

CLEVELAND PUBLIC LIBRARY

Board Meeting

March 21, 2013

**RESOLUTION AUTHORIZING CHANGE ORDERS FOR THE
HEAT CONVERSION CONSTRUCTION PROJECT AT THE MAIN LIBRARY**

WHEREAS, On November 15, 2012, the Board of Trustees of the Cleveland Public Library awarded contracts for the Heat Conversion Construction Project to Marlin Mechanical LLC for mechanical work in the amount of \$639,455.92, and to Siemens Industry Inc. for temperature controls work in the amount of \$481,000, for conversion of the existing electrical heating system to a steam heating system at the Main Library building; and

WHEREAS, Since the contracts were awarded, the Library's consultant, Spectrum Energy Concepts, Inc., has determined through additional analysis (attached to this Resolution) that it would be far more cost effective for the Main Library to convert to a gas heating system than to a steam heating system, estimating that the Library would save more than \$1.7 million in fuel costs in contrast to the cost of steam; and

WHEREAS, In order to modify the contracts to accommodate the switch to gas equipment instead of steam conversion equipment, the Library Administration recommends that the Board of Library Trustees approve the change orders attached to this Resolution and set forth below; and

WHEREAS, The Board of Library Trustees can in its discretion, approve written change orders and subsequently amend the contract sum; and

WHEREAS, Spectrum Energy Concepts Inc. has reviewed the necessity of the following, has prepared and recommends acceptance of the change orders as detailed in the attached;

Contractor	Change	Amount
Marlin Mechanical	CO-M001	(- \$88,904)
	Deduct for steam humidification	
	CO-M002	+\$68,750
	Add for electric humidification	
	CO-M003	+\$157,617
	Add for gas boilers, including bonding	
	Net total increase	\$137,463
Siemens Industry	CO-S001	(\$6,700)
	Deduct for alts. humidification	
	CO-S002	(\$8,558)

Deduct for heat exchange control valves	
CO-S003	+\$2,558
Add for boiler control components	
Net total decrease	(\$12,700)

Now therefore be it

RESOLVED, That the above listed change orders are hereby approved with a \$137,463 increase to the Marlin Mechanical LLC contract being charged to the Building & Repair Fund Account 40190105-55300-12901, and a decrease to the Siemens Industry Inc. contract in the amount of \$12,700.



3346 Arbor Way

Westlake, Ohio 44145

440-915-1200

March 6, 2013

Cleveland Public Library
325 Superior Avenue NE
Cleveland, OH 44114

RE: CHANGE ORDERS –
Main Branch Energy Conservation Project: Electric Heat Conversion

Gentlepeople:

As a result of ongoing investigation into various post-bid scenarios and the thorough vetting of the potential use of Natural Gas as a source of Heating, we offer the following Summary of proposed change orders which will enable the library to benefit from significant ADDITIONAL Energy Savings in the projected amount of \$1,700,000 over the next 10 years.

For simplicity we have broken them down by Vendor. For tracking we use both a letter and number. For example, the first Change Order for Marlin will be designated as "M" and the number 1. The Siemens change orders will all start with an "S" for Siemens.

Marlin Mechanical

Base Bid	\$ 639,455.92
Change Order # M1 - Deduct for all Steam Humidification	- 88,904.00

Base bid for Steam Heating w/o Humidification	\$ 550,551.92
Change Order # M2 – Add for Electric Humidification AHU 1,2,3,4,	+ 68,750.00

Sub Total	\$ 619,301.92
Change Order # M3 – ADD for 3 – Gas Boilers installed, including Additional Bonding cost of \$2072	+ 157,617.00

Sub Total	\$ 776,918.92
NET TOTAL INCREASE TO MARLIN MECHANICAL CONTACT	\$ 137,463.00

RE: CHANGE ORDERS –
Main Branch Energy Conservation Project: Electric Heat Conversion

Siemens Industry

Base Bid	\$ 481,000.00
Change Order # S1 - Deduct Alternate # 3 – AHU5 Humidification	- 3,350.00
Change Order # S2 - Deduct Alternate # 4 – AHU6 Humidification	- 3,350.00
Sub Total Base Bid Items	----- \$ 474,300.00
Change Order # S3 - Deduct for Control Valves on Heat Exchanger not needed with Gas Boilers	- 8,558.00
Change Order # S4 – ADD for Controls components for boilers	+ 2,558.00
Sub Total	----- \$ 468,300.00
NET TOTAL DECREASE TO SIEMENS CONTRACT	\$ 12,700.00

CONTINGENCY

In order to allow for unknown and unforeseeable factors we recommend the amount of \$39,000 be approved as a contingency to accommodate things which may arise. In particular the venting in the Eastman Gardens could prove to be more challenging than has been anticipated in the bids. Generally, it is good practice to have some practical leeway during the course of the project so as to allow the schedule to proceed without revisiting the Board for approval in the event a change is needed.

Recommended Contingency allowance **\$ 39,000.00**

RE: CHANGE ORDERS –
Main Branch Energy Conservation Project: Electric Heat Conversion

Spectrum Energy

Additional Professional Fees for drawings, submittal reviews of Boiler System and Components, Project Management, additional analysis and meetings. \$ 22,860.00

SUMMARY OF CHANGES

Net of changes to Marlin, Siemens ADD	\$ 124,763.00
Recommended Allowance for Contingency	\$ 39,000.00
Additional Professional Fees for added Scope	\$ 22,860.00
TOTAL	<u>\$ 186,623.00</u>

This should summarize all the needed adjustments to install the Natural Gas Boilers as well as the electric humidification systems which are required to protect the integrity of the books in the library. Please note that the projected additional savings from the Gas Boilers adds nearly \$1,750,000 in reduced energy costs over the next 10 years.

Respectfully submitted:



Timothy B. Janos - President
C.E.M., C.E.A., C.R.M., C.S.D.P., C.D.S.M., C.B.E.P.

**CHANGE
ORDER**

OWNER
 PROJECT MANAGER
 CONTRACTOR
 FIELD
 OTHER

AIA DOCUMENT G701

PROJECT: CLEVELAND PUBLIC LIBRARY 325 Superior Avenue Cleveland, Ohio 44114	CHANGE ORDER NUMBER: M-1
TO CONTRACTOR: MARLIN MECHANICAL, LLC 1812 E. 47th Street Cleveland, Ohio 44103	DATE: 3/13/2013 SPECTRUM PROJECT: Main Library Heat Conversion Project CONTRACT DATE: CONTRACT FOR: Mechanical Work

The Contract is changed as follows: Deduct for Direct Steam Humidification as offered as Deduct Alternate on Original Bid. It was determined that direct steam would pose a potential detrimental condition for the preservation of the library books.

APPROVED: _____
 Construction Management

Not valid until signed by the Owner, Architect and Contractor.

The original (Contract Sum) (Guaranteed maximum Price) was	<u>\$639,455.92</u>
Net change by previously authorized Change orders	<u>\$0</u>
The (Contract Sum) (Guaranteed maximum Price) prior to this Change order was	<u>\$639,455.92</u>
The (Contract Sum) (Guaranteed maximum price) will be (i decreased by this Change Order in the amount of	(\$88,904.00)
The new (Contract Sum) (Guaranteed maximum Price) including this Change order will be	<u>\$550,551.92</u>

The Contract Time will be (increased) decreased) (unchanged) by No change
 The date of Substantial Completion as of the date of this Change Order therefore is

NOTE: This summary does not reflect changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive.

<u>Spectrum Energy Concepts, Inc.</u>	<u>Marlin Mechanical, LLC</u>	<u>CLEVELAND PUBLIC LIBRARY</u>
<u>Project Manager</u>	<u>CONTRACTOR</u>	<u>OWNER</u>
<u>3346 Arbor Way</u>	<u>1812 E. 47th Street</u>	<u>325 Superior Avenue</u>
<u>Address</u>	<u>Address</u>	<u>Address</u>
<u>Westlake, OH 44145</u>	<u>Cleveland, Ohio 44103</u>	<u>Cleveland, Ohio 44114</u>
<u>BY</u>	<u>BY</u>	<u>BY</u>
<u>DATE</u>	<u>DATE</u>	<u>DATE</u>

**CHANGE
ORDER**

OWNER	<input checked="" type="checkbox"/>
PROJECT MANAGER	<input checked="" type="checkbox"/>
CONTRACTOR	<input checked="" type="checkbox"/>
FIELD	<input type="checkbox"/>
OTHER	<input type="checkbox"/>

AIA DOCUMENT G701

PROJECT: CLEVELAND PUBLIC LIBRARY 325 Superior Avenue Cleveland, Ohio 44114	CHANGE ORDER NUMBER: M-2	DATE: 3/13/2013
TO CONTRACTOR: MARLIN MECHANICAL, LLC 1812 E. 47th Street Cleveland, Ohio 44103	SPECTRUM PROJECT: Main Library Heat Conversion Project	CONTRACT DATE:
	CONTRACT FOR: Mechanical Work	

The Contract is changed as follows: ADD for Electric Humidification as offered for AHU's 1,2,3,4 systems, as proposed by Marlin Mechanical on December 20, 2012.

APPROVED: _____

Construction Management

Not valid until signed by the Owner, Architect and Contractor.

The original (Contract Sum) (Guaranteed maximum Price) was	<u>\$639,455.92</u>
Net change by previously authorized Change orders	<u>(\$88,904)</u>
The (Contract Sum) (Guaranteed maximum Price) prior to this Change order was	<u>\$550,551.92</u>
The (Contract Sum) (Guaranteed maximum price) will be (i increased by this Change Order in the amount of	<u>\$68,750.00</u>
The new (Contract Sum) (Guaranteed maximum Price) including this Change order will be	<u>\$619,301.92</u>

The Contract Time will be (increased) decreased) (unchanged) by No change
The date of Substantial Completion as of the date of this Change Order therefore is

NOTE: This summary does not reflect changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive.

<u>Spectrum Energy Concepts, Inc.</u>	<u>Marlin Mechanical, LLC</u>	<u>CLEVELAND PUBLIC LIBRARY</u>
<u>Project Manager</u>	<u>CONTRACTOR</u>	<u>OWNER</u>
<u>3346 Arbor Way</u>	<u>1812 E. 47th Street</u>	<u>325 Superior Avenue</u>
<u>Address</u>	<u>Address</u>	<u>Address</u>
<u>Westlake, OH 44145</u>	<u>Cleveland, Ohio 44103</u>	<u>Cleveland, Ohio 44114</u>
<u>BY</u>	<u>BY</u>	<u>BY</u>
<u>DATE</u>	<u>DATE</u>	<u>DATE</u>

**CHANGE
ORDER**

OWNER
 PROJECT MANAGER
 CONTRACTOR
 FIELD
 OTHER

AIA DOCUMENT G701

PROJECT: CLEVELAND PUBLIC LIBRARY	CHANGE ORDER NUMBER:	M-3
325 Superior Avenue	DATE:	3/13/2013
Cleveland, Ohio 44114	SPECTRUM PROJECT:	Main Library Heat Conversion Project
TO CONTRACTOR: MARLIN MECHANICAL, LLC	CONTRACT DATE:	
1812 E. 47th Street	CONTRACT FOR:	Mechanical Work
Cleveland, Ohio 44103		

The Contract is changed as follows: ADD for furnishing and installing 3 Natural Gas Boilers each having a capacity of 3MM BTU for a total of 9MM BTU's, complete with venting into Eastman Gardens as well as all required specialties as quoted by Marlin Mechanical, LLC., price includes additional Bonding Costs in the amount of \$2072.00

APPROVED: _____
 Construction Management

Not valid until signed by the Owner, Architect and Contractor.

The original (Contract Sum) (Guaranteed maximum Price) was	<u>\$639,455.92</u>
Net change by previously authorized Change orders M1, M2	<u>(\$20,154)</u>
The (Contract Sum) (Guaranteed maximum Price) prior to this Change order was	<u>\$619,301.92</u>
The (Contract Sum) (Guaranteed maximum price) will be (i)increased by this Change Order in the amount of	<u>\$157,617.00</u>
The new (Contract Sum) (Guaranteed maximum Price) including this Change order will be	<u>\$776,918.92</u>

The Contract Time will be (increased) decreased) (unchanged) by No change
 The date of Substantial Completion as of the date of this Change Order therefore is

NOTE: This summary does not reflect changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive.

<u>Spectrum Energy Concepts, Inc.</u>	<u>Marlin Mechanical, LLC</u>	<u>CLEVELAND PUBLIC LIBRARY</u>
<u>Project Manager</u>	<u>CONTRACTOR</u>	<u>OWNER</u>
<u>3346 Arbor Way</u>	<u>1812 E. 47th Street</u>	<u>325 Superior Avenue</u>
<u>Address</u>	<u>Address</u>	<u>Address</u>
<u>Westlake, OH 44145</u>	<u>Cleveland, Ohio 44103</u>	<u>Cleveland, Ohio 44114</u>
<u>BY</u>	<u>BY</u>	<u>BY</u>
<u>DATE</u>	<u>DATE</u>	<u>DATE</u>

**CHANGE
ORDER**

OWNER
 PROJECT MANAGER
 CONTRACTOR
 FIELD
 OTHER

AIA DOCUMENT G701

PROJECT: CLEVELAND PUBLIC LIBRARY 325 Superior Avenue Cleveland, Ohio 44114	CHANGE ORDER NUMBER: S-1
TO CONTRACTOR: SIEMENS INDUSTRY, INC. 5350Transportation Blvd Suite 9 Cleveland, Ohio 44125	DATE: 3/13/2013 SPECTRUM PROJECT: Main Library Heat Conversion Project CONTRACT DATE: CONTRACT FOR: Building Automation

The Contract is changed as follows: Deduct for Humidification Control additions for AHU 5 and AHU6 as shown on Original Bid Form. This work has been removed from the revised scope.

APPROVED: _____
 Construction Management

Not valid until signed by the Owner, Architect and Contractor.

The original (Contract Sum) (Guaranteed maximum Price) was	\$481,000.00
Net change by previously authorized Change orders	\$0
The (Contract Sum) (Guaranteed maximum Price) prior to this Change order was	\$481,000.00
The (Contract Sum) (Guaranteed maximum price) will be (i decreased by this Change Order in the amount of	(\$6,700.00)
The new (Contract Sum) (Guaranteed maximum Price) including this Change order will be	\$474,300.00

The Contract Time will be (increased) decreased) (unchanged) by No change
 The date of Substantial Completion as of the date of this Change Order therefore is

NOTE: This summary does not reflect changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive.

<u>Spectrum Energy Concepts, Inc.</u> Project Manager 3346 Arbor Way Address Westlake, OH 44145	<u>SIEMENS INDUSTRY, INC.</u> CONTRACTOR 5350Transportation Blvd Suite 9 Address Cleveland, Ohio 44125	<u>CLEVELAND PUBLIC LIBRARY</u> OWNER 325 Superior Avenue Address Cleveland, Ohio 44114
BY _____	BY _____	BY _____
DATE _____	DATE _____	DATE _____

**CHANGE
ORDER**

OWNER
 PROJECT MANAGER
 CONTRACTOR
 FIELD
 OTHER

AIA DOCUMENT G701

PROJECT: CLEVELAND PUBLIC LIBRARY 325 Superior Avenue Cleveland, Ohio 44114	CHANGE ORDER NUMBER: S-2 DATE: 3/13/2013 SPECTRUM PROJECT: Main Library Heat Conversion Project
TO CONTRACTOR: SIEMENS INDUSTRY, INC. 5350Transportation Blvd Suite 9 Cleveland, Ohio 44125	CONTRACT DATE: CONTRACT FOR: Building Automation

The Contract is changed as follows: Deduct for Automatic Control Valves specified for Steam Heat Exchangers.
 This work has been removed from scope. Per Quotation furnished by Siemens.

APPROVED: _____
 Construction Management

Not valid until signed by the Owner, Architect and Contractor.

The original (Contract Sum) (Guaranteed maximum Price) was	<u>\$481,000.00</u>
Net change by previously authorized Change orders	<u>(\$6,700)</u>
The (Contract Sum) (Guaranteed maximum Price) prior to this Change order was	<u>\$474,300.00</u>
The (Contract Sum) (Guaranteed maximum price) will be (i decreased by this Change Order in the amount of	<u>(\$8,558.00)</u>
The new (Contract Sum) (Guaranteed maximum Price) including this Change order will be	<u>\$465,742.00</u>

The Contract Time will be (increased) decreased) (unchanged) by No change
 The date of Substantial Completion as of the date of this Change Order therefore is

NOTE: This summary does not reflect changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which
 have been authorized by Construction Change Directive.

<u>Spectrum Energy Concepts, Inc.</u> Project Manager 3346 Arbor Way Address Westlake, OH 44145	<u>SIEMENS INDUSTRY, INC.</u> CONTRACTOR 5350Transportation Blvd Suite 9 Address Cleveland, Ohio 44125	<u>CLEVELAND PUBLIC LIBRARY</u> OWNER 325 Superior Avenue Address Cleveland, Ohio 44114
BY _____	BY _____	BY _____
DATE _____	DATE _____	DATE _____

**CHANGE
ORDER**

OWNER
 PROJECT MANAGER
 CONTRACTOR
 FIELD
 OTHER

AIA DOCUMENT G701

PROJECT: CLEVELAND PUBLIC LIBRARY 325 Superior Avenue Cleveland, Ohio 44114	CHANGE ORDER NUMBER: S-3 DATE: 3/13/2013 SPECTRUM PROJECT: Main Library Heat Conversion Project
TO CONTRACTOR: SIEMENS INDUSTRY, INC. 5350Transportation Blvd Suite 9 Cleveland, Ohio 44125	CONTRACT DATE: CONTRACT FOR: Building Automation

The Contract is changed as follows: ADD for Control work and components needed to control the three Natural Gas Boilers being installed by Marlin Mechanical, LLC. As quoted by John Rush of Siemens.

APPROVED: _____
 Construction Management

Not valid until signed by the Owner, Architect and Contractor.

The original (Contract Sum) (Guaranteed maximum Price) was	<u>\$481,000.00</u>
Net change by previously authorized Change orders	<u>(\$15,258.00)</u>
The (Contract Sum) (Guaranteed maximum Price) prior to this Change order was	<u>\$465,742.00</u>
The (Contract Sum) (Guaranteed maximum price) will be (i increased by this Change Order in the amount of	<u>\$2,559.00</u>
The new (Contract Sum) (Guaranteed maximum Price) including this Change order will be	<u>\$468,301.00</u>

The Contract Time will be (increased) decreased) (unchanged) by No change
 The date of Substantial Completion as of the date of this Change Order therefore is

NOTE: This summary does not reflect changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive.

<u>Spectrum Energy Concepts, Inc.</u>	<u>SIEMENS INDUSTRY, INC.</u>	<u>CLEVELAND PUBLIC LIBRARY</u>
<u>Project Manager</u>	<u>CONTRACTOR</u>	<u>OWNER</u>
<u>3346 Arbor Way</u>	<u>5350Transportation Blvd Suite 9</u>	<u>325 Superior Avenue</u>
<u>Address</u>	<u>Address</u>	<u>Address</u>
<u>Westlake, OH 44145</u>	<u>Cleveland, Ohio 44125</u>	<u>Cleveland, Ohio 44114</u>
<u>BY</u>	<u>BY</u>	<u>BY</u>
<u>DATE</u>	<u>DATE</u>	<u>DATE</u>

ALTERNATE ENERGY SOURCES OPERATING COSTS

Month	Heating kWh	Equip BTUs	\$ Electric ops at \$.089/kWh Blend	\$ Steam ops at \$25/mlbs	\$ Nat Gas ops at \$6.00/mcf
January	385200	1314302400	\$34,282.80	\$32,857.56	\$8,762.02
February	303600	1035883200	\$27,020.40	\$25,897.08	\$6,905.89
March	396000	1351152000	\$35,244.00	\$33,778.80	\$9,007.68
April	198000	675576000	\$17,622.00	\$16,889.40	\$4,503.84
May	58200	198578400	\$5,179.80	\$4,964.46	\$1,323.86
June	0	0	\$0.00	\$0.00	\$0.00
July	35400	120784800	\$3,150.60	\$3,019.62	\$805.23
August	115000	392380000	\$10,235.00	\$9,809.50	\$2,615.87
September	286200	976514400	\$25,471.80	\$24,412.86	\$6,510.10
October	171000	583452000	\$15,219.00	\$14,586.30	\$3,889.68
November	103200	352118400	\$9,184.80	\$8,802.96	\$2,347.46
December	195600	667387200	\$17,408.40	\$16,684.68	\$4,449.25
Totals	2247400	7668128800	\$200,018.60	\$191,703.22	\$51,120.86

This table shows annual consumption of Electricity for heating use at both Superior Avenue Buildings, Stokes and Main, based on a two year average. The right hand three columns convert the consumption into monthly costs and total yearly costs for each fuel source.

Escalating Electricity and Natural Gas at 5% per year and use 2% per year for Steam for the purpose of looking at potential 10 year operating costs for the various fuel types yields the following analysis for the next 10 years.

PERIOD	ELECTRIC	STEAM	NATURAL GAS
2013	\$210,020	\$195,537	\$53,677
2014	\$220,521	\$199,448	\$56,361
2015	\$231,547	\$209,420	\$59,179
2016	\$243,124	\$219,891	\$62,138
2017	\$255,280	\$230,886	\$65,245
2018	\$268,044	\$242,430	\$68,507
2019	\$281,446	\$254,552	\$71,932
2020	\$295,519	\$267,279	\$75,529
2021	\$310,294	\$280,643	\$79,305
2022	\$325,809	\$294,676	\$83,270
10 YEAR TOTALS	\$2,841,622	\$2,586,467	\$726,263

SUMMARY

10 years of operating costs for each utility is summarized as follows:

Use existing Electric heating **\$2,841,622**

Use Steam from Cleveland Thermal **\$2,586,467**

Use Natural Gas Boilers* **\$726,263**

* for comparison we project some additional maintenance costs that will be incurred in the amount of \$11,500 per annum

\$115,000

TOTAL GAS COSTS W/ MRO **\$841,263**

**10 YEARS SAVINGS USING NATURAL GAS BOILERS IN LIEU
OF PURCHASING STEAM ARE THEREFORE:**

STEAM COSTS OVER 10 YEARS	\$2,586,467
NATURAL GAS COSTS INCL. MAINTENANCE	\$841,263
NET SAVINGS FROM NATURAL GAS	\$1,745,204

Note that Natural Gas Boilers have a projected lifespan of approximately 20 years according to ASHRAE*
*American Society of Heating Refrigerating Air Conditioning Engineers