,795.61	$184,490.72	$230,508.70	85.11%
GRAND TOTAL		$192,084,220	$0	$192,084,220	$141,790,283.07	$38,146,059.59	$502,520.38	$11,645,356.96	93.94%

Projected Net Estimated Operational Variance
For the period Ending June 30, 2022
As of March 31, 2022
Executive Summary
($000)

	Q1	Q2	Q3
REVENUE		Fav/(Unfav)	
Current & Prior Year Levy and Interest	$6,800	$7,800	$7,800
Investment Income	($1,000)	($1,000)	($1,500)
Conveyance	$750	$750	$850
Building Permits	$0	$0	($350)
ECC Subsidies*	($750)	($827)	($1,060)
Park and Recreation Revenue	$210	$750	$875
Fire Marshal Fees	($200)	($100)	($100)
State Revenue	$1,137	$1,133	$1,137
Other	$104	$143	$186
Subtotal	**$7,051**	**$8,649**	**$7,838**
EXPENSES			
Vacancies/Churn	$500	$500	$500
Park and Recreation Expense	($15)	($45)	($78)
ECC*	$450	$672	$946
DPW Utility Loan	$175	$175	$175
Other	($85)	$45	$215
Subtotal	**$1,025**	**$1,347**	**$1,758**
Net Estimated Variance	**$8,076**	**$9,996**	**$9,596**
Budgeted Contribution to Surplus	**$0**	**$0**	**$0**
Estimated Increase in Fund Balance	**$8,076**	**$9,996**	**$9,596**

*Q1 assumed ECC opening in January
*Q2 assumes Fairfield moves in March to new Center
*Q3 assumes Westport not joining Center this fiscal year

FY22 YTD Revenue Variance Report as of March 31, 2022

			A	B (75% Budget)	C	D = C/B YTD ACT %	E = C -B YTD ACT -	F
			BUDGET	YTD BUDGET	YTD ACTUAL	of YTD BUD	YTD BUD	Comments
01 GENERAL TAXES								
01001__	40040__	P.A. 12-80a PHONE ACCESS LINES	($109,647)	($82,235)	($95,308)	116%	($13,072)	Timing- Revenue expected in Q4
01080__	40000__	CURRENT YEAR LEVY	($305,135,907)	($228,851,930)	($244,758,053)	107%	($15,906,122)	Favorable variance in prior tax levy and interest of $5.7M as of April 30- projecting $7.8M overage including current levy.
01080__	40010__	PRIOR YEARS LEVY	($2,000,000)	($1,500,000)	($5,056,572)	337%	($3,556,572)	See above
01080__	40020__	INTEREST ON DELINQUENT TAXES	($1,193,000)	($894,750)	($3,634,467)	406%	($2,739,717)	See above
02 LICENSES AND PERMITS								
01001__	42331__	CONSERVATION-IWPA APPLICATIONS	($97,430)	($73,073)	($28,414)	39%	$44,659	Will be under budget by $50k due to less at home Covid-related projects.
01005__	42112__	BUILDING - BUILDING PERMITS	($2,185,024)	($1,638,768)	($1,311,145)	80%	$327,623	Watching revenue in Q4 but may be under budget by $350k
01005__	42113__	BUILDING - ELECTRICAL PERMITS	($363,292)	($272,469)	($230,700)	85%	$41,769	See above
01005__	42114__	BUILDING - PLUMBING PERMITS	($206,055)	($154,541)	($120,320)	78%	$34,221	See above
01005__	42117__	BUILDING - MECHANICAL PERMITS	($381,410)	($286,058)	($192,881)	67%	$93,177	See above
01005__	42118__	BUILDING - FIRE PROTECTION	($26,215)	($19,661)	($5,863)	30%	$13,798	See above
01006__	42104__	HEALTH - FOOD SERVICE LICENSES	($129,473)	($97,105)	($124,783)	129%	($27,678)	Timing- Food licenses expire 1/31/22; most revenue in Q3, some in Q4.
07 SERVICE CHARGES								
01001__	42311__	TOWN CLERK - RECORDING FEES	($300,000)	($225,000)	($309,823)	138%	($84,823)	Increased refinancing activity prior to April 2022 interest rate increase
01001__	42312__	TOWN CLERK - CONVEYANCE TAXES	($2,050,000)	($1,537,500)	($2,277,258)	148%	($739,758)	Real estate market has thrived during pandemic plus two large commercial transactions. Expect to be $800k over budget
01001__	42313__	TOWN CLERK - CERTIFIED COPIES	($100,000)	($75,000)	($97,078)	129%	($22,078)	Increased copy activities
01004__	42368__	FIRE MARSHALL FEES	($400,000)	($300,000)	($154,197)	51%	$145,803	Expect to be under budget by $100k.
01005__	42351__	PARK DEPT. - BEACH STICKERS	($832,078)	($624,059)	($330,091)	53%	$293,968	Timing- projection to exceed budget by $64k. Projected FY23 budget increased to $900k
01005__	42352__	PARK DEPT. -DAILY PARKING	($275,000)	($206,250)	($180,617)	88%	$25,633	Timing- On target to meet budget
01005__	42353__	PARK DEPT. - BOAT DOCKAGE FEE	($600,000)	($450,000)	($521,217)	116%	($71,217)	Timing-Majority of Fees Collected in Q3 & Q4.
01005__	42354__	PARK DEPT. - WINTER STORAGE	($68,000)	($51,000)	($75,180)	147%	($24,180)	Expect to bring in additional $18k in Summer storage. Projected FY23 budget increased to $75k.

FY22 YTD Revenue Variance Report as of March 31, 2022

			A	B (75% Budget)	C	D = C/B YTD ACT %	E = C -B YTD ACT -	F
			BUDGET	YTD BUDGET	YTD ACTUAL	of YTD BUD	YTD BUD	Comments
01006__	42338__	TOWN DUMP - SCALE WEIGHING	($2,653,295)	($1,989,971)	($1,570,276)	79%	$419,696	Represents 8 months of revenue. Lower tonnage received. Lower revenue offsets lower expense.
01006__	42341__	TOWN DUMP - METAL	($89,375)	($67,031)	($80,438)	120%	($13,406)	Timing- Expect to be on budget or slightly over depending on metal received at the Transfer Station.
01007__	42403__	RECREATION - PROGRAMS	$0	$0	($27,331)	#DIV/0!	($27,331)	Total actual for FY22. Projected FY23 budget increased to $100k.
01007__	42449__	REC-SAILBOAT STORAGE-PENFLD	($29,000)	($21,750)	($7,899)	36%	$13,851	Timing - On target to meet budget- majority of fees collected in Q4
01007__	42450__	REC-SAILBOAT STORAGE-JENNINGS	($56,000)	($42,000)	($24,592)	59%	$17,408	Timing - On target to meet budget- fees collected in Q3 and Q4
01007__	42466__	PAR 3 - FEES	($277,254)	($207,941)	($290,041)	139%	($82,101)	Exceeded budget expectation as of Q2, projecting to be $200k over for FY22. Projected FY23 budget increased to $350k.
01007__	42468__	H. SMITH RICH. - I.D. CARDS	($200,000)	($150,000)	($78,925)	53%	$71,075	Timing - On target to meet budget- majority of fees collected in Q4
01007__	42471__	H. SMITH RICH. - GOLF FEES	($1,200,000)	($900,000)	($908,062)	101%	($8,062)	Projecting to be $290k over for FY22. Projected FY23 budget increased to $1,250k.
01007__	42472__	H. SMITH RICH. - DRIVING RANGE	($160,000)	($120,000)	($92,795)	77%	$27,205	Projecting to be $15k over for FY22
01007__	42473__	H. SMITH RICH. - GOLF CART REN	($445,000)	($333,750)	($249,124)	75%	$84,626	Projecting to be $40k below budget for FY22
08 MISCELLANEOUS								
01001__	49997__	COVID REVENUE	$0	$0	($117,088)	#DIV/0!	($117,088)	Residual COVID monies from FEMA received.
01003__	42363__	MISC- FINANCE	($17,869)	($13,402)	($73,345)	547%	($59,943)	CIRMA rebate
01005__	42373__	MISC- PUBLIC WORKS	$0	$0	($12,695)	#DIV/0!	($12,695)	
09 FINES								
01004__	42201__	POLICE PARKING VIOLATION FEES	($106,931)	($80,198)	($134,377)	168%	($54,179)	Added LPR (License Plate Reader) and additional Special Officers on patrol. Could be $50k over budget

FY22 YTD Revenue Variance Report as of March 31, 2022

			A	B (75% Budget)	C	D = C/B YTD ACT %	E = C -B YTD ACT -	F
			BUDGET	YTD BUDGET	YTD ACTUAL	of YTD BUD	YTD BUD	Comments
10 INTEREST								
01084__	44001__	DIVIDENDS/INTEREST INCOME	($1,685,360)	($1,264,020)	($416,995)	33%	$847,025	Feds raised rates on Jan 26 by 25bp, Mar 16 by 25bp and on May 4 by 50bp.
01084__	44005__	CHANGE IN MKT VALUATION	$276,976	$207,732	$758,865	365%	$551,133	See above
01084__	44006__	CONTRA INCOME-BANK FEES	$53,000	$39,750	$0	0%	($39,750)	Timing-To be paid in Q4
		TOTAL	**($1,355,384)**	**($1,016,538)**	**$341,870**	**-34%**	**$1,358,408**	
11 CONTRIBUTIONS								
01004__	41129__	OTHER SUBSIDY-ECC	($930,272)	($697,704)	$0	0%	$697,704	No revenue due to delayed opening
01084__	44008__	LIBRARY - INVESTED FUNDS	($119,790)	($89,843)	$0	0%	$89,843	Timing- Revenue received from Trust
13 DISCONTINUED FUNDS								
01001__	48506__	SALE OF TOWN OWNED PROPERTY	($33,124)	($24,843)	($171,802)	692%	($146,959)	Sale of surplus DPW equipment
14 RENTS								
01001__	42514__	LEASE INCOME-COMMUNICATION TOW	($131,711)	($98,783)	$0	0%	$98,783	Timing of payments
01001__	42515__	PARKING AUTH- FAIRPRENE RENT	($48,000)	($36,000)	$0	0%	$36,000	No rent to be received due to COVID testing station
01007__	42477__	H. SMITH RICH- CONSESSION	($60,900)	($45,675)	($30,000)	66%	$15,675	Timing- On target to meet budget
01007__	42508__	RECREATION - J DURRELL RENTAL	($125,297)	($93,973)	($112,900)	120%	($18,927)	Projecting to be $82k over for FY22 based on current rentals through 06/30/22. Projected FY23 budget increased to $185k.
01007__	42509__	RECREATION - FLD/FAC RENTALS	($171,160)	($128,370)	($179,855)	140%	($51,485)	Projecting to be $122k over for FY22. Projected FY23 budget increased to $250k.
01007__	42510__	REC-PENFLD-PENFIELD #1 REN	($315,000)	($236,250)	($275,317)	117%	($39,067)	Projecting to be $96k over for FY22 based on current rentals through 06/30/22. Projected FY23 budget lowered to $200k due to closure.
01082__	41191__	IN LIEU OF TAXES- HOUSING AUTH	($39,958)	($29,969)	($63,131)	211%	($33,163)	Per the Assistance Agreement between the St of CT and the Housing Authority, the Authority pays 10% of tenant shelter rent per annum less taxes to the Town per year.
01090__	49302__	PARKING AUTHORITY LEASE	($305,000)	($228,750)	($117,806)	52%	$110,944	Reduced revenue due to modified contract-will be $69k under budget

SCHEDULE OF ESTIMATED STATE REVENUE - MUNCIPAL AID AND OTHER GRANTS

For Fiscal year Ending June 30, 2022

		FY22 FINAL BUDGET	FY22 STATE FINAL	FY22 PROJECTED	FY22 BUD/ FY22 PRJ CHG *fav/(unfav)*
State Aid TOWN:					
41100	ECS Grant*	$1,111,544	$1,111,544	$1,111,544	$0
41145	Pequot-Mohegan Grant	114,941	114,941	114,941	0
41196	PILOT: Colleges and Hospitals	1,828,166	2,965,358	2,965,358	1,137,192
41195	PILOT: State Owned property	19,259	19,259	19,259	0
41147	Municipal Revenue Sharing Bonus Pool - Town Aid Roads	96,747	96,747	96,747	0
41148	MRS- Sales Tax/NEW Municipal Stabilization	191,245	191,245	191,245	0
41136	LoCIP	382,427	382,427	382,427	0
41137	Town Aid Road	718,937	718,937	719,916	979
	TOTAL STATE MUNICIPAL AID TO TOWN	**$4,463,266**	**$5,600,458**	**$5,601,437**	**$1,138,171**

SCHEDULE OF ESTIMATED STATE REVENUE - OTHER GRANTS

For Fiscal year Ending June 30, 2022

		FY22 FINALBUDGET	FY22 STATE FINAL	FY22 PROJECTED	FY22 BUD/ FY22 PRJ CHG *fav/(unfav)*
State - Other to TOWN:					
40040	P.A. 12-80 Phone Access Lines	$109,647	$109,647	$109,647	0
42100	Fire - EMPG Grant	31,053	31,053	31,053	0
41203	Health Grant Non-public Schools	27,733	27,733	49,527	21,794
41132	State Subsidy ECC (not related to new building)	145,069	145,069	145,069	0
41134	Connecticard Library	5,520	5,520	8,840	3,320
	TOTAL STATE OTHER TO TOWN	$319,022	$319,022	$344,136	25,114
State Tax Credits to TOWN:					
40033	Disabled Exemption	$0	$0	$3,076	3,076
41193	PILOT Veterans Exemption	133,284	133,284	103,603	(29,681)
	TOTAL STATE REIMBURSEMENT TO TOWN	$133,284	$133,284	$106,679	($26,605)
	TOTAL OTHER STATE GRANTS TO TOWN	**$452,306**	**$452,306**	**$450,815**	**($1,491)**
	GRAND TOTAL STATE TO TOWN	**$4,915,572**	**$6,052,764**	**$6,052,253**	**$1,136,681**

FY22 YTD Expenditure Variance Report as of March 31, 2022

		A	B = A x 75%	C	D = C/B	E = C - B	F
		BUDGET	YTD BUDGET	YTD ACTUAL	YTD ACT/ YTD BUD	YTD ACT- YTD BUD	COMMENTS
010 General Fund							
01001030 TOWN CLERK							
01001030__56100__ __	PRINTING BINDING & PHOTOGRAPHY	$ 84,000	$ 63,000	$ 52,067	83%	$ (10,933)	Timing- Should be on budget
01001230 CONSERVATION							
01001230__51070__ __	SEASONAL PAYROLL	$ 33,600	$ 25,200	$ 486	2%	$ (24,714)	Timing- Increased activity in Q4- will have slight surplus of $15k
01001230__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 88,500	$ 66,375	$ 44,306	67%	$ (22,069)	Timing- Should be on budget. Increased activity in Q4
01001230__54010__ __	CONTRACTED PROPERTY SERVICES	$ 14,000	$ 10,500	$ 69	1%	$ (10,431)	Timing- Should be on budget. Increased activity in Q4
01001230__54310__ __	MAINT/REPAIR EQUIPMENT	$ 30,000	$ 22,500	$ 5,119	23%	$ (17,381)	Timing- Should be on budget. Increased activity in Q4
01001230__57000__ __	CAPITAL OUTLAY	$ 30,000	$ 22,500	$ -	0%	$ (22,500)	Timing of invoice
01001270 LEGAL SERVICES							
01001270__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 885,000	$ 663,750	$ 490,157	74%	$ (173,593)	Timing- Represents 7 and 8 months of expenses.
01001310 RETIREE BENEFITS							
01001310__52312__ __	RETIREMENT CONTRIB-401a	$ 770,000	$ 577,500	$ 340,310	59%	$ (237,190)	Anticipate $100k surplus due to vacancies
01001330 HUMAN RESOURCES							
01001330__53000__ __	INFORMATION TECHNOLOGY	$ 126,150	$ 94,613	$ 12,553	13%	$ (82,060)	Timing- Should be on budget- hiring and time & attendance software
01001330__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 65,000	$ 48,750	$ 52,962	109%	$ 4,212	Timing- Should be on budget or slightly over budget due to recruiting fee
01001330__55210__ __	PROPERTY INSURANCE	$ 436,841	$ 327,631	$ 432,944	132%	$ 105,313	Timing- Should be on or slightly over budget
01001330__55220__ __	ERRORS AND OMISSIONS & OTHER	$ 243,651	$ 182,738	$ 241,912	132%	$ 59,174	Timing-Payment for year complete
01001330__55240__ __	LIABILITY INSURANCE	$ 1,082,947	$ 812,210	$ 1,112,729	137%	$ 300,519	Will be over by $30k due to increase in Cyber Insurance and Excess Comp rates
01001330__58930__ __	HEART & HYPERTENSION	$ 600,500	$ 450,375	$ 440,097	98%	$ (10,278)	Timing- Should be on budget
01001350 COMMUNITY & ECONOMIC DEVELOPMENT							
01001350__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 60,000	$ 45,000	$ 31,622	70%	$ (13,378)	Timing of invoices
01001350__57000__ __	CAPITAL OUTLAY	$ 60,000	$ 45,000	$ -	0%	$ (45,000)	Timing of invoices
01003010 FINANCE							
01003010__51030__ __	PART-TIME PAYROLL	$ 49,266	$ 36,950	$ 16,793	45%	$ (20,157)	Part-time hours reduced

FY22 YTD Expenditure Variance Report as of March 31, 2022

		A	B = A x 75%	C	D = C/B	E = C - B	F
		BUDGET	YTD BUDGET	YTD ACTUAL	YTD ACT/ YTD BUD	YTD ACT- YTD BUD	COMMENTS
01003030 PURCHASING							
01003030__51030__ __	PART-TIME PAYROLL	$ 16,117	$ 12,088	$ 370	3%	$ (11,718)	Will have $10k surplus
01003050 ASSESSOR							
01003050__51030__ __	PART-TIME PAYROLL	$ -	$ -	$ 25,380	#DIV/0!	$ 25,380	Expenses due to vacancies/retirements needed for the general workload. May be $30k over budget- offset by savings in regular payroll.
01003050__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 125,700	$ 94,275	$ 9,195	10%	$ (85,080)	Timing- Fees related to revaluation costs and assessment appeals - 19 completed and 90 pending. Pretrials scheduled- will know more in next few months.
01003110 INFORMATION TECHNOLOGY							
01003110__53000__ __	INFORMATION TECHNOLOGY	$ 340,000	$ 255,000	$ 71,916	28%	$ (183,084)	Timing - A majority of this line pays for Microsoft licensing which will be paid in Q4.
01003110__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 220,500	$ 165,375	$ 207,954	126%	$ 42,579	Timing- A majority of this line pays for Munis which was paid in July.
01003110__55300__ __	COMMUNICATIONS	$ 470,069	$ 352,552	$ 261,730	74%	$ (90,822)	Reduction in Town WAN expense at contract renewal due to network redesign. Could be $60k under budget.
01003110__57000__ __	CAPITAL OUTLAY	$ 266,645	$ 199,984	$ 178,278	89%	$ (21,706)	Timing- Most of this line is for PC/Laptop/printer/network equipment replacement cycles. Deliveries are slow due to supply chain issues. We make most capital purchases in the spring, but have already creeated orders due to the expected delays.
01003130 BOARD OF FINANCE							
01003130__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 106,240	$ 79,680	$ 55,270	69%	$ (24,410)	Timing- payment of audit fees
01003150 UNEMPLOYMENT COMPENSATION							
01003150__52510__ __	UNEMPLOYMENT COMPENSATION	$ 350,000	$ 262,500	$ 67,591	26%	$ (194,909)	Timing-Only represents 7 months of expenses
01004010 FIRE							
01004010__51030__ __	PART-TIME PAYROLL	$ 47,144	$ 35,358	$ 22,224	63%	$ (13,134)	Increased expenses in Q4 anticipated

FY22 YTD Expenditure Variance Report as of March 31, 2022

		A	B = A x 75%	C	D = C/B	E = C - B	F
		BUDGET	YTD BUDGET	YTD ACTUAL	YTD ACT/ YTD BUD	YTD ACT- YTD BUD	COMMENTS
01004010__51061__ __	OT EARNINGS-VACATION RELIEF	$ 1,998,754	$ 1,499,066	$ 1,280,107	85%	$ (218,959)	Timing- All OT accounts aggregated are under budget by $15k as of Q3 largely due to underage in vacation relief but this account spikes up in Q4; two FF on long-term injury leave, covid related illnesses and quarantines had impact. There are 6 new employees- lower impact on regular payroll line with fewer vacation days.Watching in Q4, but overages should net with FT salary line for FY22.
01004010__51062__ __	OT EARNINGS-SICK RELIEF	$ 500,000	$ 375,000	$ 399,843	107%	$ 24,843	See above
01004010__51063__ __	OT EARNINGS-INJURY RELIEF	$ 140,000	$ 105,000	$ 203,121	193%	$ 98,121	See above
01004010__51064__ __	OT EARNINGS-BUS/OTHER RELIEF	$ 388,300	$ 291,225	$ 341,503	117%	$ 50,278	See above
01004010__51065__ __	OT EARNINGS-TRAINING RELIEF	$ 280,000	$ 210,000	$ 254,236	121%	$ 44,236	See above
01004010__51066__ __	OT EARNINGS-VACANCY RELIEF	$ 538,579	$ 403,934	$ 390,134	97%	$ (13,800)	See above
01004010__51090__ __	HOLIDAY PAY	$ 149,500	$ 112,125	$ -	0%	$ (112,125)	Timing- To be paid in Q4 per Contract
01004010__54320__ __	MAINT/REPAIR OF BLDGS & GROUND	$ 86,500	$ 64,875	$ 37,761	58%	$ (27,114)	Timing-Projects in planning stage
01004010__56120__ __	CLOTHING AND DRY GOODS	$ 170,995	$ 128,246	$ 148,860	116%	$ 20,614	Timing- Clothing Allowance in Q1.
01004030 POLICE							
01004030__51040__ __	PART-TIME PAYROLL- SPECIAL PO	$ 173,971	$ 130,478	$ 108,614	83%	$ (21,864)	May have slight savings but additional expenses in Q4 due to opening of beaches.
01004030__51050__ __	OVERTIME EARNINGS	$ 1,071,084	$ 803,313	$ 1,051,569	131%	$ 248,256	Backfill for vacancies. Offset by salary saving. State grant and auto theft task force reimbursements to be received also.
01004030__51055__ __	OVERTIME EARNINGS-REPLACEMENT	$ 1,062,084	$ 796,563	$ 911,948	114%	$ 115,385	Backfill for vacancies. Offset by salary saving. State grant and auto theft task force reimbursements to be received also.
01004030__51090__ __	HOLIDAY PAY	$ 303,948	$ 227,961	$ 191,501	84%	$ (36,460)	Officers have option to take comp. May have slight savings
01004030__51100__ __	OVERTIME EARNINGS-TRAINING	$ 586,417	$ 439,813	$ 229,954	52%	$ (209,859)	Will have anticipated savings of $150k- did not sending as many people to training due to Covid in Q1 and Q2 but numerous mandated training in Q4.
01004030__51110__ __	PAY DIFFERENTIAL	$ 404,852	$ 303,639	$ 407,016	134%	$ 103,377	Timing- Per contract
01004030__51120__ __	CROSSING GUARDS	$ 176,220	$ 132,165	$ 112,570	85%	$ (19,595)	Timing- $10k received from BOE in Q2, more weeks of school in 2nd half of year.
01004030__53000__ __	INFORMATION TECHNOLOGY	$ 70,964	$ 53,223	$ 82,481	155%	$ 29,258	Timing- Licensing paid in beginning of the year.
01004030__53200__ __	FEES AND PROFESSIONALSERVICES	$ 140,279	$ 105,209	$ 129,799	123%	$ 24,590	May be over by $30k due to expenses of hiring new officers- background, physical, drug, and physiological tests
01004030__54150__ __	MOTOR VEHICLE FUEL AND LUBE	$ 185,700	$ 139,275	$ 219,514	158%	$ 80,239	Higher fuel costs than budgeted- will have overage of estimated $94k
01004030__54320__ __	MAINT/REPAIR OF BLDGS & GROUND	$ 65,988	$ 49,491	$ 38,497	78%	$ (10,994)	Timing- Additional maintenance and repair invoices in Q4.

FY22 YTD Expenditure Variance Report as of March 31, 2022

		A	B = A x 75%	C	D = C/B	E = C - B	F
		BUDGET	YTD BUDGET	YTD ACTUAL	YTD ACT/ YTD BUD	YTD ACT- YTD BUD	COMMENTS
01004030__54330__ __	MAINT/REPAIR AUTOMOTIVE	$ 66,741	$ 50,056	$ (126,584)	-253%	$ (176,640)	Couple of large expenditures in next few months offset by savings of $100k due to Outside Job billings which have not slowed down
01004030__56120__ __	CLOTHING AND DRY GOODS	$ 226,368	$ 169,776	$ 226,875	134%	$ 57,099	Will be over budget by approximately $80k due to 8 new officers hired by the end of the year at $3,500 each for uniform, leather, gear, jackets, and Academy uniforms plus contractual seasonal turn in of uniforms.
01004030__57000__ __	CAPITAL OUTLAY	$ 379,925	$ 284,944	$ 233,160	82%	$ (51,784)	Timing- Vehicle purchases throughout year
01004030__58110__ __	TRAINING	$ 89,762	$ 67,322	$ 48,419	72%	$ (18,903)	Timing - Periodic throughout the year.
01004050 ANIMAL CONTROL							
01004050__51030__ __	PART-TIME PAYROLL	$ 103,506	$ 77,630	$ 53,431	69%	$ (24,199)	Part-time vacancies- savings offset by overage in OT.
01004050__51050__ __	OVERTIME EARNINGS	$ 15,000	$ 11,250	$ 63,206	562%	$ 51,956	Overage offset by Part-time vacancies- may be $70k over budget
01004070 STREET LIGHTS							
01004070__54130__ __	UTILITIES - ELECTRIC	$ 503,784	$ 377,838	$ 279,640	74%	$ (98,198)	Timing- Represents 7 months.
01004090 HYDRANT & WATER SERVICES							
01004090__54110__ __	UTILITIES - WATER	$ 1,883,957	$ 1,412,968	$ 1,223,738	87%	$ (189,230)	Timing- Represents 8 months.
01004110 EMERGENCY MANAGEMENT							
01004110__55301__ __	COMMUN-CMED	$ 71,229	$ 53,422	$ 71,728	134%	$ 18,306	Timing-payment for year complete.
01004150 ECC							
01004150__51055__ __	OVERTIME EARNINGS-REPLACEMENT	$ 302,409	$ 226,807	$ 158,516	70%	$ (68,291)	Savings due to delayed center opening
01004150__51110__ __	PAY DIFFERENTIAL	$ 32,532	$ 24,399	$ 14,191	58%	$ (10,208)	See above
01004150__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 70,740	$ 53,055	$ 279	1%	$ (52,776)	See above
01004150__54130__ __	UTILITIES-ELECTRIC	$ 62,400	$ 46,800	$ 6,844	15%	$ (39,956)	See above
01004150__54310__ __	MAINT/REPAIR EQUIPMENT	$ 25,000	$ 18,750	$ 6,132	33%	$ (12,618)	See above
01004150__54320__ __	MAINT/REPAIR OF BLDGS & GROUND	$ 21,000	$ 15,750	$ 1,216	8%	$ (14,534)	See above
01004150__55300__ __	COMMUNICATIONS	$ 75,320	$ 56,490	$ 3,207	6%	$ (53,283)	See above
01004150__57000__ __	CAPITAL OUTLAY	$ 50,000	$ 37,500	$ -	0%	$ (37,500)	See above
01005070 ENGINEERING							
01005070__57000__ __	CAPITAL OUTLAY	$ 32,000	$ 24,000	$ -	0%	$ (24,000)	Timing of capital purchase

FY22 YTD Expenditure Variance Report as of March 31, 2022

		A	B = A x 75%	C	D = C/B	E = C - B	F
		BUDGET	YTD BUDGET	YTD ACTUAL	YTD ACT/ YTD BUD	YTD ACT- YTD BUD	COMMENTS
01006010 HEALTH							
01006010__51030__ __	PART-TIME PAYROLL	$ 425,886	$ 319,415	$ 278,182	87%	$ (41,233)	Timing- Nurses start when school starts so Q1 was low. Should be on or slightly under budget for the year.
01006010__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 35,000	$ 26,250	$ 13,989	53%	$ (12,261)	Timing- May have slight savings of $10k
01006050 HUMAN SERVICES							
01006050__51030__ __	PART-TIME PAYROLL	$ 357,360	$ 268,020	$ 213,633	80%	$ (54,387)	Under budget due to recent Program coordinator position and Desk Clerk vacancies expect savings of $25k.
01006050__54320__ __	MAINT/REPAIR OF BLDGS & GROUND	$ 22,000	$ 16,500	$ 5,075	31%	$ (11,425)	Timing- Anticipated maintenance in Q4
01006070 SOLID WASTE & RECYCLING							
01006070__51030__ __	PART-TIME PAYROLL	$ 78,678	$ 59,009	$ 47,571	81%	$ (11,438)	Might have slight savings of $15k
01006070__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 3,277,808	$ 2,458,356	$ 1,970,832	80%	$ (487,524)	Timing-Only represents 8 months of invoices. Lower tonnage offsets with lower revenue.
01007010 LIBRARY							
01007010__51030__ __	PART-TIME PAYROLL	$ 319,166	$ 239,375	$ 177,713	74%	$ (61,662)	Increased hours beginning Jan 24 to end of year- annual predicated salary savings of $50k
01007010__51110__ __	PAY DIFFERENTIAL	$ 55,006	$ 41,255	$ 29,673	72%	$ (11,582)	Increased hours beginning Jan 24 to end of year- annual predicated salary savings of $15k
01007010__54320__ __	MAINT/REPAIR OF BLDGS & GROUND	$ 28,260	$ 21,195	$ 10,886	51%	$ (10,309)	Timing- Major cleaning/repairs in Q4
01007010__56110__ __	OFFICE SUPPLIES	$ 29,500	$ 22,125	$ 9,323	42%	$ (12,802)	Timing- Will be on budget
01007010__56180__ __	LIBRARY MATERIALS	$ 425,000	$ 318,750	$ 226,592	71%	$ (92,158)	Timing- Will be on budget
01007011 LIBRARY- FAIRFIELD WOODS BRANCH							
01007011__51030__ __	PART-TIME PAYROLL	$ 217,746	$ 163,310	$ 115,108	70%	$ (48,202)	Increased hours beginning Jan 24 to end of year- annual predicated salary savings of $40k
01007011__53200__ __	FEES AND PROFESSIONAL SERVICES	$ 27,725	$ 20,794	$ 10,056	48%	$ (10,738)	Timing- Will be on budget
01007011__56180__ __	LIBRARY MATERIALS	$ 100,000	$ 75,000	$ 43,494	58%	$ (31,506)	Timing- Will be on budget
01007030 PENFIELD PAVILION COMPLEX							
01007030__51030__ __	PART-TIME PAYROLL	$ 42,600	$ 31,950	$ 46,538	146%	$ 14,588	Slightly over budget- expenses completed for the year.

FY22 YTD Expenditure Variance Report as of March 31, 2022

			A	B = A x 75%	C	D = C/B	E = C - B	F
			BUDGET	YTD BUDGET	YTD ACTUAL	YTD ACT/ YTD BUD	YTD ACT- YTD BUD	COMMENTS
01007050 PARKS & RECREATION								
01007050__53200__ __		FEES AND PROFESSIONAL SERVICES	$ 91,500	$ 68,625	$ 24,713	36%	$ (43,912)	Timing- will be on budget
01007050__54130__ __		UTILITIES-ELECTRIC	$ -	$ -	$ 13,531	#DIV/0!	$ 13,531	Fairfield Indoor Tennis utility reimbursement for FY22, new contract, will be approximately $8k in future years.
01007050__54320__ __		MAINT/REPAIR OF BLDGS & GROUND	$ 30,000	$ 22,500	$ -	0%	$ (22,500)	Timing- will be on budget
01007050__57000__ __		CAPITAL OUTLAY	$ 150,000	$ 112,500	$ 82,852	74%	$ (29,648)	Timing- will be on budget
01007090 MARINA								
01007090__51030__ __		PART-TIME PAYROLL	$ 28,200	$ 21,150	$ -	0%	$ (21,150)	Timing- will be on budget
01007090__54310__ __		MAINT/REPAIR EQUIPMENT	$ 26,070	$ 19,553	$ 772	4%	$ (18,781)	Timing- will be on budget
01007090__57000__ __		CAPITAL OUTLAY	$ 60,000	$ 45,000	$ 4,731	11%	$ (40,269)	Timing- will be on budget
01007111 CARL J DICKMAN GOLF COURSE								
01007111__51070__ __		SEASONAL PAYROLL	$ 108,225	$ 81,169	$ 90,203	111%	$ 9,034	Estimating to be $16k over due to increased play at course
01007111__57000__ __		CAPITAL OUTLAY	$ 62,328	$ 46,746	$ 5,198	11%	$ (41,548)	Timing- will be on budget
01007113 SMITH RICHARDSON GOLF COURSE								
01007113__51070__ __		SEASONAL PAYROLL	$ 190,008	$ 142,506	$ 147,973	104%	$ 5,467	Estimating to be $14k over due to increased play at course
01007113__51070__	20000	SEASONAL PAYROLL	$ 118,500	$ 88,875	$ 98,234	111%	$ 9,359	Estimating to be $16k over due to increased play at course
01007113__54110__ __		UTILITIES-WATER	$ 41,500	$ 31,125	$ 18,929	61%	$ (12,196)	Timing- Will be on budget
01007113__54120__ __		UTILITIES-GAS	$ 5,000	$ 3,750	$ 16,335	436%	$ 12,585	Will be over budget by $15k due to new clubhouse
01007113__56140__ __		SPECIAL DEPARTMENTAL SUPPLIES	$ 195,000	$ 146,250	$ 174,547	119%	$ 28,297	Timing- Will be on budget
01007113__57000__ __		CAPITAL OUTLAY	$ 78,000	$ 58,500	$ -	0%	$ (58,500)	Timing- Will be on budget

FY22 YTD Expenditure Variance Report as of March 31, 2022

			A	B = A x 75%	C	D = C/B	E = C - B	F
			BUDGET	YTD BUDGET	YTD ACTUAL	YTD ACT/ YTD BUD	YTD ACT- YTD BUD	COMMENTS
PUBLIC WORKS OPERATIONS and PARKS DEPARTMENT COMBINED								
51060__	__	OVERTIME EARNINGS - SNOW REMOV	$ 280,000	$ 210,000	$ 193,553	92%	$ (16,447)	Under budget due to weather
51070__	__	SEASONAL PAYROLL	$ 111,000	$ 83,250	$ 16,513	20%	$ (66,737)	Timing- To be spent in Q4
51110__	__	PAY DIFFERENTIAL	$ 38,840	$ 29,130	$ 764	3%	$ (28,366)	Some promotions so less out-of-class work. Could be $30k under budget
53200__	__	FEES AND PROFESSIONAL SERVICES	$ 432,191	$ 324,143	$ 248,785	77%	$ (75,358)	Timing-To be spent in Q4- might have slight surplus
53310__	__	RENTAL AND STORAGE	$ 50,000	$ 37,500	$ 17,699	47%	$ (19,801)	Timing- Seasonal rentals to be used in Q4 for road work.
54010__	__	CONTRACTED PROPERTY SERVICES	$ 2,057,065	$ 1,542,799	$ 1,322,124	86%	$ (220,675)	May be $100k over budget due to overseeding application from Spring applied in Fall this year and Holland Hill field coming back online
54120__	__	UTILITIES - GAS	$ 251,000	$ 188,250	$ 158,087	84%	$ (30,163)	Timing- Represents 7 months of invoices.
54130__	__	UTILITIES - ELECTRIC	$ 637,875	$ 478,406	$ 289,354	60%	$ (189,052)	Timing- Represents 7 months of invoices. Could be $100k under budget
54131__	__	UTILITIES-ELECTRIC-FTC	$ 56,700	$ 42,525	$ 19,955	47%	$ (22,570)	Represents 7 months of invoices. Will be under budget due to limited events at FTC- may be $15k under budget
54133__	__	UTILITIES-ELECTRIC-LOAN PYMT	$ 184,188	$ 138,141	$ 10,417	8%	$ (127,724)	Loan has been satisfied
54150__	__	MOTOR VEHICLE FUEL AND LUBE	$ 157,080	$ 117,810	$ 156,760	133%	$ 38,950	Higher fuel costs than budgeted- estimated overage of $55k
54330__	__	MAINT/REPAIR AUTOMOTIVE	$ 390,736	$ 293,052	$ 231,842	79%	$ (61,210)	Timing-To be spent in Q4- might have slight surplus
54340__	__	MAINT/REPAIR IMPROVED ROADS	$ 700,000	$ 525,000	$ 390,089	74%	$ (134,911)	Timing- Spending in Q4
54370__	__	MATERIALS FOR MAINT/REPAIR	$ 650,000	$ 487,500	$ 380,107	78%	$ (107,393)	Timing- Spending in Q4
57000__	__	CAPITAL OUTLAY	$ 397,817	$ 298,363	$ 77,590	26%	$ (220,773)	Timing- Will be on budget
57003__	__	CAPITAL-SIDEWALK MAINTENANCE	$ 100,857	$ 75,643	$ 38,191	50%	$ (37,452)	Timing- Will be on budget

FOR 2022 09

ACCOUNTS FOR: 010 General Fund		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT COLL
01 GENERAL TAXES							
01001 40040	P.A. 12-80a PHONE A	-109,647	0	-109,647	-95,307.54	-14,339.46	86.9%*
01080 40000	CURRENT YEAR LEVY	-305,135,907	0	-305,135,907	-244,758,052.68	-60,377,854.32	80.2%*
01080 40010	PRIOR YEARS LEVY	-2,000,000	0	-2,000,000	-5,056,572.20	3,056,572.20	252.8%
01080 40020	INTEREST ON DELINQU	-1,193,000	0	-1,193,000	-3,634,466.72	2,441,466.72	304.6%
01080 40030	LIEN FEES	-7,000	0	-7,000	-6,912.00	-88.00	98.7%*
TOTAL GENERAL TAXES		-308,445,554	0	-308,445,554	-253,551,311.14	-54,894,242.86	82.2%
02 LICENSES AND PERMITS							
01001 42119	T.P.& Z. - ZONING C	-45,613	0	-45,613	-34,400.00	-11,213.00	75.4%*
01001 42120	Z.B.A. - ZONING WAI	-20,739	0	-20,739	-20,600.00	-139.00	99.3%*
01001 42121	T.P.& Z. - SUBDIVIS	-637	0	-637	-1,350.00	713.00	211.9%
01001 42122	T.P.& Z - MAP PETIT	-567	0	-567	.00	-567.00	.0%*
01001 42123	T.P. & Z - SPECIAL	-5,368	0	-5,368	-6,000.00	632.00	111.8%
01001 42128	TOWN CLERK - DOG LI	-3,000	0	-3,000	-747.50	-2,252.50	24.9%*
01001 42129	TOWN CLERK - SPORTI	-100	0	-100	-60.00	-40.00	60.0%*
01001 42130	TOWN CLERK - MARRIA	-2,300	0	-2,300	-2,928.00	628.00	127.3%
01001 42132	IWPA PERMIT FEE/SIT	-77,516	0	-77,516	-57,720.00	-19,796.00	74.5%*
01001 42142	FILMING PERMITS	-2,817	0	-2,817	-2,354.55	-462.45	83.6%*
01001 42331	CONSERVATION - IWPA	-97,430	0	-97,430	-28,414.00	-69,016.00	29.2%*
01001 42333	CONSERVATION - PERM	-7,973	0	-7,973	-480.00	-7,493.00	6.0%*
01001 42334	CWC APPROVAL FEE	0	0	0	.00	.00	.0%
01004 42101	POLICE LICENSES	-27,077	0	-27,077	-15,515.65	-11,561.35	57.3%*
01004 42324	DOG WARDEN - DOG LI	-9,521	0	-9,521	-2,872.00	-6,649.00	30.2%*
01005 42112	BUILDING - BUILDING	-2,185,024	0	-2,185,024	-1,311,144.93	-873,879.07	60.0%*
01005 42113	BUILDING - ELECTRIC	-363,292	0	-363,292	-230,700.08	-132,591.92	63.5%*
01005 42114	BUILDING - PLUMBING	-206,055	0	-206,055	-120,320.00	-85,735.00	58.4%*
01005 42117	BUILDING - MECHANIC	-381,410	0	-381,410	-192,881.00	-188,529.00	50.6%*
01005 42118	BUILDING - FIRE PRO	-26,215	0	-26,215	-5,863.00	-20,352.00	22.4%*
01005 42126	NIGHT SOIL CARRIER	0	0	0	.00	.00	.0%
01005 42305	ROAD OPENING FEE	-44,967	0	-44,967	-26,000.00	-18,967.00	57.8%*
01006 42104	HEALTH - FOOD SERVI	-129,473	0	-129,473	-124,783.00	-4,690.00	96.4%*
01006 42105	HEALTH - ROOMING HO	-1,062	0	-1,062	-1,272.00	210.00	119.8%
01006 42106	HEALTH - SOIL TEST	-6,114	0	-6,114	-4,476.00	-1,638.00	73.2%*
01006 42107	HEALTH - SEPTIC PER	-9,383	0	-9,383	-9,364.00	-19.00	99.8%*
01006 42108	HEALTH - RENTAL OCC	-11,997	0	-11,997	-13,361.00	1,364.00	111.4%
01006 42109	HEALTH - FOOD SUPER	-1,988	0	-1,988	-950.00	-1,038.00	47.8%*

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT COLL
01006 42110 HEALTH - BARBERS CO	-15,662	0	-15,662	-14,966.00	-696.00	95.6%*
01006 42111 HEALTH - POOLS	-3,804	0	-3,804	-424.00	-3,380.00	11.1%*
01006 42143 TOWN DUMP - PERMITS	-37,500	0	-37,500	-27,941.52	-9,558.48	74.5%*
01006 42335 HEALTH - ENVIROMEN	-3,175	0	-3,175	-1,246.40	-1,928.60	39.3%*
01006 42336 HEALTH - PUBLIC HE	-1,569	0	-1,569	-789.50	-779.50	50.3%*
TOTAL LICENSES AND PERMITS	-3,729,348	0	-3,729,348	-2,259,924.13	-1,469,423.87	60.6%
03 STATE EDUC GRANTS						
01008 41100 GENERAL EDUCATION G	-1,111,544	0	-1,111,544	-558,866.00	-552,678.00	50.3%*
TOTAL STATE EDUC GRANTS	-1,111,544	0	-1,111,544	-558,866.00	-552,678.00	50.3%
05 STATE GRANTS						
01002 41203 HEALTH GRANT - NON	-27,733	0	-27,733	-49,527.00	21,794.00	178.6%
01004 41132 STATE SUBSIDY-ECC	-275,278	0	-275,278	-145,069.43	-130,208.57	52.7%*
01004 41136 LOCAL CAPITAL IMPRO	-382,427	0	-382,427	.00	-382,427.00	.0%*
01004 42100 FIRE-EMPG GRANT	-31,053	0	-31,053	.00	-31,053.00	.0%*
01005 41137 TOWN AID ROAD FUNDS	-718,937	0	-718,937	-719,916.03	979.03	100.1%
01006 41147 MUNICIPAL REVENUE S	-96,747	0	-96,747	.00	-96,747.00	.0%*
01006 41148 MUNI REV SHARE-SALE	-191,245	0	-191,245	-191,245.00	.00	100.0%
01007 41134 LIBRARY - CONNECTIC	-5,520	0	-5,520	.00	-5,520.00	.0%*
01082 40033 EXEMPT FOR TOTALLY	0	0	0	-3,075.63	3,075.63	100.0%
01082 41145 PEQUOT FUND	-114,941	0	-114,941	-76,627.33	-38,313.67	66.7%*
01082 41193 IN LIEU OF TAXES -	-133,284	0	-133,284	-103,603.20	-29,680.80	77.7%*
01082 41195 IN LIEU OF TAXES -	-19,259	0	-19,259	-19,259.00	.00	100.0%
01082 41196 PILOT PROGRAM NON P	-1,828,166	0	-1,828,166	-2,965,358.26	1,137,192.26	162.2%
TOTAL STATE GRANTS	-3,824,590	0	-3,824,590	-4,273,680.88	449,090.88	111.7%
07 SERVICE CHARGES						
01001 42133 CWC APPLICATION FEE	-141,623	0	-141,623	-96,200.00	-45,423.00	67.9%*
01001 42149 M.V. DELINQUENCY RE	-20,838	0	-20,838	-17,200.45	-3,637.55	82.5%*
01001 42150 F.O.I. INCOME TAX I	-354	0	-354	.00	-354.00	.0%*
01001 42311 TOWN CLERK - RECORD	-300,000	0	-300,000	-309,883.00	9,883.00	103.3%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT COLL
01001 42312	TOWN CLERK - CONVEY	-2,050,000	0	-2,050,000	-2,277,257.56	227,257.56	111.1%
01001 42313	TOWN CLERK - CERTIF	-100,000	0	-100,000	-97,077.55	-2,922.45	97.1%*
01001 42314	TOWN CLERK - FILING	-2,500	0	-2,500	-2,280.00	-220.00	91.2%*
01001 42315	TOWN CLERK - MAP FE	-500	0	-500	-580.00	80.00	116.0%
01001 42316	TOWN CLERK - NOTARY	-2,500	0	-2,500	-3,970.00	1,470.00	158.8%
01001 42317	RECORDING FEES - TO	-20,000	0	-20,000	-19,683.00	-317.00	98.4%*
01001 42319	ASSESSOR MAPS & FIE	-1,500	0	-1,500	-360.00	-1,140.00	24.0%*
01001 42328	CONSERVATION - MAP	-300	0	-300	.00	-300.00	.0%*
01001 42332	CONSERVATION - PUBL	-1,173	0	-1,173	-320.00	-853.00	27.3%*
01004 42151	POLICE - PHOTOSTATS	-7,155	0	-7,155	-4,592.00	-2,563.00	64.2%*
01004 42322	DOG WARDEN - SALES	-2,018	0	-2,018	-770.00	-1,248.00	38.2%*
01004 42368	FIRE MARSHAL FEES	-400,000	0	-400,000	-154,196.86	-245,803.14	38.5%*
01005 42351	PARK DEPT. - BEACH	-832,078	0	-832,078	-330,090.56	-501,987.44	39.7%*
01005 42352	PARK DEPT. - DAILY	-275,000	0	-275,000	-180,616.97	-94,383.03	65.7%*
01005 42353	PARK DEPT. - BOAT D	-600,000	0	-600,000	-521,216.86	-78,783.14	86.9%*
01005 42354	PARK DEPT. - WINTER	-68,000	0	-68,000	-75,180.00	7,180.00	110.6%
01006 42338	TOWN DUMP - SCALE W	-2,653,295	0	-2,653,295	-1,570,275.54	-1,083,019.46	59.2%*
01006 42339	TOWN DUMP- ELECTRON	-11,000	0	-11,000	-4,892.40	-6,107.60	44.5%*
01006 42340	TOWN DUMP - BULKY W	-47,250	0	-47,250	-45,016.89	-2,233.11	95.3%*
01006 42341	TOWN DUMP - METAL	-89,375	0	-89,375	-80,437.56	-8,937.44	90.0%*
01006 42342	TOWN DUMP - TIRES	-2,500	0	-2,500	-1,195.00	-1,305.00	47.8%*
01006 42345	TOWN DUMP - RECYCLE	0	0	0	.00	.00	.0%
01006 42346	TOWN DUMP- FIXED IN	-4,800	0	-4,800	-3,128.00	-1,672.00	65.2%*
01006 42347	TOWN DUMP- TEXTILES	-1,455	0	-1,455	-653.50	-801.50	44.9%*
01006 42348	TOWN DUMP - FACILIT	-324,000	0	-324,000	-229,906.00	-94,094.00	71.0%*
01007 42350	LIBRARY - PHOTO COP	-4,000	0	-4,000	-1,534.30	-2,465.70	38.4%*
01007 42402	RECREATION - SWIM &	-5,739	0	-5,739	167.50	-5,906.50	-2.9%*
01007 42403	RECREATION - PROGRA	0	0	0	-27,331.13	27,331.13	100.0%
01007 42445	REC - PENFLD - SEAS	-29,342	0	-29,342	-22,900.00	-6,442.00	78.0%*
01007 42449	REC-SAILBOAT STORAG	-29,000	0	-29,000	-7,898.52	-21,101.48	27.2%*
01007 42450	REC-SAILBOAT STORAG	-56,000	0	-56,000	-24,591.55	-31,408.45	43.9%*
01007 42451	REC-SAILBOAT STORAG	-4,000	0	-4,000	-2,444.78	-1,555.22	61.1%*
01007 42462	PAR 3 - DRIVING RAN	-800	0	-800	-390.00	-410.00	48.8%*
01007 42464	PAR 3 - CARTS	-2,000	0	-2,000	-2,791.80	791.80	139.6%
01007 42466	PAR 3 - FEES	-277,254	0	-277,254	-290,041.00	12,787.00	104.6%
01007 42467	H. SMITH RICH. - SE	-65,000	0	-65,000	-56,500.00	-8,500.00	86.9%*
01007 42468	H. SMITH RICH. - I.	-200,000	0	-200,000	-78,925.00	-121,075.00	39.5%*
01007 42469	H. SMITH RICH. - AN	-7,850	0	-7,850	-2,250.00	-5,600.00	28.7%*
01007 42471	H. SMITH RICH. - GO	-1,200,000	0	-1,200,000	-908,062.08	-291,937.92	75.7%*
01007 42472	H. SMITH RICH. - DR	-160,000	0	-160,000	-92,795.00	-67,205.00	58.0%*
01007 42473	H. SMITH RICH. - GO	-445,000	0	-445,000	-249,124.25	-195,875.75	56.0%*
01086 49301	PARKING AUTHORITY A	-102,903	0	-102,903	-54,024.28	-48,878.72	52.5%*
TOTAL SERVICE CHARGES		-10,548,102	0	-10,548,102	-7,848,415.89	-2,699,686.11	74.4%

08 MISCELLANEOUS

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT COLL
01001 42356 MISC. - TOWN CLERK	-3,000	0	-3,000	-2,815.00	-185.00	93.8%*
01001 42359 MISC. - T.P. & Z.	-400	0	-400	-1,278.00	878.00	319.5%
01001 42360 MISC. - CONSERVATIO	-1,680	0	-1,680	-216.00	-1,464.00	12.9%*
01001 42385 MISC. - RETURNED CH	-3,383	0	-3,383	-4,573.00	1,190.00	135.2%
01001 49997 COVID REVENUE	0	0	0	-117,087.75	117,087.75	100.0%
01003 42363 MISC. - FINANCE	-17,869	0	-17,869	-73,344.54	55,475.54	410.5%
01003 42365 MISC. - TAX COLLECT	-4,029	0	-4,029	-1,965.20	-2,063.80	48.8%*
01004 42369 MISC. - POLICE	-13,448	0	-13,448	-6,964.10	-6,483.90	51.8%*
01005 42372 MISC. - ENGINEERING	-11,000	0	-11,000	-8,216.00	-2,784.00	74.7%*
01005 42373 MISC. - PUBLIC WORK	0	0	0	-12,694.69	12,694.69	100.0%
01005 42374 MISC. - BUILDING	0	0	0	-392.00	392.00	100.0%
01005 42379 MISC. - PARK	0	0	0	-2,973.00	2,973.00	100.0%
01006 42375 MISC. - HEALTH	-762	0	-762	49.51	-811.51	-6.5%*
01007 42378 MISC. - LIBRARY	-5,241	0	-5,241	-3,497.55	-1,743.45	66.7%*
01007 42381 MISC. - RECREATION	0	0	0	-1,179.00	1,179.00	100.0%
TOTAL MISCELLANEOUS	-60,812	0	-60,812	-237,146.32	176,334.32	390.0%
09 FINES						
01004 42201 POLICE PARKING VIOL	-106,931	0	-106,931	-133,247.92	26,316.92	124.6%
01004 42202 POLICE - SURCHARGE	-65,214	0	-65,214	-45,141.75	-20,072.25	69.2%*
01004 42207 POLICE ALARM ORDINA	-20,900	0	-20,900	-11,751.00	-9,149.00	56.2%*
01004 42323 DOG WARDEN - QUARAN	-500	0	-500	-140.00	-360.00	28.0%*
01005 42203 BUILDING - PENALTIE	-10,000	0	-10,000	-146.00	-9,854.00	1.5%*
01007 42205 LIBRARY - FINES	-25,210	0	-25,210	-24,225.85	-984.15	96.1%*
TOTAL FINES	-228,755	0	-228,755	-214,652.52	-14,102.48	93.8%
10 INTEREST						
01084 44001 DIVIDENDS/INTEREST	-1,685,360	0	-1,685,360	-416,994.73	-1,268,365.27	24.7%*
01084 44005 CHANGE IN MKT VALUA	276,976	0	276,976	758,864.77	-481,888.77	274.0%*
01084 44006 CONTRA INCOME-BANK	53,000	0	53,000	.00	53,000.00	.0%
TOTAL INTEREST	-1,355,384	0	-1,355,384	341,870.04	-1,697,254.04	-25.2%
11 CONTRIBUTIONS						
01004 41129 OTHER SUBSIDY-ECC	-930,272	0	-930,272	.00	-930,272.00	.0%*

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT COLL
01084 44008 LIBRARY - INVESTED	-119,790	0	-119,790	.00	-119,790.00	.0%*
TOTAL CONTRIBUTIONS	-1,050,062	0	-1,050,062	.00	-1,050,062.00	.0%
13 DISCONTINUED FUNDS						
01001 48506 SALE OF TOWN OWNED	-33,124	0	-33,124	-171,802.39	138,678.39	518.7%
TOTAL DISCONTINUED FUNDS	-33,124	0	-33,124	-171,802.39	138,678.39	518.7%
14 RENTS						
01001 42505 TOWN MEETING ROOM R	-342	0	-342	.00	-342.00	.0%*
01001 42512 00015 RENTAL INCOME	-46,000	0	-46,000	-30,841.00	-15,159.00	67.0%*
01001 42512 00016 RENTAL INCOME	-14,905	0	-14,905	-7,302.00	-7,603.00	49.0%*
01001 42512 00017 RENTAL INCOME	-74,500	0	-74,500	-57,208.33	-17,291.67	76.8%*
01001 42512 00018 RENTAL INCOME	-11,100	0	-11,100	-7,450.00	-3,650.00	67.1%*
01001 42512 00019 RENTAL INCOME	-48,485	0	-48,485	-28,232.85	-20,252.15	58.2%*
01001 42512 00020 RENTAL INCOME	-2,982	0	-2,982	-1,704.00	-1,278.00	57.1%*
01001 42512 00021 RENTAL INCOME	-5,292	0	-5,292	-2,646.00	-2,646.00	50.0%*
01001 42512 00022 RENTAL INCOME	-23,520	0	-23,520	-7,840.00	-15,680.00	33.3%*
01001 42512 00023 RENTAL INCOME	-51,000	0	-51,000	-38,250.00	-12,750.00	75.0%*
01001 42514 00025 LEASE INCOME-C	-146,114	0	-146,114	-109,284.37	-36,829.63	74.8%*
01001 42514 00026 LEASE INCOME-C	-109,843	0	-109,843	-72,628.17	-37,214.83	66.1%*
01001 42514 00027 LEASE INCOME-C	-131,711	0	-131,711	.00	-131,711.00	.0%*
01001 42514 00029 LEASE INCOME-C	-39,668	0	-39,668	-39,668.34	.34	100.0%
01001 42514 00031 LEASE INCOME-C	-30,000	0	-30,000	-22,952.91	-7,047.09	76.5%*
01001 42515 PARKING AUTH. - FAI	-48,000	0	-48,000	.00	-48,000.00	.0%*
01005 42474 PARK DEPT. - CONCES	-25,000	0	-25,000	-13,838.75	-11,161.25	55.4%*
01007 42475 RECREATION - TENNIS	-85,599	0	-85,599	-71,494.00	-14,105.00	83.5%*
01007 42476 REC - PENFLD - CONC	-35,000	0	-35,000	-22,116.05	-12,883.95	63.2%*
01007 42477 H. SMITH RICH. - CO	-60,900	0	-60,900	-30,000.00	-30,900.00	49.3%*
01007 42478 MARINA-GAS DOCK CON	-3,500	0	-3,500	-2,966.67	-533.33	84.8%*
01007 42508 REC -PENFIELD-J. DU	-125,297	0	-125,297	-112,900.00	-12,397.00	90.1%*
01007 42509 RECREATION - FLD/FA	-171,160	0	-171,160	-179,854.50	8,694.50	105.1%
01007 42510 REC - PENFLD - PENF	-315,000	0	-315,000	-275,317.40	-39,682.60	87.4%*
01007 42511 LIBRARY - ROOM RENT	-4,500	0	-4,500	-62.82	-4,437.18	1.4%*
01082 41191 IN LIEU OF TAXES -	-39,958	0	-39,958	-63,131.00	23,173.00	158.0%
01090 49302 PARKING AUTHORITY L	-305,000	0	-305,000	-117,806.25	-187,193.75	38.6%*
TOTAL RENTS	-1,954,376	0	-1,954,376	-1,315,495.41	-638,880.59	67.3%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund		ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT COLL
TOTAL General Fund		-332,341,651	0	-332,341,651	-270,089,424.64	-62,252,226.36	81.3%
	TOTAL REVENUES	-332,341,651	0	-332,341,651	-270,089,424.64	-62,252,226.36	

FOR 2022 09

	ORIGINAL ESTIM REV	ESTIM REV ADJSTMTS	REVISED EST REV	ACTUAL YTD REVENUE	REMAINING REVENUE	PCT COLL
GRAND TOTAL	-332,341,651	0	-332,341,651	-270,089,424.64	-62,252,226.36	81.3%

** END OF REPORT - Generated by CAITLIN BOSSE **

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01001010 FIRST SELECTWOMAN'S OFFICE							
01001010 51010 REGULAR PAYROLL	445,812	0	445,812	352,563.68	106,186.62	-12,938.30	102.9%*
01001010 51030 PART-TIME PAYROL	24,000	0	24,000	24,124.10	5,538.48	-5,662.58	123.6%*
01001010 51170 SECRETARIAL SERV	2,940	0	2,940	2,935.00	.00	5.00	99.8%
01001010 51180 FRINGE-DEF COMP	3,000	0	3,000	3,000.00	.00	.00	100.0%
01001010 52200 SOCIAL SECURITY	34,352	0	34,352	27,843.51	.00	6,508.49	81.1%
01001010 54310 MAINT/REPAIR EQU	100	0	100	.00	.00	100.00	.0%
01001010 55300 COMMUNICATIONS	3,000	0	3,000	1,821.16	1,244.30	-65.46	102.2%*
01001010 56100 PRINTING BINDING	2,000	0	2,000	1,223.77	.00	776.23	61.2%
01001010 56110 OFFICE SUPPLIES	2,500	0	2,500	724.01	1,827.77	-51.78	102.1%*
01001010 56150 POSTAGE	500	0	500	260.35	.00	239.65	52.1%
01001010 58100 EDUCATIONAL AND	38,800	0	38,800	37,148.04	.00	1,651.96	95.7%
01001010 58120 TRAVEL AND MEETI	10,000	0	10,000	7,331.17	.00	2,668.83	73.3%
TOTAL FIRST SELECTWOMAN'S OFFICE	567,004	0	567,004	458,974.79	114,797.17	-6,767.96	101.2%
01001030 TOWN CLERK							
01001030 51010 REGULAR PAYROLL	450,002	0	450,002	344,810.58	104,295.48	895.94	99.8%
01001030 51050 OVERTIME EARNING	5,000	0	5,000	336.33	.00	4,663.67	6.7%
01001030 51160 LONGEVITY BONUS	4,000	0	4,000	4,400.00	.00	-400.00	110.0%*
01001030 51170 SECRETARIAL SERV	2,000	0	2,000	.00	.00	2,000.00	.0%
01001030 51180 FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01001030 52200 SOCIAL SECURITY	33,926	0	33,926	25,813.56	.00	8,112.44	76.1%
01001030 53200 FEES AND PROFESS	4,500	0	4,500	3,753.59	.00	746.41	83.4%
01001030 53310 RENTAL AND STORA	4,500	0	4,500	3,634.63	.00	865.37	80.8%
01001030 54310 MAINT/REPAIR EQU	150	0	150	.00	.00	150.00	.0%
01001030 55400 ADVERTISING	600	0	600	769.27	-169.27	.00	100.0%
01001030 56100 PRINTING BINDING	84,000	0	84,000	52,066.52	23,185.46	8,748.02	89.6%
01001030 56110 OFFICE SUPPLIES	1,200	0	1,200	455.03	144.97	600.00	50.0%
01001030 56150 POSTAGE	14,000	0	14,000	5,669.06	.00	8,330.94	40.5%
01001030 57000 CAPITAL OUTLAY	0	0	0	.00	.00	.00	.0%
01001030 58100 EDUCATIONAL AND	1,200	0	1,200	720.00	.00	480.00	60.0%
01001030 58120 TRAVEL AND MEETI	2,000	0	2,000	1,298.68	.00	701.32	64.9%
TOTAL TOWN CLERK	608,078	0	608,078	444,727.25	127,456.64	35,894.11	94.1%
01001040 FAIR TV							
01001040 53205 FEES & PROF SVCS	77,850	0	77,850	59,726.80	12,924.16	5,199.04	93.3%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01001040 56145 SPEC DEPT SUPL-F	1,350	0	1,350	.07	.00	1,349.93	.0%
TOTAL FAIR TV	79,200	0	79,200	59,726.87	12,924.16	6,548.97	91.7%
01001050 ADMINISTRATIVE SERVICES							
01001050 51030 PART-TIME PAYROL	26,026	0	26,026	13,636.00	.00	12,390.00	52.4%
01001050 52200 SOCIAL SECURITY	377	0	377	197.72	.00	179.28	52.4%
01001050 53200 FEES AND PROFESS	54,791	0	54,791	38,841.57	12,947.19	3,002.24	94.5%
01001050 53310 RENTAL AND STORA	11,000	0	11,000	1,194.44	.00	9,805.56	10.9%
01001050 54310 MAINT/REPAIR EQU	600	0	600	.00	.00	600.00	.0%
01001050 56100 PRINTING BINDING	200	0	200	.17	.00	199.83	.1%
01001050 56110 OFFICE SUPPLIES	150	0	150	.00	.00	150.00	.0%
01001050 56140 SPECIAL DEPARTME	2,200	0	2,200	616.52	883.48	700.00	68.2%
01001050 56150 POSTAGE	0	0	0	-575.53	3,966.70	-3,391.17	100.0%*
TOTAL ADMINISTRATIVE SERVICES	95,344	0	95,344	53,910.89	17,797.37	23,635.74	75.2%
01001070 REGISTRARS OF VOTERS							
01001070 51010 REGULAR PAYROLL	67,657	0	67,657	52,444.00	15,613.20	-400.20	100.6%*
01001070 51030 PART-TIME PAYROL	76,876	0	76,876	59,135.20	17,740.56	.24	100.0%
01001070 51050 OVERTIME EARNING	5,003	0	5,003	2,890.30	.00	2,112.70	57.8%
01001070 51070 SEASONAL PAYROLL	65,550	0	65,550	46,330.00	.00	19,220.00	70.7%
01001070 51160 LONGEVITY BONUS	800	0	800	800.00	.00	.00	100.0%
01001070 52200 SOCIAL SECURITY	12,288	0	12,288	8,953.54	.00	3,334.46	72.9%
01001070 53200 FEES AND PROFESS	5,975	0	5,975	4,200.00	.00	1,775.00	70.3%
01001070 53310 RENTAL AND STORA	300	0	300	.00	.00	300.00	.0%
01001070 54310 MAINT/REPAIR EQU	6,700	0	6,700	6,690.00	.00	10.00	99.9%
01001070 55400 ADVERTISING	250	0	250	.00	.00	250.00	.0%
01001070 56100 PRINTING BINDING	13,565	0	13,565	9,431.51	.00	4,133.49	69.5%
01001070 56110 OFFICE SUPPLIES	1,750	0	1,750	108.33	.00	1,641.67	6.2%
01001070 56140 SPECIAL DEPARTME	1,000	0	1,000	.00	.00	1,000.00	.0%
01001070 56150 POSTAGE	7,635	0	7,635	10,314.96	.00	-2,679.96	135.1%*
01001070 58100 EDUCATIONAL AND	1,150	0	1,150	1,150.00	.00	.00	100.0%
01001070 58120 TRAVEL AND MEETI	950	0	950	855.30	.00	94.70	90.0%
TOTAL REGISTRARS OF VOTERS	267,449	0	267,449	203,303.14	33,353.76	30,792.10	88.5%
01001090 ZONING BOARD OF APPEALS							
01001090 51170 SECRETARIAL SERV	1,800	0	1,800	1,050.00	.00	750.00	58.3%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01001090 52200	SOCIAL SECURITY	138	0	138	77.63	.00	60.37	56.3%
01001090 53200	FEES AND PROFESS	200	0	200	.00	.00	200.00	.0%
01001090 55400	ADVERTISING	1,000	0	1,000	954.39	152.01	-106.40	110.6%*
01001090 56100	PRINTING BINDING	500	0	500	472.77	.00	27.23	94.6%
01001090 56110	OFFICE SUPPLIES	100	0	100	.00	.00	100.00	.0%
01001090 56150	POSTAGE	400	0	400	135.93	.00	264.07	34.0%
TOTAL ZONING BOARD OF APPEALS		4,138	0	4,138	2,690.72	152.01	1,295.27	68.7%
01001110 TOWN PLANNING & ZONING								
01001110 51010	REGULAR PAYROLL	505,898	0	505,898	405,794.39	116,754.90	-16,651.29	103.3%*
01001110 51030	PART-TIME PAYROL	10,841	0	10,841	3,382.50	.00	7,458.50	31.2%
01001110 51050	OVERTIME EARNING	0	0	0	385.22	.00	-385.22	100.0%*
01001110 51160	LONGEVITY BONUS	3,000	0	3,000	400.00	.00	2,600.00	13.3%
01001110 51170	SECRETARIAL SERV	2,800	0	2,800	1,200.00	.00	1,600.00	42.9%
01001110 51180	FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01001110 52200	SOCIAL SECURITY	37,182	0	37,182	30,244.83	.00	6,937.17	81.3%
01001110 53200	FEES AND PROFESS	37,373	0	37,373	24,910.50	.00	12,462.50	66.7%
01001110 54150	MOTOR VEHICLE FU	785	0	785	642.83	.00	142.17	81.9%
01001110 55400	ADVERTISING	1,000	0	1,000	1,843.87	.00	-843.87	184.4%*
01001110 56100	PRINTING BINDING	1,300	0	1,300	809.18	.00	490.82	62.2%
01001110 56110	OFFICE SUPPLIES	650	0	650	523.82	305.67	-179.49	127.6%*
01001110 56140	SPECIAL DEPARTME	500	0	500	385.98	.00	114.02	77.2%
01001110 56150	POSTAGE	2,000	0	2,000	2,080.11	.00	-80.11	104.0%*
01001110 58100	EDUCATIONAL AND	1,400	0	1,400	1,010.00	.00	390.00	72.1%
01001110 58120	TRAVEL AND MEETI	750	0	750	.00	.00	750.00	.0%
TOTAL TOWN PLANNING & ZONING		606,479	0	606,479	474,613.23	117,060.57	14,805.20	97.6%
01001130 PROBATE COURT								
01001130 53200	FEES AND PROFESS	100	0	100	1,747.48	.00	-1,647.48	1747.5%*
01001130 53310	RENTAL AND STORA	5,000	0	5,000	1,133.27	353.75	3,512.98	29.7%
01001130 54310	MAINT/REPAIR EQU	500	0	500	.00	.00	500.00	.0%
01001130 56100	PRINTING BINDING	7,500	0	7,500	1,539.25	196.00	5,764.75	23.1%
01001130 56110	OFFICE SUPPLIES	6,500	0	6,500	7,633.58	1,220.56	-2,354.14	136.2%*
01001130 56150	POSTAGE	8,500	0	8,500	5,807.22	.00	2,692.78	68.3%
TOTAL PROBATE COURT		28,100	0	28,100	17,860.80	1,770.31	8,468.89	69.9%
01001210 HISTORIC DISTRICT COMMISSION								

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01001210 51030 PART-TIME PAYROL	8,450	0	8,450	.00	.00	8,450.00	.0%
01001210 51170 SECRETARIAL SERV	1,900	0	1,900	1,975.00	.00	-75.00	103.9%*
01001210 52200 SOCIAL SECURITY	268	0	268	146.70	.00	121.30	54.7%
01001210 55400 ADVERTISING	500	0	500	200.29	.00	299.71	40.1%
01001210 56100 PRINTING BINDING	200	0	200	.00	.00	200.00	.0%
01001210 56110 OFFICE SUPPLIES	100	0	100	104.72	.00	-4.72	104.7%*
01001210 56150 POSTAGE	200	0	200	149.39	.00	50.61	74.7%
TOTAL HISTORIC DISTRICT COMMISSION	11,618	0	11,618	2,576.10	.00	9,041.90	22.2%
01001230 CONSERVATION							
01001230 51010 REGULAR PAYROLL	574,867	0	574,867	441,995.74	129,620.22	3,251.04	99.4%
01001230 51030 PART-TIME PAYROL	0	0	0	2,573.42	.00	-2,573.42	100.0%*
01001230 51050 OVERTIME EARNING	6,500	0	6,500	6,196.52	.00	303.48	95.3%
01001230 51070 SEASONAL PAYROLL	33,600	0	33,600	486.00	.00	33,114.00	1.4%
01001230 51150 WORK ATTENDANCE	1,338	0	1,338	1,276.08	.00	61.92	95.4%
01001230 51160 LONGEVITY BONUS	3,200	0	3,200	2,200.00	.00	1,000.00	68.8%
01001230 51170 SECRETARIAL SERV	2,700	0	2,700	.00	.00	2,700.00	.0%
01001230 51180 FRINGE-DEF COMP	1,000	0	1,000	.00	.00	1,000.00	.0%
01001230 52200 SOCIAL SECURITY	42,883	0	42,883	32,637.05	.00	10,245.95	76.1%
01001230 53200 FEES AND PROFESS	33,000	55,500	88,500	44,306.43	5,765.57	38,428.00	56.6%
01001230 53310 RENTAL AND STORA	5,000	0	5,000	.00	.00	5,000.00	.0%
01001230 54010 CONTRACTED PROPE	14,000	0	14,000	69.44	530.56	13,400.00	4.3%
01001230 54150 MOTOR VEHICLE FU	5,584	0	5,584	4,280.85	.00	1,303.15	76.7%
01001230 54310 MAINT/REPAIR EQU	30,000	0	30,000	5,119.00	1,226.28	23,654.72	21.2%
01001230 54320 MAINT/REPAIR OF	13,000	0	13,000	2,475.00	.00	10,525.00	19.0%
01001230 54370 MATERIALS FOR MA	13,000	0	13,000	7,278.08	2,487.62	3,234.30	75.1%
01001230 55300 COMMUNICATIONS	1,800	0	1,800	1,357.74	.00	442.26	75.4%
01001230 55400 ADVERTISING	600	0	600	384.76	215.23	.01	100.0%
01001230 56100 PRINTING BINDING	1,500	0	1,500	1,191.48	351.25	-42.73	102.8%*
01001230 56110 OFFICE SUPPLIES	3,000	0	3,000	592.38	931.11	1,476.51	50.8%
01001230 56120 CLOTHING AND DRY	3,500	0	3,500	2,348.45	371.46	780.09	77.7%
01001230 56130 CLEANING AND JAN	1,000	0	1,000	269.46	.00	730.54	26.9%
01001230 56140 SPECIAL DEPARTME	12,000	0	12,000	5,233.36	1,560.79	5,205.85	56.6%
01001230 56150 POSTAGE	2,500	0	2,500	825.33	.00	1,674.67	33.0%
01001230 57000 CAPITAL OUTLAY	30,000	0	30,000	.00	28,574.00	1,426.00	95.2%
01001230 58100 EDUCATIONAL AND	1,500	0	1,500	1,246.00	.00	254.00	83.1%
01001230 58120 TRAVEL AND MEETI	500	0	500	75.00	.00	425.00	15.0%
TOTAL CONSERVATION	837,572	55,500	893,072	564,417.57	171,634.09	157,020.34	82.4%
01001250 SHELLFISH COMMISSION							

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01001250 51070 SEASONAL PAYROLL	1,100	0	1,100	.00	.00	1,100.00	.0%
01001250 51170 SECRETARIAL SERV	1,400	0	1,400	900.00	.00	500.00	64.3%
01001250 52200 SOCIAL SECURITY	123	0	123	62.25	.00	60.75	50.6%
01001250 53200 FEES AND PROFESS	2,000	0	2,000	.00	.00	2,000.00	.0%
01001250 56140 SPECIAL DEPARTME	4,335	0	4,335	2,349.91	.00	1,985.09	54.2%
TOTAL SHELLFISH COMMISSION	8,958	0	8,958	3,312.16	.00	5,645.84	37.0%
01001270 LEGAL SERVICES							
01001270 53200 FEES AND PROFESS	685,000	200,000	885,000	490,157.18	213,230.13	181,612.69	79.5%
TOTAL LEGAL SERVICES	685,000	200,000	885,000	490,157.18	213,230.13	181,612.69	79.5%
01001290 MISCELLANEOUS CONTINGENCIES							
01001290 58010 CONTINGENCY	30,000	0	30,000	18,031.53	.00	11,968.47	60.1%
TOTAL MISCELLANEOUS CONTINGENCIES	30,000	0	30,000	18,031.53	.00	11,968.47	60.1%
01001310 RETIREE BENEFITS							
01001310 51010 REGULAR PAYROLL	0	0	0	71,925.80	.00	-71,925.80	100.0%*
01001310 52105 OPEB HEALTH-TOWN	3,824,597	0	3,824,597	3,824,597.00	.00	.00	100.0%
01001310 52110 OPEB HEALTH POL/	5,460,000	0	5,460,000	5,460,000.00	.00	.00	100.0%
01001310 52120 LIFE INSURANCE	179,000	0	179,000	139,212.70	.00	39,787.30	77.8%
01001310 52200 SOCIAL SECURITY	0	0	0	5,737.50	.00	-5,737.50	100.0%*
01001310 52310 RETIREMENT CONTR	3,443,418	0	3,443,418	3,443,418.00	.00	.00	100.0%
01001310 52311 RETIREMENT CONTR	6,006,042	0	6,006,042	6,006,042.00	.00	.00	100.0%
01001310 52312 RETIREMENT CONTR	770,000	0	770,000	340,309.77	.00	429,690.23	44.2%
01001310 52313 LONG TERM DISABI	53,000	0	53,000	48,635.79	.00	4,364.21	91.8%
TOTAL RETIREE BENEFITS	19,736,057	0	19,736,057	19,339,878.56	.00	396,178.44	98.0%
01001320 ACTIVE EMPLOYEE BENEFITS							
01001320 52100 HEALTH SELF-INSU	10,376,207	0	10,376,207	10,376,207.00	.00	.00	100.0%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01001320 52120 LIFE INSURANCE	71,000	0	71,000	45,390.20	.00	25,609.80	63.9%
TOTAL ACTIVE EMPLOYEE BENEFITS	10,447,207	0	10,447,207	10,421,597.20	.00	25,609.80	99.8%
01001330 HUMAN RESOURCES							
01001330 51010 REGULAR PAYROLL	416,008	0	416,008	325,638.93	74,019.48	16,349.59	96.1%
01001330 51030 PART-TIME PAYROL	18,211	0	18,211	13,811.50	.00	4,399.50	75.8%
01001330 51160 LONGEVITY BONUS	800	0	800	.00	.00	800.00	.0%
01001330 51180 FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01001330 52200 SOCIAL SECURITY	31,567	0	31,567	24,180.11	.00	7,386.89	76.6%
01001330 53000 INFORMATION TECH	51,150	75,000	126,150	12,552.54	.00	113,597.46	10.0%
01001330 53200 FEES AND PROFESS	65,000	0	65,000	64,722.91	.00	277.09	99.6%
01001330 53410 CLAIMS HANDLING	100,900	0	100,900	75,675.00	.00	25,225.00	75.0%
01001330 54310 MAINT/REPAIR EQU	1,000	0	1,000	.00	.00	1,000.00	.0%
01001330 55210 PROPERTY INSURAN	436,841	0	436,841	513,080.89	.00	-76,239.89	117.5%*
01001330 55220 ERRORS AND OMISS	243,651	0	243,651	241,911.76	.00	1,739.24	99.3%
01001330 55230 INTERSCHOLASTIC	63,298	0	63,298	56,912.00	.00	6,386.00	89.9%
01001330 55240 LIABILITY INSURA	1,082,947	0	1,082,947	1,032,592.13	.00	50,354.87	95.4%
01001330 55300 COMMUNICATIONS	650	0	650	.00	.00	650.00	.0%
01001330 55400 ADVERTISING	6,400	0	6,400	.00	.00	6,400.00	.0%
01001330 56100 PRINTING BINDING	2,400	0	2,400	1,655.82	.00	744.18	69.0%
01001330 56110 OFFICE SUPPLIES	2,400	0	2,400	1,316.30	1,196.38	-112.68	104.7%*
01001330 56150 POSTAGE	2,535	0	2,535	727.04	.00	1,807.96	28.7%
01001330 58020 WC/LOSS PREVENTI	20,000	0	20,000	15,000.00	.00	5,000.00	75.0%
01001330 58100 EDUCATIONAL AND	6,000	0	6,000	1,550.92	.00	4,449.08	25.8%
01001330 58120 TRAVEL AND MEETI	600	0	600	55.44	.00	544.56	9.2%
01001330 58819 ADA COMPLIANCE	1,000	0	1,000	.00	.00	1,000.00	.0%
01001330 58920 RISK MGT FUND-CL	850,000	0	850,000	850,000.00	.00	.00	100.0%
01001330 58930 HEART & HYPERTEN	600,500	0	600,500	440,096.93	.00	160,403.07	73.3%
01001330 58940 WORKERS COMPENSA	1,682,185	0	1,682,185	1,682,185.00	.00	.00	100.0%
TOTAL HUMAN RESOURCES	5,687,043	75,000	5,762,043	5,354,665.22	75,215.86	332,161.92	94.2%
01001350 COMMUNITY & ECONOMIC DEVELOPME							
01001350 51010 REGULAR PAYROLL	185,595	0	185,595	144,789.20	44,849.82	-4,044.02	102.2%*
01001350 51070 SEASONAL PAYROLL	10,000	0	10,000	5,218.00	.00	4,782.00	52.2%
01001350 51160 LONGEVITY BONUS	0	0	0	400.00	.00	-400.00	100.0%*
01001350 51180 FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01001350 52200 SOCIAL SECURITY	13,382	0	13,382	10,413.12	.00	2,968.88	77.8%
01001350 53200 FEES AND PROFESS	60,000	0	60,000	31,622.09	10,974.84	17,403.07	71.0%
01001350 55400 ADVERTISING	5,000	0	5,000	45.00	100.21	4,854.79	2.9%
01001350 56100 PRINTING BINDING	2,500	0	2,500	2,734.06	.00	-234.06	109.4%*
01001350 56110 OFFICE SUPPLIES	1,500	0	1,500	440.87	1,059.13	.00	100.0%
01001350 56140 SPECIAL DEPARTME	1,200	0	1,200	363.63	122.37	714.00	40.5%
01001350 56150 POSTAGE	400	0	400	119.08	.00	280.92	29.8%
01001350 57000 CAPITAL OUTLAY	60,000	0	60,000	.00	.00	60,000.00	.0%
01001350 58100 EDUCATIONAL AND	1,675	0	1,675	1,059.55	.00	615.45	63.3%
01001350 58120 TRAVEL AND MEETI	2,500	0	2,500	1,632.60	.00	867.40	65.3%
TOTAL COMMUNITY & ECONOMIC DEVELOPME	344,752	0	344,752	199,837.20	57,106.37	87,808.43	74.5%
01001370 HARBOR MANAGEMENT COMMISSION							
01001370 51170 SECRETARIAL SERV	1,200	0	1,200	1,100.00	.00	100.00	91.7%
01001370 52200 SOCIAL SECURITY	92	0	92	81.90	.00	10.10	89.0%
01001370 53200 FEES AND PROFESS	19,470	800	20,270	10,008.06	9,721.94	540.00	97.3%
01001370 55300 COMMUNICATIONS	1,000	0	1,000	414.57	149.43	436.00	56.4%
01001370 55400 ADVERTISING	50	0	50	.00	.00	50.00	.0%
01001370 56100 PRINTING BINDING	750	0	750	436.00	.00	314.00	58.1%
01001370 56110 OFFICE SUPPLIES	100	0	100	14.50	40.50	45.00	55.0%
01001370 56150 POSTAGE	200	0	200	35.44	.00	164.56	17.7%
01001370 58100 EDUCATIONAL AND	300	0	300	.00	.00	300.00	.0%
TOTAL HARBOR MANAGEMENT COMMISSION	23,162	800	23,962	12,090.47	9,911.87	1,959.66	91.8%
01002010 CONTINGENCY							
01002010 58010 CONTINGENCY	1,486,451	-12,000	1,474,451	.00	.00	1,474,451.00	.0%
TOTAL CONTINGENCY	1,486,451	-12,000	1,474,451	.00	.00	1,474,451.00	.0%
01002073 RYASAP							
01002073 58500 CONTRIBUTIONS TO	21,000	0	21,000	21,000.00	.00	.00	100.0%
TOTAL RYASAP	21,000	0	21,000	21,000.00	.00	.00	100.0%
01002130 PEQUOT LIBRARY							

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01002130 58500 CONTRIBUTIONS TO	400,000	0	400,000	400,000.00	.00	.00	100.0%
TOTAL PEQUOT LIBRARY	400,000	0	400,000	400,000.00	.00	.00	100.0%
01002150 FAIRFIELD COUNSELING SERVICES							
01002150 58500 CONTRIBUTIONS TO	175,000	0	175,000	175,000.00	.00	.00	100.0%
TOTAL FAIRFIELD COUNSELING SERVICES	175,000	0	175,000	175,000.00	.00	.00	100.0%
01002170 THE DISCOVERY MUSEUM							
01002170 58500 CONTRIBUTIONS TO	24,000	0	24,000	24,000.00	.00	.00	100.0%
TOTAL THE DISCOVERY MUSEUM	24,000	0	24,000	24,000.00	.00	.00	100.0%
01002210 AUDUBON SOCIETY							
01002210 58500 CONTRIBUTIONS TO	22,000	0	22,000	22,000.00	.00	.00	100.0%
TOTAL AUDUBON SOCIETY	22,000	0	22,000	22,000.00	.00	.00	100.0%
01002230 GREATER BRIDGEPORT TRANSIT DIS							
01002230 58500 CONTRIBUTIONS TO	30,000	0	30,000	30,000.00	.00	.00	100.0%
TOTAL GREATER BRIDGEPORT TRANSIT DIS	30,000	0	30,000	30,000.00	.00	.00	100.0%
01002250 FFLD MUSEUM & HISTORY CTR							
01002250 58500 CONTRIBUTIONS TO	60,000	0	60,000	60,000.00	.00	.00	100.0%
TOTAL FFLD MUSEUM & HISTORY CTR	60,000	0	60,000	60,000.00	.00	.00	100.0%
01002350 GRASMERE ON PARK ADULT DAY							

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01002350 58500 CONTRIBUTIONS TO	35,000	0	35,000	35,000.00	.00	.00	100.0%
TOTAL GRASMERE ON PARK ADULT DAY	35,000	0	35,000	35,000.00	.00	.00	100.0%
01002370 SULLIVAN MCKINNEY ELDER HOUSIN							
01002370 58500 CONTRIBUTIONS TO	15,000	0	15,000	15,000.00	.00	.00	100.0%
TOTAL SULLIVAN MCKINNEY ELDER HOUSIN	15,000	0	15,000	15,000.00	.00	.00	100.0%
01002430 KENNEDY CENTER							
01002430 58500 CONTRIBUTIONS TO	15,000	0	15,000	15,000.00	.00	.00	100.0%
TOTAL KENNEDY CENTER	15,000	0	15,000	15,000.00	.00	.00	100.0%
01002450 MILL RIVER WETLAND COMMITTEE							
01002450 58500 CONTRIBUTIONS TO	5,000	0	5,000	5,000.00	.00	.00	100.0%
TOTAL MILL RIVER WETLAND COMMITTEE	5,000	0	5,000	5,000.00	.00	.00	100.0%
01002470 THE PILOT HOUSE							
01002470 58500 CONTRIBUTIONS TO	10,000	0	10,000	10,000.00	.00	.00	100.0%
TOTAL THE PILOT HOUSE	10,000	0	10,000	10,000.00	.00	.00	100.0%
01002480 CENTER FOR WOMEN & FAMILIES							
01002480 58500 CONTRIBUTIONS TO	12,000	0	12,000	12,000.00	.00	.00	100.0%
TOTAL CENTER FOR WOMEN & FAMILIES	12,000	0	12,000	12,000.00	.00	.00	100.0%
01002492 OPERATION HOPE							

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01002492 58500 CONTRIBUTIONS TO	25,000	0	25,000	25,000.00	.00	.00	100.0%
TOTAL OPERATION HOPE	25,000	0	25,000	25,000.00	.00	.00	100.0%
01002531 PRIVATE SCHOOL BUS TRANSPORTAT							
01002531 58500 CONTRIBUTIONS TO	978,290	0	978,290	483,663.49	.00	494,626.51	49.4%
TOTAL PRIVATE SCHOOL BUS TRANSPORTAT	978,290	0	978,290	483,663.49	.00	494,626.51	49.4%
01003010 FINANCE							
01003010 51010 REGULAR PAYROLL	824,547	0	824,547	576,057.24	184,637.97	63,851.79	92.3%
01003010 51030 PART-TIME PAYROL	49,266	0	49,266	16,792.82	.00	32,473.18	34.1%
01003010 51050 OVERTIME EARNING	1,000	0	1,000	.00	.00	1,000.00	.0%
01003010 51070 SEASONAL PAYROLL	4,000	0	4,000	2,787.35	.00	1,212.65	69.7%
01003010 51160 LONGEVITY BONUS	2,000	0	2,000	2,200.00	.00	-200.00	110.0%*
01003010 51180 FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01003010 52200 SOCIAL SECURITY	61,553	0	61,553	42,771.83	.00	18,781.17	69.5%
01003010 53200 FEES AND PROFESS	27,400	0	27,400	12,828.89	.00	14,571.11	46.8%
01003010 54310 MAINT/REPAIR EQU	100	0	100	.00	.00	100.00	.0%
01003010 56100 PRINTING BINDING	6,770	0	6,770	2,383.27	13.13	4,373.60	35.4%
01003010 56110 OFFICE SUPPLIES	5,200	0	5,200	3,841.96	132.42	1,225.62	76.4%
01003010 56150 POSTAGE	6,000	0	6,000	4,202.02	50.00	1,747.98	70.9%
01003010 58100 EDUCATIONAL AND	2,000	0	2,000	1,454.00	.00	546.00	72.7%
01003010 58120 TRAVEL AND MEETI	450	0	450	.00	.00	450.00	.0%
TOTAL FINANCE	991,286	0	991,286	666,319.38	184,833.52	140,133.10	85.9%
01003030 PURCHASING							
01003030 51010 REGULAR PAYROLL	322,350	0	322,350	243,543.18	75,435.36	3,371.46	99.0%
01003030 51030 PART-TIME PAYROL	16,117	0	16,117	370.00	.00	15,747.00	2.3%
01003030 51050 OVERTIME EARNING	800	0	800	.00	.00	800.00	.0%
01003030 51160 LONGEVITY BONUS	400	0	400	1,000.00	.00	-600.00	250.0%*
01003030 51180 FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01003030 52200 SOCIAL SECURITY	24,172	0	24,172	18,135.70	.00	6,036.30	75.0%

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01003030 55300 COMMUNICATIONS	0	0	0	289.57	190.31	-479.88	100.0%*
01003030 55400 ADVERTISING	3,333	0	3,333	728.46	629.52	1,975.02	40.7%
01003030 56100 PRINTING BINDING	300	0	300	1,179.57	.00	-879.57	393.2%*
01003030 56110 OFFICE SUPPLIES	800	0	800	385.60	64.35	350.05	56.2%
01003030 56150 POSTAGE	365	0	365	11.07	.00	353.93	3.0%
01003030 58100 EDUCATIONAL AND	750	0	750	620.00	.00	130.00	82.7%
01003030 58120 TRAVEL AND MEETI	750	0	750	.00	.00	750.00	.0%
TOTAL PURCHASING	371,137	0	371,137	267,263.15	76,319.54	27,554.31	92.6%
01003050 ASSESSOR							
01003050 51010 REGULAR PAYROLL	560,044	0	560,044	364,473.62	116,717.75	78,852.63	85.9%
01003050 51030 PART-TIME PAYROL	0	0	0	25,380.20	.00	-25,380.20	100.0%*
01003050 51050 OVERTIME EARNING	10,000	0	10,000	603.17	.00	9,396.83	6.0%
01003050 51160 LONGEVITY BONUS	2,800	0	2,800	1,000.00	.00	1,800.00	35.7%
01003050 51170 SECRETARIAL SERV	1,500	0	1,500	298.80	.00	1,201.20	19.9%
01003050 51180 FRINGE-DEF COMP	1,000	0	1,000	.00	.00	1,000.00	.0%
01003050 52200 SOCIAL SECURITY	41,746	0	41,746	27,467.97	.00	14,278.03	65.8%
01003050 53000 INFORMATION TECH	39,217	0	39,217	37,967.75	.00	1,249.25	96.8%
01003050 53200 FEES AND PROFESS	125,700	0	125,700	9,195.21	.00	116,504.79	7.3%
01003050 54150 MOTOR VEHICLE FU	785	0	785	181.93	.00	603.07	23.2%
01003050 54310 MAINT/REPAIR EQU	100	0	100	.00	.00	100.00	.0%
01003050 55300 COMMUNICATIONS	1,500	0	1,500	320.18	159.97	1,019.85	32.0%
01003050 55400 ADVERTISING	100	0	100	.00	.00	100.00	.0%
01003050 56100 PRINTING BINDING	7,485	0	7,485	6,310.70	326.62	847.68	88.7%
01003050 56110 OFFICE SUPPLIES	2,000	0	2,000	701.87	1,580.05	-281.92	114.1%*
01003050 56150 POSTAGE	6,875	0	6,875	3,994.35	706.71	2,173.94	68.4%
01003050 58100 EDUCATIONAL AND	4,160	0	4,160	1,629.00	.00	2,531.00	39.2%
01003050 58120 TRAVEL AND MEETI	3,610	0	3,610	.00	.00	3,610.00	.0%
TOTAL ASSESSOR	808,622	0	808,622	479,524.75	119,491.10	209,606.15	74.1%
01003090 TAX COLLECTOR							
01003090 51010 REGULAR PAYROLL	468,087	0	468,087	347,120.21	106,068.18	14,898.61	96.8%
01003090 51050 OVERTIME EARNING	4,080	0	4,080	5,874.14	.00	-1,794.14	144.0%*
01003090 51160 LONGEVITY BONUS	2,700	0	2,700	1,800.00	.00	900.00	66.7%
01003090 52200 SOCIAL SECURITY	35,179	0	35,179	26,374.29	.00	8,804.71	75.0%
01003090 53000 INFORMATION TECH	22,250	0	22,250	22,925.00	.00	-675.00	103.0%*

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01003090 53200 FEES AND PROFESS	8,750	0	8,750	3,024.27	.00	5,725.73	34.6%
01003090 53310 RENTAL AND STORA	1,262	0	1,262	682.11	.00	579.89	54.0%
01003090 54310 MAINT/REPAIR EQU	870	0	870	195.00	.00	675.00	22.4%
01003090 55400 ADVERTISING	1,236	0	1,236	623.72	.00	612.28	50.5%
01003090 56100 PRINTING BINDING	18,800	0	18,800	4,761.20	.00	14,038.80	25.3%
01003090 56110 OFFICE SUPPLIES	3,690	0	3,690	1,429.16	.00	2,260.84	38.7%
01003090 56150 POSTAGE	32,350	0	32,350	14,814.81	.00	17,535.19	45.8%
01003090 58100 EDUCATIONAL AND	2,350	0	2,350	1,565.00	.00	785.00	66.6%
01003090 58120 TRAVEL AND MEETI	1,735	0	1,735	1,582.57	.00	152.43	91.2%
TOTAL TAX COLLECTOR	603,339	0	603,339	432,771.48	106,068.18	64,499.34	89.3%
01003110 INFORMATION TECHNOLOGY							
01003110 51010 REGULAR PAYROLL	525,454	0	525,454	401,022.86	124,374.04	57.10	100.0%
01003110 51030 PART-TIME PAYROL	0	0	0	.00	.00	.00	.0%
01003110 51050 OVERTIME EARNING	1,000	0	1,000	.00	.00	1,000.00	.0%
01003110 51070 SEASONAL PAYROLL	10,960	0	10,960	8,067.50	.00	2,892.50	73.6%
01003110 51180 FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01003110 52200 SOCIAL SECURITY	40,684	0	40,684	30,035.92	.00	10,648.08	73.8%
01003110 53000 INFORMATION TECH	340,000	0	340,000	71,915.52	211,082.11	57,002.37	83.2%
01003110 53200 FEES AND PROFESS	220,500	0	220,500	207,954.20	3,925.00	8,620.80	96.1%
01003110 53210 PROF SERV - DISA	5,500	0	5,500	760.00	.00	4,740.00	13.8%
01003110 53310 RENTAL AND STORA	6,000	0	6,000	3,972.08	1,027.92	1,000.00	83.3%
01003110 54310 MAINT/REPAIR EQU	52,500	4,375	56,875	34,179.04	3,795.59	18,900.10	66.8%
01003110 55300 COMMUNICATIONS	464,500	5,569	470,069	261,730.02	75,609.13	132,729.85	71.8%
01003110 56100 PRINTING BINDING	10,000	0	10,000	7,832.06	.00	2,167.94	78.3%
01003110 56110 OFFICE SUPPLIES	750	0	750	37.34	.00	712.66	5.0%
01003110 56140 SPECIAL DEPARTME	14,000	0	14,000	7,191.19	.00	6,808.81	51.4%
01003110 56150 POSTAGE	100	0	100	5.95	.00	94.05	6.0%
01003110 57000 CAPITAL OUTLAY	209,500	57,145	266,645	178,277.58	.00	88,367.53	66.9%
01003110 58100 EDUCATIONAL AND	9,200	0	9,200	2,994.46	.00	6,205.54	32.5%
01003110 58120 TRAVEL AND MEETI	300	0	300	172.00	.00	128.00	57.3%
TOTAL INFORMATION TECHNOLOGY	1,911,948	67,089	1,979,037	1,217,147.72	419,813.79	342,075.33	82.7%
01003130 BOARD OF FINANCE							
01003130 51030 PART-TIME PAYROL	9,588	0	9,588	7,375.20	.00	2,212.80	76.9%
01003130 51170 SECRETARIAL SERV	3,250	0	3,250	2,655.00	.00	595.00	81.7%

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01003130 52200 SOCIAL SECURITY	961	0	961	738.29	.00	222.71	76.8%
01003130 53200 FEES AND PROFESS	94,240	12,000	106,240	55,270.00	1,000.00	49,970.00	53.0%
01003130 55400 ADVERTISING	1,600	0	1,600	-16.85	.00	1,616.85	-1.1%
01003130 56110 OFFICE SUPPLIES	20	0	20	50.00	.00	-30.00	250.0%*
01003130 56150 POSTAGE	100	0	100	78.40	.00	21.60	78.4%
TOTAL BOARD OF FINANCE	109,759	12,000	121,759	66,150.04	1,000.00	54,608.96	55.1%
01003150 UNEMPLOYMENT COMPENSATION							
01003150 52510 UNEMPLOYMENT COM	350,000	0	350,000	67,591.10	.00	282,408.90	19.3%
01003150 53200 FEES AND PROFESS	5,120	0	5,120	4,245.00	.00	875.00	82.9%
TOTAL UNEMPLOYMENT COMPENSATION	355,120	0	355,120	71,836.10	.00	283,283.90	20.2%
01004010 FIRE							
01004010 51010 REGULAR PAYROLL	8,514,196	0	8,514,196	6,468,982.00	1,905,971.83	139,242.17	98.4%
01004010 51030 PART-TIME PAYROL	47,144	0	47,144	22,224.17	.00	24,919.83	47.1%
01004010 51061 OT EARNINGS-VACA	1,998,754	0	1,998,754	1,280,106.70	.00	718,647.30	64.0%
01004010 51062 OT EARNINGS-SICK	500,000	0	500,000	399,843.08	.00	100,156.92	80.0%
01004010 51063 OT EARNINGS-INJU	140,000	0	140,000	203,120.88	.00	-63,120.88	145.1%*
01004010 51064 OT EARNINGS-BUS/	388,300	0	388,300	341,503.28	.00	46,796.72	87.9%
01004010 51065 OT EARNINGS-TRAI	280,000	0	280,000	254,236.04	.00	25,763.96	90.8%
01004010 51066 OT EARNINGS-VACA	538,579	0	538,579	390,133.66	.00	148,445.34	72.4%
01004010 51090 HOLIDAY PAY	149,500	0	149,500	.00	.00	149,500.00	.0%
01004010 51110 PAY DIFFERENTIAL	296,753	0	296,753	270,940.02	.00	25,812.98	91.3%
01004010 51150 WORK ATTENDANCE	16,499	0	16,499	9,099.59	.00	7,399.41	55.2%
01004010 51160 LONGEVITY BONUS	1,470	0	1,470	1,800.00	.00	-330.00	122.4%*
01004010 51170 SECRETARIAL SERV	1,500	0	1,500	1,125.00	.00	375.00	75.0%
01004010 51180 FRINGE-DEF COMP	2,000	0	2,000	2,000.00	.00	.00	100.0%
01004010 52200 SOCIAL SECURITY	186,934	0	186,934	142,786.88	.00	44,147.12	76.4%
01004010 53000 INFORMATION TECH	9,000	0	9,000	7,392.48	.00	1,607.52	82.1%
01004010 53200 FEES AND PROFESS	85,000	0	85,000	68,237.11	1,143.56	15,619.33	81.6%
01004010 54150 MOTOR VEHICLE FU	52,010	-706	51,304	42,357.22	2,721.00	6,226.26	87.9%
01004010 54310 MAINT/REPAIR EQU	67,380	0	67,380	45,688.75	12,342.85	9,348.40	86.1%
01004010 54320 MAINT/REPAIR OF	86,500	0	86,500	37,761.46	15,628.77	33,109.77	61.7%
01004010 54330 MAINT/REPAIR AUT	250,000	0	250,000	206,532.81	14,076.66	29,390.53	88.2%
01004010 54370 MATERIALS FOR MA	15,300	0	15,300	11,462.74	.00	3,837.26	74.9%
01004010 55300 COMMUNICATIONS	45,600	0	45,600	28,897.31	11,977.60	4,725.09	89.6%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01004010 55400	ADVERTISING	1,000	0	1,000	2,950.00	.00	-1,950.00	295.0%*
01004010 55600	LAUNDRY AND LINE	5,700	0	5,700	3,698.49	1,429.31	572.20	90.0%
01004010 56100	PRINTING BINDING	10,250	0	10,250	9,610.35	616.22	23.43	99.8%
01004010 56110	OFFICE SUPPLIES	10,250	0	10,250	8,068.19	2,165.18	16.63	99.8%
01004010 56120	CLOTHING AND DRY	170,995	0	170,995	148,860.30	243.82	21,890.88	87.2%
01004010 56130	CLEANING AND JAN	12,000	0	12,000	7,979.65	4,020.35	.00	100.0%
01004010 56140	SPECIAL DEPARTME	51,510	0	51,510	46,522.21	2,190.80	2,796.99	94.6%
01004010 56150	POSTAGE	1,750	0	1,750	966.72	.00	783.28	55.2%
01004010 57000	CAPITAL OUTLAY	120,882	0	120,882	96,185.00	13,882.00	10,815.00	91.1%
01004010 58100	EDUCATIONAL AND	58,100	0	58,100	44,820.25	16,281.00	-3,001.25	105.2%*
01004010 58110	TRAINING-TRANSFE	25,000	0	25,000	25,000.00	.00	.00	100.0%
01004010 58120	TRAVEL AND MEETI	8,000	0	8,000	1,384.24	.00	6,615.76	17.3%
TOTAL FIRE		14,147,856	-706	14,147,150	10,632,276.58	2,004,690.95	1,510,182.95	89.3%
01004030 POLICE								
01004030 51010	REGULAR PAYROLL	10,095,889	0	10,095,889	7,722,258.46	2,119,013.76	254,616.78	97.5%
01004030 51030	PART-TIME PAYROL	86,089	0	86,089	57,276.40	.00	28,812.60	66.5%
01004030 51040	PART-TIME PAYROL	173,971	0	173,971	108,613.83	.00	65,357.17	62.4%
01004030 51050	OVERTIME EARNING	1,071,084	0	1,071,084	1,051,568.86	.00	19,515.14	98.2%
01004030 51055	OVERTIME EARNING	1,062,084	0	1,062,084	911,947.94	.00	150,136.06	85.9%
01004030 51090	HOLIDAY PAY	303,948	0	303,948	191,500.81	.00	112,447.19	63.0%
01004030 51100	OVERTIME EARNING	586,417	0	586,417	229,954.43	.00	356,462.57	39.2%
01004030 51110	PAY DIFFERENTIAL	404,852	0	404,852	407,015.98	.00	-2,163.98	100.5%*
01004030 51120	CROSSING GUARDS	176,220	0	176,220	112,570.00	.00	63,650.00	63.9%
01004030 51150	WORK ATTENDANCE	6,422	0	6,422	4,248.00	.00	2,174.00	66.1%
01004030 51160	LONGEVITY BONUS	4,000	0	4,000	2,200.00	.00	1,800.00	55.0%
01004030 51170	SECRETARIAL SERV	1,300	0	1,300	625.00	.00	675.00	48.1%
01004030 51180	FRINGE-DEF COMP	5,000	0	5,000	5,000.00	.00	.00	100.0%
01004030 52200	SOCIAL SECURITY	226,880	0	226,880	174,601.97	.00	52,278.03	77.0%
01004030 53000	INFORMATION TECH	70,964	0	70,964	82,481.48	-2,995.00	-8,522.48	112.0%*
01004030 53200	FEES AND PROFESS	140,279	0	140,279	129,799.16	-1,862.52	12,342.36	91.2%
01004030 53310	RENTAL AND STORA	30,750	0	30,750	15,175.84	2,314.36	13,259.80	56.9%
01004030 54150	MOTOR VEHICLE FU	185,700	0	185,700	219,514.39	71,725.25	-105,539.64	156.8%*
01004030 54310	MAINT/REPAIR EQU	69,800	0	69,800	44,354.46	.00	25,445.54	63.5%
01004030 54320	MAINT/REPAIR OF	65,988	0	65,988	38,496.57	11,035.96	16,455.47	75.1%
01004030 54330	MAINT/REPAIR AUT	56,847	9,894	66,741	-126,583.53	16,963.46	176,361.31	-164.2%
01004030 55300	COMMUNICATIONS	150,885	0	150,885	117,699.32	15,566.23	17,619.45	88.3%
01004030 55600	LAUNDRY AND LINE	1,900	0	1,900	1,260.22	206.57	433.21	77.2%
01004030 56100	PRINTING BINDING	8,458	0	8,458	4,474.05	.00	3,983.95	52.9%
01004030 56110	OFFICE SUPPLIES	14,500	0	14,500	13,982.68	262.85	254.47	98.2%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01004030 56120 CLOTHING AND DRY	226,368	0	226,368	226,875.00	10,853.25	-11,360.25	105.0%*
01004030 56130 CLEANING AND JAN	6,773	0	6,773	8,857.02	-235.85	-1,848.17	127.3%*
01004030 56140 SPECIAL DEPARTME	74,171	0	74,171	63,645.45	-3,401.48	13,927.03	81.2%
01004030 56150 POSTAGE	3,786	0	3,786	2,365.60	.00	1,420.40	62.5%
01004030 57000 CAPITAL OUTLAY	379,925	0	379,925	233,159.62	.00	146,765.38	61.4%
01004030 58100 EDUCATIONAL AND	25,000	0	25,000	16,168.92	.00	8,831.08	64.7%
01004030 58110 TRAINING	89,762	0	89,762	48,419.08	.00	41,342.92	53.9%
01004030 58120 TRAVEL AND MEETI	13,000	0	13,000	6,031.74	.00	6,968.26	46.4%
TOTAL POLICE	15,819,012	9,894	15,828,906	12,125,558.75	2,239,446.84	1,463,900.65	90.8%
01004050 ANIMAL CONTROL							
01004050 51010 REGULAR PAYROLL	167,991	0	167,991	130,178.65	38,767.08	-954.73	100.6%*
01004050 51030 PART-TIME PAYROL	103,506	0	103,506	53,430.80	.00	50,075.20	51.6%
01004050 51050 OVERTIME EARNING	15,000	0	15,000	63,206.44	.00	-48,206.44	421.4%*
01004050 51160 LONGEVITY BONUS	600	0	600	800.00	.00	-200.00	133.3%*
01004050 52200 SOCIAL SECURITY	14,264	0	14,264	15,335.60	.00	-1,071.60	107.5%*
01004050 53200 FEES AND PROFESS	17,000	0	17,000	9,286.86	-435.50	8,148.64	52.1%
01004050 54310 MAINT/REPAIR EQU	4,350	0	4,350	141.98	.00	4,208.02	3.3%
01004050 54320 MAINT/REPAIR OF	1,500	0	1,500	.00	.00	1,500.00	.0%
01004050 54330 MAINT/REPAIR AUT	1,000	0	1,000	.00	.00	1,000.00	.0%
01004050 54370 MATERIALS FOR MA	500	0	500	344.69	.00	155.31	68.9%
01004050 55400 ADVERTISING	600	0	600	-45.42	.00	645.42	-7.6%
01004050 56100 PRINTING BINDING	4,000	0	4,000	248.75	.00	3,751.25	6.2%
01004050 56110 OFFICE SUPPLIES	800	0	800	772.91	.00	27.09	96.6%
01004050 56120 CLOTHING AND DRY	1,500	0	1,500	884.63	.00	615.37	59.0%
01004050 56130 CLEANING AND JAN	6,000	0	6,000	1,978.93	-1,273.87	5,294.94	11.8%
01004050 56140 SPECIAL DEPARTME	7,500	0	7,500	5,643.08	.00	1,856.92	75.2%
01004050 56150 POSTAGE	100	0	100	8.20	.00	91.80	8.2%
01004050 58100 EDUCATIONAL AND	1,500	0	1,500	.00	.00	1,500.00	.0%
TOTAL ANIMAL CONTROL	347,711	0	347,711	282,216.10	37,057.71	28,437.19	91.8%
01004070 STREET LIGHTS							
01004070 54130 UTILITIES - ELEC	503,784	0	503,784	279,639.82	.00	224,144.18	55.5%
TOTAL STREET LIGHTS	503,784	0	503,784	279,639.82	.00	224,144.18	55.5%
01004090 HYDRANT & WATER SERVICES							
01004090 54110 UTILITIES - WATE	1,883,957	0	1,883,957	1,223,738.02	.00	660,218.98	65.0%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
TOTAL HYDRANT & WATER SERVICES	1,883,957	0	1,883,957	1,223,738.02	.00	660,218.98	65.0%
01004110 EMERGENCY MANAGEMENT							
01004110 51010 REGULAR PAYROLL	22,969	0	22,969	17,668.41	5,300.54	.05	100.0%
01004110 51160 LONGEVITY BONUS	330	0	330	.00	.00	330.00	.0%
01004110 52200 SOCIAL SECURITY	1,718	0	1,718	1,173.34	.00	544.66	68.3%
01004110 53200 FEES AND PROFESS	18,466	0	18,466	18,465.48	.00	.52	100.0%
01004110 55300 COMMUNICATIONS	34,080	5,797	39,877	30,917.81	.00	8,959.55	77.5%
01004110 55301 COMMUN-CMED	71,229	0	71,229	71,728.29	.00	-499.29	100.7%*
01004110 56140 SPECIAL DEPARTME	2,000	0	2,000	277.59	.00	1,722.41	13.9%
TOTAL EMERGENCY MANAGEMENT	150,792	5,797	156,589	140,230.92	5,300.54	11,057.90	92.9%
01004150 ECC							
01004150 51010 REGULAR PAYROLL	1,228,306	0	1,228,306	589,711.75	174,297.98	464,296.27	62.2%
01004150 51050 OVERTIME EARNING	12,279	0	12,279	5,475.68	.00	6,803.32	44.6%
01004150 51055 OVERTIME EARNING	302,409	0	302,409	158,515.62	.00	143,893.38	52.4%
01004150 51090 HOLIDAY PAY	39,306	0	39,306	24,946.24	.00	14,359.76	63.5%
01004150 51100 OVERTIME EARNING	19,530	0	19,530	10,788.73	.00	8,741.27	55.2%
01004150 51110 PAY DIFFERENTIAL	32,532	0	32,532	14,190.80	.00	18,341.20	43.6%
01004150 51160 LONGEVITY BONUS	11,500	0	11,500	8,800.00	.00	2,700.00	76.5%
01004150 52200 SOCIAL SECURITY	125,908	0	125,908	59,934.32	.00	65,973.68	47.6%
01004150 53200 FEES AND PROFESS	70,740	0	70,740	279.23	.00	70,460.77	.4%
01004150 54130 UTILITIES - ELEC	62,400	0	62,400	6,844.07	23,155.93	32,400.00	48.1%
01004150 54310 MAINT/REPAIR EQU	25,000	0	25,000	6,132.23	516.49	18,351.28	26.6%
01004150 54320 MAINT/REPAIR OF	21,000	0	21,000	1,216.46	.00	19,783.54	5.8%
01004150 55300 COMMUNICATIONS	75,320	0	75,320	3,207.25	5,768.51	66,344.24	11.9%
01004150 56100 PRINTING BINDING	8,100	0	8,100	.00	.00	8,100.00	.0%
01004150 56110 OFFICE SUPPLIES	5,000	0	5,000	1,576.30	.00	3,423.70	31.5%
01004150 56130 CLEANING AND JAN	3,574	0	3,574	627.20	.00	2,946.80	17.5%
01004150 56140 SPECIAL DEPARTME	12,806	0	12,806	1,082.56	494.00	11,229.44	12.3%
01004150 57000 CAPITAL OUTLAY	50,000	0	50,000	.00	.00	50,000.00	.0%
01004150 58100 EDUCATIONAL AND	9,000	-71	8,930	2,361.50	.00	6,568.00	26.4%
01004150 58120 TRAVEL AND MEETI	2,250	0	2,250	752.59	.00	1,497.41	33.4%
TOTAL ECC	2,116,960	-71	2,116,890	896,442.53	204,232.91	1,016,214.06	52.0%
01005011 PUBLIC WORKS - ADMINISTRATION							
01005011 51010 REGULAR PAYROLL	502,959	0	502,959	231,159.98	70,147.07	201,651.95	59.9%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01005011 51030	PART-TIME PAYROL	17,208	0	17,208	15,791.63	.00	1,416.37	91.8%
01005011 51050	OVERTIME EARNING	2,750	0	2,750	633.72	.00	2,116.28	23.0%
01005011 51160	LONGEVITY BONUS	1,000	0	1,000	1,000.00	.00	.00	100.0%
01005011 51170	SECRETARIAL SERV	900	0	900	525.00	.00	375.00	58.3%
01005011 51180	FRINGE-DEF COMP	2,000	0	2,000	.00	.00	2,000.00	.0%
01005011 52200	SOCIAL SECURITY	38,283	0	38,283	17,644.20	.00	20,638.80	46.1%
01005011 53200	FEES AND PROFESS	9,500	0	9,500	8,400.00	.00	1,100.00	88.4%
01005011 55300	COMMUNICATIONS	960	0	960	361.99	622.01	-24.00	102.5%*
01005011 55400	ADVERTISING	300	0	300	.00	.00	300.00	.0%
01005011 56100	PRINTING BINDING	500	0	500	376.57	.00	123.43	75.3%
01005011 56110	OFFICE SUPPLIES	800	0	800	660.30	42.13	97.57	87.8%
01005011 56150	POSTAGE	500	0	500	52.28	.00	447.72	10.5%
01005011 58100	EDUCATIONAL AND	600	0	600	.00	.00	600.00	.0%
01005011 58120	TRAVEL AND MEETI	1,050	0	1,050	.00	.00	1,050.00	.0%
TOTAL PUBLIC WORKS - ADMINISTRATION		579,310	0	579,310	276,605.67	70,811.21	231,893.12	60.0%
01005030 PUBLIC WORKS - OPERATIONS								
01005030 51010	REGULAR PAYROLL	4,661,252	0	4,661,252	2,998,104.95	901,030.58	762,116.47	83.6%
01005030 51030	PART-TIME PAYROL	52,037	0	52,037	30,176.58	.00	21,860.42	58.0%
01005030 51050	OVERTIME EARNING	230,900	0	230,900	104,825.86	.00	126,074.14	45.4%
01005030 51060	OVERTIME EARNING	280,000	0	280,000	193,552.70	.00	86,447.30	69.1%
01005030 51070	SEASONAL PAYROLL	111,000	0	111,000	10,281.84	.00	100,718.16	9.3%
01005030 51090	HOLIDAY PAY	12,202	0	12,202	9,233.33	.00	2,968.67	75.7%
01005030 51110	PAY DIFFERENTIAL	38,840	0	38,840	764.06	.00	38,075.94	2.0%
01005030 51150	WORK ATTENDANCE	11,198	0	11,198	3,073.81	.00	8,124.19	27.4%
01005030 51160	LONGEVITY BONUS	33,400	0	33,400	25,600.00	.00	7,800.00	76.6%
01005030 52200	SOCIAL SECURITY	385,573	0	385,573	243,962.01	.00	141,610.99	63.3%
01005030 53200	FEES AND PROFESS	335,291	96,900	432,191	248,420.06	92,086.56	91,684.38	78.8%
01005030 53310	RENTAL AND STORA	50,000	0	50,000	17,699.38	5,968.62	26,332.00	47.3%
01005030 54010	CONTRACTED PROPE	1,997,065	60,000	2,057,065	720,221.19	287,687.54	1,049,156.27	49.0%
01005030 54110	UTILITIES - WATE	120,000	0	120,000	70,402.28	311.95	49,285.77	58.9%
01005030 54111	UTILITIES - WATE	2,800	0	2,800	796.01	.00	2,003.99	28.4%
01005030 54120	UTILITIES - GAS	251,000	0	251,000	158,087.16	.00	92,912.84	63.0%
01005030 54121	UTILITIES-GAS-FT	22,000	0	22,000	6,198.22	.00	15,801.78	28.2%
01005030 54130	UTILITIES - ELEC	637,875	0	637,875	289,354.48	.00	348,520.52	45.4%
01005030 54131	UTILITIES-ELECTR	56,700	0	56,700	19,954.78	1,606.79	35,138.43	38.0%
01005030 54132	UTILITIES-ELECTR	78,750	0	78,750	48,802.52	29,897.48	50.00	99.9%
01005030 54133	UTILITIES-ELECTR	184,188	0	184,188	10,416.67	.00	173,771.33	5.7%
01005030 54140	HEATING FUEL	16,000	0	16,000	-648.83	5,048.83	11,600.00	27.5%
01005030 54150	MOTOR VEHICLE FU	157,080	0	157,080	144,834.35	41,809.37	-29,563.72	118.8%*

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01005030 54310 MAINT/REPAIR EQU	22,000	0	22,000	5,980.46	9,674.45	6,345.09	71.2%
01005030 54320 MAINT/REPAIR OF	468,000	164,012	632,012	398,922.65	113,750.85	119,338.23	81.1%
01005030 54330 MAINT/REPAIR AUT	385,000	5,736	390,736	231,842.29	87,951.04	70,942.57	81.8%
01005030 54340 MAINT/REPAIR IMP	400,000	300,000	700,000	390,088.76	82,909.42	227,001.82	67.6%
01005030 54370 MATERIALS FOR MA	650,000	0	650,000	340,502.64	148,463.76	161,033.60	75.2%
01005030 55300 COMMUNICATIONS	25,490	0	25,490	20,017.35	14,614.59	-9,141.94	135.9%*
01005030 55600 LAUNDRY AND LINE	6,500	0	6,500	5,222.21	777.79	500.00	92.3%
01005030 56100 PRINTING BINDING	2,400	0	2,400	1,974.38	2,025.62	-1,600.00	166.7%*
01005030 56120 CLOTHING AND DRY	12,292	0	12,292	6,453.73	.00	5,838.27	52.5%
01005030 56130 CLEANING AND JAN	45,000	0	45,000	32,223.01	13,400.04	-623.05	101.4%*
01005030 56140 SPECIAL DEPARTME	151,500	0	151,500	92,367.75	83,165.04	-24,032.79	115.9%*
01005030 56150 POSTAGE	500	0	500	62.52	.00	437.48	12.5%
01005030 57000 CAPITAL OUTLAY	277,700	120,117	397,817	77,590.25	279,138.24	41,088.51	89.7%
01005030 57002 CAPITAL - ASPHAL	1,000,000	0	1,000,000	514,934.50	66,692.50	418,373.00	58.2%
01005030 57003 CAPITAL - SIDEWA	80,000	20,857	100,857	38,191.25	9,772.00	52,893.60	47.6%
01005030 58100 EDUCATIONAL AND	6,500	0	6,500	3,279.48	2,090.00	1,130.52	82.6%
01005030 58120 TRAVEL AND MEETI	7,000	0	7,000	4,637.30	.00	2,362.70	66.2%
TOTAL PUBLIC WORKS - OPERATIONS	13,265,033	767,621	14,032,654	7,518,403.94	2,279,873.06	4,234,377.48	69.8%
01005050 BUILDING							
01005050 51010 REGULAR PAYROLL	643,052	0	643,052	511,538.90	154,935.96	-23,422.86	103.6%*
01005050 51050 OVERTIME EARNING	10,000	0	10,000	15,091.65	.00	-5,091.65	150.9%*
01005050 51070 SEASONAL PAYROLL	4,000	0	4,000	3,442.50	.00	557.50	86.1%
01005050 51160 LONGEVITY BONUS	2,200	0	2,200	3,800.00	.00	-1,600.00	172.7%*
01005050 52200 SOCIAL SECURITY	48,841	0	48,841	39,386.58	.00	9,454.42	80.6%
01005050 53000 INFORMATION TECH	12,500	0	12,500	6,316.86	.00	6,183.14	50.5%
01005050 53200 FEES AND PROFESS	3,000	0	3,000	2,520.00	.00	480.00	84.0%
01005050 54150 MOTOR VEHICLE FU	3,925	0	3,925	3,839.05	.00	85.95	97.8%
01005050 55300 COMMUNICATIONS	4,000	0	4,000	3,647.06	3,952.94	-3,600.00	190.0%*
01005050 56100 PRINTING BINDING	3,000	0	3,000	226.80	.00	2,773.20	7.6%
01005050 56110 OFFICE SUPPLIES	2,500	0	2,500	927.18	179.16	1,393.66	44.3%
01005050 56120 CLOTHING AND DRY	2,500	0	2,500	1,018.64	.00	1,481.36	40.7%
01005050 56140 SPECIAL DEPARTME	10,000	0	10,000	71.23	.00	9,928.77	.7%
01005050 56150 POSTAGE	400	0	400	6.80	.00	393.20	1.7%
01005050 57000 CAPITAL OUTLAY	5,000	0	5,000	102.83	.00	4,897.17	2.1%
01005050 58100 EDUCATIONAL AND	2,500	0	2,500	2,423.72	.00	76.28	96.9%
01005050 58120 TRAVEL AND MEETI	2,500	0	2,500	857.82	.00	1,642.18	34.3%
TOTAL BUILDING	759,918	0	759,918	595,217.62	159,068.06	5,632.32	99.3%
01005070 ENGINEERING							
01005070 51010 REGULAR PAYROLL	635,433	0	635,433	490,172.87	117,428.04	27,832.09	95.6%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01005070 51030	PART-TIME PAYROL	14,580	0	14,580	8,226.05	.00	6,353.95	56.4%
01005070 51050	OVERTIME EARNING	3,000	0	3,000	235.82	.00	2,764.18	7.9%
01005070 51070	SEASONAL PAYROLL	4,000	0	4,000	.00	.00	4,000.00	.0%
01005070 51160	LONGEVITY BONUS	1,600	0	1,600	2,400.00	.00	-800.00	150.0%*
01005070 52200	SOCIAL SECURITY	47,552	0	47,552	36,585.20	.00	10,966.80	76.9%
01005070 53000	INFORMATION TECH	12,200	0	12,200	9,040.07	.00	3,159.93	74.1%
01005070 53200	FEES AND PROFESS	3,700	0	3,700	2,187.50	.00	1,512.50	59.1%
01005070 53310	RENTAL AND STORA	2,000	0	2,000	663.04	.00	1,336.96	33.2%
01005070 54150	MOTOR VEHICLE FU	1,884	0	1,884	1,708.32	.00	175.68	90.7%
01005070 54310	MAINT/REPAIR EQU	3,000	0	3,000	2,738.91	144.00	117.09	96.1%
01005070 54330	MAINT/REPAIR AUT	100	0	100	.00	.00	100.00	.0%
01005070 55300	COMMUNICATIONS	1,550	0	1,550	1,267.82	140.18	142.00	90.8%
01005070 55400	ADVERTISING	750	0	750	551.25	.00	198.75	73.5%
01005070 56100	PRINTING BINDING	700	0	700	644.51	.00	55.49	92.1%
01005070 56110	OFFICE SUPPLIES	550	0	550	110.11	375.36	64.53	88.3%
01005070 56120	CLOTHING AND DRY	850	0	850	527.90	.00	322.10	62.1%
01005070 56140	SPECIAL DEPARTME	3,200	0	3,200	2,232.98	.00	967.02	69.8%
01005070 56150	POSTAGE	250	0	250	222.69	.00	27.31	89.1%
01005070 57000	CAPITAL OUTLAY	32,000	0	32,000	.00	.00	32,000.00	.0%
01005070 58100	EDUCATIONAL AND	3,200	0	3,200	2,383.36	.00	816.64	74.5%
01005070 58120	TRAVEL AND MEETI	1,000	0	1,000	528.04	.00	471.96	52.8%
TOTAL ENGINEERING		773,099	0	773,099	562,426.44	118,087.58	92,584.98	88.0%
01006010 HEALTH								
01006010 51010	REGULAR PAYROLL	2,421,131	0	2,421,131	1,760,231.27	544,013.62	116,886.11	95.2%
01006010 51030	PART-TIME PAYROL	425,886	0	425,886	278,182.07	.00	147,703.93	65.3%
01006010 51050	OVERTIME EARNING	2,200	0	2,200	3,288.70	.00	-1,088.70	149.5%*
01006010 51080	TEMPORARY PAYROL	63,000	0	63,000	48,130.63	.00	14,869.37	76.4%
01006010 51160	LONGEVITY BONUS	2,600	0	2,600	2,200.00	.00	400.00	84.6%
01006010 51170	SECRETARIAL SERV	2,000	0	2,000	.00	.00	2,000.00	.0%
01006010 51180	FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01006010 52200	SOCIAL SECURITY	200,295	0	200,295	132,927.58	.00	67,367.42	66.4%
01006010 53200	FEES AND PROFESS	35,000	0	35,000	13,989.26	400.00	20,610.74	41.1%
01006010 54150	MOTOR VEHICLE FU	3,659	0	3,659	2,173.68	.00	1,485.32	59.4%
01006010 54310	MAINT/REPAIR EQU	1,500	0	1,500	150.00	1,370.00	-20.00	101.3%*
01006010 54330	MAINT/REPAIR AUT	100	0	100	.00	.00	100.00	.0%
01006010 55300	COMMUNICATIONS	4,000	0	4,000	1,337.89	662.11	2,000.00	50.0%
01006010 55400	ADVERTISING	950	0	950	.00	.00	950.00	.0%
01006010 56100	PRINTING BINDING	1,600	0	1,600	543.19	.00	1,056.81	33.9%
01006010 56110	OFFICE SUPPLIES	4,000	0	4,000	1,373.11	1,640.64	986.25	75.3%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01006010 56140 SPECIAL DEPARTME	15,900	0	15,900	11,429.03	1,679.15	2,791.82	82.4%
01006010 56150 POSTAGE	3,000	0	3,000	2,458.63	980.00	-438.63	114.6%*
01006010 58100 EDUCATIONAL AND	16,200	0	16,200	7,398.25	.00	8,801.75	45.7%
01006010 58120 TRAVEL AND MEETI	3,000	0	3,000	691.99	.00	2,308.01	23.1%
TOTAL HEALTH	3,207,021	0	3,207,021	2,267,505.28	550,745.52	388,770.20	87.9%
01006050 HUMAN SERVICES							
01006050 51010 REGULAR PAYROLL	173,933	0	173,933	135,475.54	40,669.20	-2,211.74	101.3%*
01006050 51030 PART-TIME PAYROL	357,360	0	357,360	213,632.87	.00	143,727.13	59.8%
01006050 51160 LONGEVITY BONUS	600	0	600	600.00	.00	.00	100.0%
01006050 51170 SECRETARIAL SERV	750	0	750	150.00	.00	600.00	20.0%
01006050 51180 FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01006050 52200 SOCIAL SECURITY	18,607	0	18,607	13,664.66	.00	4,942.34	73.4%
01006050 53200 FEES AND PROFESS	35,750	0	35,750	20,943.58	7,700.00	7,106.42	80.1%
01006050 54150 MOTOR VEHICLE FU	9,460	0	9,460	5,692.59	.00	3,767.41	60.2%
01006050 54310 MAINT/REPAIR EQU	2,000	0	2,000	2,027.80	633.50	-661.30	133.1%*
01006050 54320 MAINT/REPAIR OF	22,000	0	22,000	5,075.00	.00	16,925.00	23.1%
01006050 55400 ADVERTISING	500	0	500	259.52	.00	240.48	51.9%
01006050 56100 PRINTING BINDING	6,500	0	6,500	3,435.98	1,851.27	1,212.75	81.3%
01006050 56110 OFFICE SUPPLIES	3,000	0	3,000	2,306.44	220.01	473.55	84.2%
01006050 56140 SPECIAL DEPARTME	2,000	0	2,000	607.36	368.19	1,024.45	48.8%
01006050 56150 POSTAGE	500	0	500	35.71	.00	464.29	7.1%
01006050 58100 EDUCATIONAL AND	1,000	0	1,000	392.48	.00	607.52	39.2%
01006050 58120 TRAVEL AND MEETI	500	0	500	.00	.00	500.00	.0%
01006050 58190 VETERAN'S SERVIC	4,420	0	4,420	1,097.29	.00	3,322.71	24.8%
01006050 58200 SOCIAL SERVICE P	34,000	0	34,000	18,502.32	.00	15,497.68	54.4%
TOTAL HUMAN SERVICES	673,880	0	673,880	424,899.14	51,442.17	197,538.69	70.7%
01006070 SOLID WASTE & RECYCLING							
01006070 51010 REGULAR PAYROLL	41,733	0	41,733	41,721.63	12,540.00	-12,528.63	130.0%*
01006070 51030 PART-TIME PAYROL	78,678	0	78,678	47,570.81	.00	31,107.19	60.5%
01006070 51050 OVERTIME EARNING	2,513	0	2,513	1,572.76	.00	940.24	62.6%
01006070 51160 LONGEVITY BONUS	400	0	400	.00	.00	400.00	.0%
01006070 51170 SECRETARIAL SERV	1,000	0	1,000	400.00	.00	600.00	40.0%
01006070 52200 SOCIAL SECURITY	3,949	0	3,949	3,950.44	.00	-1.44	100.0%*
01006070 53200 FEES AND PROFESS	3,277,808	0	3,277,808	1,970,831.50	1,272,123.18	34,853.32	98.9%

FOR 2022 09

ACCOUNTS FOR: 010 General Fund		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01006070 54010	CONTRACTED PROPE	809,241	0	809,241	578,988.07	260,889.88	-30,636.95	103.8%*
01006070 54150	MOTOR VEHICLE FU	785	0	785	27.08	.00	757.92	3.4%
01006070 54310	MAINT/REPAIR EQU	3,000	0	3,000	.00	.00	3,000.00	.0%
01006070 55300	COMMUNICATIONS	1,500	0	1,500	216.93	933.07	350.00	76.7%
01006070 55400	ADVERTISING	1,500	0	1,500	-754.64	2,162.74	91.90	93.9%
01006070 56100	PRINTING BINDING	4,200	0	4,200	1,522.00	2,000.00	678.00	83.9%
01006070 56110	OFFICE SUPPLIES	300	0	300	282.23	.00	17.77	94.1%
01006070 56140	SPECIAL DEPARTME	1,500	0	1,500	785.08	67.47	647.45	56.8%
01006070 56150	POSTAGE	5,000	0	5,000	18.91	.00	4,981.09	.4%
01006070 58100	EDUCATIONAL AND	1,025	0	1,025	.00	.00	1,025.00	.0%
01006070 58120	TRAVEL AND MEETI	1,000	0	1,000	63.24	.00	936.76	6.3%
TOTAL SOLID WASTE & RECYCLING		4,235,132	0	4,235,132	2,647,196.04	1,550,716.34	37,219.62	99.1%
01007010 LIBRARY								
01007010 51010	REGULAR PAYROLL	1,457,800	0	1,457,800	1,085,507.88	320,783.33	51,508.79	96.5%
01007010 51030	PART-TIME PAYROL	264,166	55,000	319,166	177,713.29	.00	141,452.71	55.7%
01007010 51110	PAY DIFFERENTIAL	55,006	0	55,006	29,673.48	.00	25,332.52	53.9%
01007010 51160	LONGEVITY BONUS	4,200	0	4,200	4,200.00	.00	.00	100.0%
01007010 51180	FRINGE-DEF COMP	1,000	0	1,000	.00	.00	1,000.00	.0%
01007010 52200	SOCIAL SECURITY	116,850	0	116,850	86,056.96	.00	30,793.04	73.6%
01007010 53200	FEES AND PROFESS	195,290	4,792	200,082	134,486.58	935.00	64,660.39	67.7%
01007010 53310	RENTAL AND STORA	5,500	0	5,500	3,588.84	867.60	1,043.56	81.0%
01007010 54110	UTILITIES - WATE	5,700	0	5,700	3,556.36	43.64	2,100.00	63.2%
01007010 54150	MOTOR VEHICLE FU	707	0	707	683.95	.00	23.05	96.7%
01007010 54310	MAINT/REPAIR EQU	15,716	0	15,716	5,172.31	.00	10,543.69	32.9%
01007010 54320	MAINT/REPAIR OF	28,260	0	28,260	10,886.24	4,347.44	13,026.32	53.9%
01007010 54370	MATERIALS FOR MA	1,100	0	1,100	261.27	100.50	738.23	32.9%
01007010 55300	COMMUNICATIONS	3,000	0	3,000	1,627.59	1,135.25	237.16	92.1%
01007010 56100	PRINTING BINDING	23,000	0	23,000	7,827.64	3,892.62	11,279.74	51.0%
01007010 56110	OFFICE SUPPLIES	29,500	0	29,500	9,322.95	10,942.76	9,234.29	68.7%
01007010 56130	CLEANING AND JAN	10,179	0	10,179	2,415.05	2,323.46	5,440.49	46.6%
01007010 56150	POSTAGE	975	0	975	343.57	.00	631.43	35.2%
01007010 56180	LIBRARY MATERIAL	425,000	0	425,000	226,591.89	119,935.82	78,472.29	81.5%
01007010 58100	EDUCATIONAL AND	3,800	0	3,800	2,055.00	.00	1,745.00	54.1%
01007010 58120	TRAVEL AND MEETI	3,500	0	3,500	369.78	.00	3,130.22	10.6%
TOTAL LIBRARY		2,650,249	59,792	2,710,041	1,792,340.63	465,307.42	452,392.92	83.3%
01007011 LIBRARY - FAIRFIELD WOODS BRAN								
01007011 51010	REGULAR PAYROLL	724,500	0	724,500	558,260.77	167,192.28	-953.05	100.1%*

FOR 2022 09

ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01007011 51030 PART-TIME PAYROL	182,746	35,000	217,746	115,108.39	.00	102,637.61	52.9%
01007011 51110 PAY DIFFERENTIAL	23,488	0	23,488	11,523.70	.00	11,964.30	49.1%
01007011 51160 LONGEVITY BONUS	2,800	0	2,800	3,000.00	.00	-200.00	107.1%*
01007011 52200 SOCIAL SECURITY	54,994	0	54,994	44,335.19	.00	10,658.81	80.6%
01007011 53200 FEES AND PROFESS	24,975	2,750	27,725	10,056.35	200.00	17,468.65	37.0%
01007011 53310 RENTAL AND STORA	2,000	0	2,000	664.44	.00	1,335.56	33.2%
01007011 54110 UTILITIES - WATE	1,625	0	1,625	773.86	476.14	375.00	76.9%
01007011 54310 MAINT/REPAIR EQU	4,622	0	4,622	3,034.82	.00	1,587.18	65.7%
01007011 54320 MAINT/REPAIR OF	13,470	0	13,470	3,796.12	4,724.27	4,949.61	63.3%
01007011 54370 MATERIALS FOR MA	400	0	400	.00	.00	400.00	.0%
01007011 55300 COMMUNICATIONS	1,700	0	1,700	719.10	239.70	741.20	56.4%
01007011 56100 PRINTING, BINDIN	3,000	0	3,000	1,502.74	497.26	1,000.00	66.7%
01007011 56110 OFFICE SUPPLIES	6,500	0	6,500	1,384.93	4,785.60	329.47	94.9%
01007011 56130 CLEANING AND JAN	3,000	0	3,000	625.45	271.46	2,103.09	29.9%
01007011 56150 POSTAGE	325	0	325	.00	.00	325.00	.0%
01007011 56180 LIBRARY MATERIAL	100,000	0	100,000	43,493.92	38,982.05	17,524.03	82.5%
TOTAL LIBRARY - FAIRFIELD WOODS BRAN	1,150,145	37,750	1,187,895	798,279.78	217,368.76	172,246.46	85.5%
01007030 PENFIELD PAVILION COMPLEX							
01007030 51030 PART-TIME PAYROL	42,600	0	42,600	46,537.83	.00	-3,937.83	109.2%*
01007030 51070 SEASONAL PAYROLL	61,425	0	61,425	49,139.33	.00	12,285.67	80.0%
01007030 52200 SOCIAL SECURITY	1,781	0	1,781	1,387.43	.00	393.57	77.9%
01007030 54110 UTILITIES - WATE	4,000	0	4,000	1,690.17	.00	2,309.83	42.3%
01007030 54120 UTILITIES - GAS	14,000	0	14,000	10,600.09	.00	3,399.91	75.7%
01007030 54130 UTILITIES - ELEC	19,000	0	19,000	12,059.82	3,353.61	3,586.57	81.1%
01007030 54310 MAINT/REPAIR EQU	200	0	200	.00	.00	200.00	.0%
01007030 54320 MAINT/REPAIR OF	4,500	0	4,500	2,950.11	.00	1,549.89	65.6%
01007030 55300 COMMUNICATIONS	7,500	0	7,500	4,366.41	1,073.25	2,060.34	72.5%
01007030 56130 CLEANING AND JAN	22,000	0	22,000	9,919.00	9,144.60	2,936.40	86.7%
01007030 56140 SPECIAL DEPARTME	15,000	0	15,000	15,389.17	510.60	-899.77	106.0%*
TOTAL PENFIELD PAVILION COMPLEX	192,006	0	192,006	154,039.36	14,082.06	23,884.58	87.6%
01007050 RECREATION DEPARTMENT							
01007050 51010 REGULAR PAYROLL	563,297	0	563,297	408,745.46	128,938.56	25,612.98	95.5%
01007050 51070 SEASONAL PAYROLL	16,446	0	16,446	5,484.20	.00	10,961.80	33.3%
01007050 51160 LONGEVITY BONUS	2,400	0	2,400	1,400.00	.00	1,000.00	58.3%

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01007050 51170 SECRETARIAL SERV	1,765	0	1,765	720.00	.00	1,045.00	40.8%
01007050 51180 FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01007050 52200 SOCIAL SECURITY	35,884	0	35,884	30,435.82	.00	5,448.18	84.8%
01007050 53200 FEES AND PROFESS	91,500	0	91,500	24,712.71	3,083.26	63,704.03	30.4%
01007050 53310 RENTAL AND STORA	1,600	0	1,600	.00	.00	1,600.00	.0%
01007050 54010 CONTRACTED PROPE	12,000	0	12,000	11,297.04	702.96	.00	100.0%
01007050 54130 UTILITIES - ELEC	0	0	0	13,530.61	.00	-13,530.61	100.0%*
01007050 54320 MAINT/REPAIR OF	30,000	0	30,000	.00	.00	30,000.00	.0%
01007050 56100 PRINTING BINDING	800	0	800	520.38	.00	279.62	65.0%
01007050 56110 OFFICE SUPPLIES	2,500	0	2,500	2,892.81	65.21	-458.02	118.3%*
01007050 56150 POSTAGE	1,500	0	1,500	1,793.03	.00	-293.03	119.5%*
01007050 57000 CAPITAL OUTLAY	0	150,000	150,000	82,852.00	56,448.00	10,700.00	92.9%
01007050 58100 EDUCATIONAL AND	2,000	0	2,000	365.00	.00	1,635.00	18.3%
01007050 58120 TRAVEL AND MEETI	1,200	0	1,200	601.02	.00	598.98	50.1%
TOTAL RECREATION DEPARTMENT	763,892	150,000	913,892	586,350.08	189,237.99	138,303.93	84.9%
01007070 WATERFRONT							
01007070 51070 SEASONAL PAYROLL	418,587	0	418,587	317,128.69	.00	101,458.31	75.8%
01007070 52200 SOCIAL SECURITY	6,070	0	6,070	4,598.46	.00	1,471.54	75.8%
01007070 54110 UTILITIES - WATE	2,000	0	2,000	.00	.00	2,000.00	.0%
01007070 54120 UTILITIES - GAS	1,500	0	1,500	.00	.00	1,500.00	.0%
01007070 54130 UTILITIES - ELEC	2,500	0	2,500	3,212.03	567.74	-1,279.77	151.2%*
01007070 54310 MAINT/REPAIR EQU	4,000	0	4,000	578.84	.00	3,421.16	14.5%
01007070 55300 COMMUNICATIONS	3,650	0	3,650	3,460.28	757.40	-567.68	115.6%*
01007070 56100 PRINTING BINDING	11,500	0	11,500	8,029.82	.00	3,470.18	69.8%
01007070 56120 CLOTHING AND DRY	6,000	0	6,000	.00	.00	6,000.00	.0%
01007070 56140 SPECIAL DEPARTME	6,000	0	6,000	1,779.91	.00	4,220.09	29.7%
01007070 56150 POSTAGE	4,000	0	4,000	4,351.11	.00	-351.11	108.8%*
01007070 57000 CAPITAL OUTLAY	10,000	0	10,000	.00	10,000.00	.00	100.0%
01007070 58100 EDUCATIONAL AND	2,600	0	2,600	1,095.00	.00	1,505.00	42.1%
01007070 58120 TRAVEL AND MEETI	1,600	0	1,600	135.97	.00	1,464.03	8.5%
TOTAL WATERFRONT	480,007	0	480,007	344,370.11	11,325.14	124,311.75	74.1%
01007080 PARKS DEPARTMENT							
01007080 51010 REGULAR PAYROLL	0	0	0	479,083.66	138,070.86	-617,154.52	100.0%*
01007080 51050 OVERTIME EARNING	0	0	0	15,495.41	.00	-15,495.41	100.0%*

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01007080 51060 OVERTIME EARNING	0	0	0	.00	.00	.00	.0%
01007080 51070 SEASONAL PAYROLL	0	0	0	6,231.00	.00	-6,231.00	100.0%*
01007080 51090 HOLIDAY PAY	0	0	0	1,959.91	.00	-1,959.91	100.0%*
01007080 51150 WORK ATTENDANCE	0	0	0	594.24	.00	-594.24	100.0%*
01007080 51160 LONGEVITY BONUS	0	0	0	1,000.00	.00	-1,000.00	100.0%*
01007080 52200 SOCIAL SECURITY	0	0	0	37,132.60	.00	-37,132.60	100.0%*
01007080 53200 FEES AND PROFESS	0	0	0	365.00	.00	-365.00	100.0%*
01007080 54010 CONTRACTED PROPE	0	0	0	601,903.01	437,302.49	-1,039,205.50	100.0%*
01007080 54150 MOTOR VEHICLE FU	0	0	0	11,926.42	.00	-11,926.42	100.0%*
01007080 54310 MAINT/REPAIR EQU	0	0	0	2,108.00	.00	-2,108.00	100.0%*
01007080 54320 MAINT/REPAIR OF	0	0	0	19,083.74	13,136.59	-32,220.33	100.0%*
01007080 54370 MATERIALS FOR MA	0	0	0	39,604.28	24,745.91	-64,350.19	100.0%*
01007080 55300 COMMUNICATIONS	0	0	0	808.07	940.27	-1,748.34	100.0%*
01007080 56120 CLOTHING AND DRY	0	0	0	357.61	.00	-357.61	100.0%*
01007080 56140 SPECIAL DEPARTME	0	0	0	35,466.91	18,995.18	-54,462.09	100.0%*
01007080 58100 EDUCATIONAL AND	0	0	0	145.00	.00	-145.00	100.0%*
TOTAL PARKS DEPARTMENT	0	0	0	1,253,264.86	633,191.30	-1,886,456.16	100.0%
01007090 MARINA							
01007090 51010 REGULAR PAYROLL	63,764	0	63,764	50,520.64	14,714.76	-1,471.40	102.3%*
01007090 51030 PART-TIME PAYROL	28,200	0	28,200	.25	.00	28,199.75	.0%
01007090 51070 SEASONAL PAYROLL	73,944	0	73,944	47,024.00	.00	26,920.00	63.6%
01007090 52200 SOCIAL SECURITY	6,163	0	6,163	4,401.16	.00	1,761.84	71.4%
01007090 54110 UTILITIES - WATE	8,500	0	8,500	5,170.98	.00	3,329.02	60.8%
01007090 54120 UTILITIES - GAS	1,500	0	1,500	428.02	.00	1,071.98	28.5%
01007090 54130 UTILITIES - ELEC	38,000	0	38,000	20,679.66	.00	17,320.34	54.4%
01007090 54310 MAINT/REPAIR EQU	25,000	1,070	26,070	771.60	2,570.00	22,728.40	12.8%
01007090 54320 MAINT/REPAIR OF	25,000	0	25,000	10,184.98	900.60	13,914.42	44.3%
01007090 55300 COMMUNICATIONS	500	0	500	414.57	131.57	-46.14	109.2%*
01007090 56100 PRINTING, BINDIN	2,500	0	2,500	2,198.82	.00	301.18	88.0%
01007090 56120 CLOTHING AND DRY	500	0	500	.00	.00	500.00	.0%
01007090 56140 SPECIAL DEPARTME	10,000	0	10,000	1,183.23	.00	8,816.77	11.8%
01007090 56150 POSTAGE	200	0	200	.00	.00	200.00	.0%
01007090 57000 CAPITAL OUTLAY	60,000	0	60,000	4,731.00	45,957.49	9,311.51	84.5%
01007090 58120 TRAVEL AND MEETI	500	0	500	17.00	.00	483.00	3.4%
TOTAL MARINA	344,271	1,070	345,341	147,725.91	64,274.42	133,340.67	61.4%
01007111 CARL J DICKMAN GOLF COURSE							
01007111 51010 REGULAR PAYROLL	81,058	0	81,058	62,352.00	18,705.60	.40	100.0%

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01007111 51050 OVERTIME EARNING	18,000	0	18,000	13,770.66	.00	4,229.34	76.5%
01007111 51070 SEASONAL PAYROLL	108,225	0	108,225	90,202.50	.00	18,022.50	83.3%
01007111 51150 WORK ATTENDANCE	1,146	0	1,146	935.28	.00	210.72	81.6%
01007111 51160 LONGEVITY BONUS	1,000	0	1,000	1,000.00	.00	.00	100.0%
01007111 52200 SOCIAL SECURITY	8,993	0	8,993	7,077.45	.00	1,915.55	78.7%
01007111 54110 UTILITIES - WATE	8,000	0	8,000	4,079.32	.00	3,920.68	51.0%
01007111 54120 UTILITIES - GAS	2,500	0	2,500	1,958.47	.00	541.53	78.3%
01007111 54130 UTILITIES - ELEC	2,800	0	2,800	.00	.00	2,800.00	.0%
01007111 54150 MOTOR VEHICLE FU	2,247	0	2,247	2,592.73	.00	-345.73	115.4%*
01007111 54310 MAINT/REPAIR EQU	4,000	0	4,000	3,606.00	944.00	-550.00	113.8%*
01007111 54320 MAINT/REPAIR OF	3,900	0	3,900	2,761.41	265.55	873.04	77.6%
01007111 54330 MAINT/REPAIR AUT	3,000	0	3,000	2,233.98	694.81	71.21	97.6%
01007111 54370 MATERIALS FOR MA	4,900	0	4,900	4,318.29	251.56	330.15	93.3%
01007111 56100 PRINTING BINDING	800	0	800	.00	.00	800.00	.0%
01007111 56110 OFFICE SUPPLIES	100	0	100	.00	.00	100.00	.0%
01007111 56120 CLOTHING AND DRY	400	0	400	.00	.00	400.00	.0%
01007111 56130 CLEANING AND JAN	600	0	600	.00	.00	600.00	.0%
01007111 56140 SPECIAL DEPARTME	37,000	0	37,000	19,329.28	18,392.52	-721.80	102.0%*
01007111 57000 CAPITAL OUTLAY	62,328	0	62,328	5,197.68	52,641.42	4,488.90	92.8%
01007111 58100 EDUCATIONAL AND	300	0	300	250.00	.00	50.00	83.3%
TOTAL CARL J DICKMAN GOLF COURSE	351,297	0	351,297	221,665.05	91,895.46	37,736.49	89.3%
01007113 SMITH RICHARDSON GOLF COURSE							
01007113 51010 REGULAR PAYROLL	250,958	0	250,958	195,882.39	58,935.84	-3,860.23	101.5%*
01007113 51050 OVERTIME EARNING	36,699	0	36,699	26,493.05	.00	10,205.95	72.2%
01007113 51070 SEASONAL PAYROLL	190,008	0	190,008	147,973.00	.00	42,035.00	77.9%
01007113 51070 20000 SEASONAL PA	118,500	0	118,500	98,233.75	.00	20,266.25	82.9%
01007113 51150 WORK ATTENDANCE	470	0	470	265.76	.00	204.24	56.5%
01007113 51160 LONGEVITY BONUS	2,000	0	2,000	1,200.00	.00	800.00	60.0%
01007113 51170 SECRETARIAL SERV	800	0	800	630.00	.00	170.00	78.8%
01007113 51180 FRINGE-DEF COMP	1,000	0	1,000	1,000.00	.00	.00	100.0%
01007113 52200 SOCIAL SECURITY	22,932	0	22,932	18,596.34	.00	4,335.66	81.1%
01007113 52200 20000 SOCIAL SECU	1,718	0	1,718	1,384.01	.00	333.99	80.6%
01007113 53200 FEES AND PROFESS	204,810	0	204,810	167,271.22	.00	37,538.78	81.7%
01007113 53310 RENTAL AND STORA	177,299	0	177,299	122,988.08	55,422.74	-1,111.82	100.6%*
01007113 54010 CONTRACTED PROPE	850	0	850	54.30	23.60	772.10	9.2%
01007113 54110 UTILITIES - WATE	41,500	0	41,500	18,929.03	.00	22,570.97	45.6%
01007113 54120 UTILITIES - GAS	5,000	0	5,000	16,335.31	.00	-11,335.31	326.7%*
01007113 54130 UTILITIES - ELEC	34,900	0	34,900	29,449.61	16,091.11	-10,640.72	130.5%*
01007113 54140 HEATING FUEL	14,392	0	14,392	8,305.19	89.81	5,997.00	58.3%

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
01007113 54150 MOTOR VEHICLE FU	15,711	0	15,711	16,053.97	-1,102.84	759.87	95.2%
01007113 54310 MAINT/REPAIR EQU	10,500	0	10,500	9,853.19	4,020.01	-3,373.20	132.1%*
01007113 54320 MAINT/REPAIR OF	75,000	0	75,000	52,944.86	5,438.36	16,616.78	77.8%
01007113 54330 MAINT/REPAIR AUT	12,000	0	12,000	11,440.85	2,902.57	-2,343.42	119.5%*
01007113 54370 MATERIALS FOR MA	25,000	0	25,000	21,401.71	2,827.03	771.26	96.9%
01007113 55300 COMMUNICATIONS	2,000	0	2,000	354.12	267.26	1,378.62	31.1%
01007113 56100 PRINTING BINDING	3,500	0	3,500	1,159.19	.00	2,340.81	33.1%
01007113 56110 OFFICE SUPPLIES	1,000	0	1,000	383.49	395.86	220.65	77.9%
01007113 56120 CLOTHING AND DRY	1,500	0	1,500	632.71	.00	867.29	42.2%
01007113 56130 CLEANING AND JAN	16,000	0	16,000	19,577.86	9,557.14	-13,135.00	182.1%*
01007113 56140 SPECIAL DEPARTME	195,000	0	195,000	174,546.84	17,496.53	2,956.63	98.5%
01007113 57000 CAPITAL OUTLAY	78,000	0	78,000	.00	70,856.39	7,143.61	90.8%
01007113 58100 EDUCATIONAL AND	3,000	0	3,000	2,423.54	.00	576.46	80.8%
01007113 58120 TRAVEL AND MEETI	1,000	0	1,000	697.75	40.00	262.25	73.8%
TOTAL SMITH RICHARDSON GOLF COURSE	1,543,047	0	1,543,047	1,166,461.12	243,261.41	133,324.47	91.4%
01008010 BOARD OF EDUCATION							
01008010 58900 B.O.E. BUDGET	192,084,220	0	192,084,220	.00	.00	192,084,220.00	.0%
TOTAL BOARD OF EDUCATION	192,084,220	0	192,084,220	.00	.00	192,084,220.00	.0%
01010030 DEBT SERVICE							
01010030 53200 FEES AND PROFESS	100,000	0	100,000	101,191.16	39,557.00	-40,748.16	140.7%*
01010030 58600 00001 REDEMPTION	16,886,565	0	16,886,565	16,886,565.00	.00	.00	100.0%
01010030 58600 00002 REDEMPTION	791,953	0	791,953	791,953.00	.00	.00	100.0%
01010030 58600 00003 REDEMPTION	1,746,041	0	1,746,041	1,306,254.23	.00	439,786.77	74.8%
01010030 58610 00001 INTEREST EX	6,030,311	0	6,030,311	6,145,176.17	.00	-114,865.17	101.9%*
01010030 58610 00002 INTEREST EX	66,197	0	66,197	66,197.00	.00	.00	100.0%
01010030 58610 00003 INTEREST EX	21,915	0	21,915	19,712.68	.00	2,202.32	90.0%
TOTAL DEBT SERVICE	25,642,982	0	25,642,982	25,317,049.24	39,557.00	286,375.76	98.9%
01011030 HEALTH & WELFARE SERVICES							
01011030 58500 CONTRIBUTIONS TO	143,957	0	143,957	.00	.00	143,957.00	.0%

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ACCOUNTS FOR: 010 General Fund	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
TOTAL HEALTH & WELFARE SERVICES	143,957	0	143,957	.00	.00	143,957.00	.0%
01099999 GF EXPENSE							
01099999 52200 SOCIAL SECURITY	0	0	0	1,712.00	.00	-1,712.00	100.0%*
01099999 59997 COVID	0	0	0	24,000.00	.00	-24,000.00	100.0%*
TOTAL GF EXPENSE	0	0	0	25,712.00	.00	-25,712.00	100.0%
TOTAL General Fund	332,341,651	1,429,538	333,771,189	114,335,661.98	13,100,910.29	206,334,616.60	38.2%
TOTAL EXPENSES	332,341,651	1,429,538	333,771,189	114,335,661.98	13,100,910.29	206,334,616.60	

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	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
GRAND TOTAL	332,341,651	1,429,538	333,771,189	114,335,661.98	13,100,910.29	206,334,616.60	38.2%

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