



VINCE J. WHIBBS SR. COMMUNITY
MaritimePark™
PENSACOLA, FL

COMMUNITY MARITIME PARK ASSOCIATES, INC.

OPERATIONS AND AUDIT COMMITTEE

MONDAY, FEBRUARY 13, 2017– 3:00 p.m.

AGENDA

- I.** Call to Order– Chairman’s Welcome and Comments
- II.** Approval of Minutes
- III.** Open Forum
- IV.** Marina Grant Update
- V.** Proposed Replacement Scoreboard
- VI.** Elevator Repair Quote
- VII.** Old Business
- VIII.** New Business
- IX.** Adjourn



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The Operations and Audit Committee of the Community Maritime Park Associates, Inc. was called to order at 3:00 P.M. on January 17, 2017. Present at the meeting were Mr. Jim Reeves (arrived 3:05), Mr. Fred Gunther, Mr. James Smith, Ms. Amy Klotz, Mr. Reid Rushing and Mr. John Merting. Absent from the meeting was Mr. Justin Spence. Also present were Mandy Bills, Executive Assistant from the City of Pensacola. The meeting was properly noticed and open to the public. These minutes are a synopsis of the actions taken at that meeting and are not intended as verbatim minutes.

- I. Chairman Merting called the meeting to order at 3:00.
- II. Chairman Merting called for any corrections, additions or deletions to the minutes of the previous meeting. No changes were noted. Mr. Rushing made a motion to approve the minutes as presented. Mr. Smith seconded the motion. The motion passed unanimously (5-0).
- III. Chairman Merting called on Reid Rushing to present the CMPA Property Insurance Deductible Update.

The Board of Trustees requested that the CMPA staff research the option of reducing the property insurance deductible due to recent damage occurring at the Maritime Park. The CMPA Staff reported that the City's property insurer, Florida League of Cities (Florida Municipal Insurance Trust) does not have the ability to provide separate deductibles for individual insured structures that are a part of an overall property schedule.

After much research, Mr. Rushing determined it was not feasible to buy down the deductible because of the cost associated with the premium. He then provided and reviewed with the Committee a few options offered by Beck Partners Insurance that provide virtually the same benefits with a smaller deductible. Mr. Rushing recommended having the City's Risk Manager and the CMPA attorney, Lisa Minshew, review the potential insurance policies.

Mr. Gunther moved that CMPA staff pursue the insurance options provided by Beck Partners Insurance Services with due diligence. Mr. Reeves seconded the motion and it passed 5-0 with Mr. Rushing abstaining.

- IV. Chairman Merting called on Mandy Bills to present an update on Leased Employees. Ms. Bills reminded the Committee that the New Market Tax Credit (NMTC) compliance requirements obligate the CMPA to maintain a minimum of 1.75 leased employees throughout the compliance period as required under the Florida NMTC statute. In May 2010, the City and the CMPA entered into an Employee Leasing Agreement ("Agreement") whereby the CMPA leases certain employees from the City. The Agreement states that upon mutual agreement the lease employees may be modified. The City has proposed the following employees by leased by the CMPA at the percentages indicated:

- Justin Paul, Special Events Coordinator (Leased Employee Percentage 0.95)
- Tonya Vaden, Marketing Coordinator (Leased Employee Percentage 0.25)
- Bill Kimball, Parks Superintendent (Leased Employee Percentage 0.15)
- Robbie McGuire, Building Construction and Facilities Manager (Leased Employee Percentage 0.15)
- Mandy Bills, Executive Assistant (Leased Employee Percentage 0.25)

Mr. Rushing moved that the Committee approve the percentages for leased employees from the City of Pensacola. Mr. Reeves seconded the motion and it passed (6-0).

- V. Chairman Merting called on Mandy Bills to review the FY 2016 Annual Financial Statement Audit. Ms. Bills reviewed the highlights of the CMPA annual financial statements for the fiscal year ended September 30, 2016. She noted that the CMPA's Independent auditors, Saltmarsh, Cleaveland and Gund will be present at the CMPA Board of Trustees Meeting on January 18, 2017 to present the Annual financial Statement Audit and their report issued thereon.

After reviewing the FY 2016 Annual Financial Statement Audit, Mr. Gunther moved to recommend to the CMPA Board of Trustees to approve the FY 2016 Annual Financial Statement Audit. Mr. Rushing seconded the motion. The motion passed unanimously (6-0).

Ms. Bills also noted that the CMPA received a check from University of West Florida in the amount of \$17,173 for the Variable Ticket Surcharge collected on the UWF Football ticket sales which was placed into the Capital Maintenance and Repair Fund. CMPA also received a check in the amount of \$38,000 for Concession Revenue Sharing from NFPB related to the UWF Football Games.

VI. Old Business:

No old business was brought forward.

VII. New Business

The Design Committee has not had a quorum present at their meetings for the last several months and has been unable to make any recommendations. Mr. Reeves suggested that the committee members that are on the Board of Trustees remain committee members with voting rights and the remaining members become strictly advisory members.

Mr. Reeves updated the Committee on the Maritime One, LLC issue regarding the cost of relocating the irrigation line. He stated that the CMPA Board of Trustees has been offered a total of \$20,000 to release the lien that was placed on the property. CMPA has been offered \$6,000 from the contractor and \$14,000 from the insurance company of the contractor. Ms. Minshew will give a full report at the Board of Trustees meeting.

Mr. Reeves noted that Mr. Jonathan Griffith and Mr. Randall Wells had spoken with him and stated that they would like a new sign board (video/scoreboard) at the Community Maritime Park. They stated that the current sign board's warranty has expired and the cost of maintenance would be approximately \$25,000 per year. They proposed purchasing a new sign board at the cost of \$250,000. They would like to split the cost 50/50 with the CMPA. Mr. Reeves suggested that they speak with the University of West Florida and request that they pay \$50,000 towards the new sign board as well.

VII. The meeting was adjourned at 4:02 p.m.



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MEMORANDUM

FOR DISCUSSION

TO: CMPA Operations and Audit Committee

THRU: John Merting, Chairman

FROM: Mandy Bills, Executive Assistant

DATE: February 13, 2017

SUBJECT: Item IV – Marina Grant Update

At the CMPA Board of Trustees Meeting on October 19, 2016 the Board authorized Dave Hemphill with Baskerville Donovan, Inc. (BDI) to pursue grant opportunities on behalf of the CMPA. A retainer in the amount of \$10,000 was approved to compensate BDI for their work. Dave Hemphill will be present at the meeting to provide on update on grant opportunities.



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PENSACOLA, FL

MEMORANDUM

FOR DISCUSSION

TO: CMPA Operations and Audit Committee
THRU: John Merting, Chairman
FROM: Mandy Bills, Executive Assistant
DATE: February 13, 2017
SUBJECT: Item V – Proposed Replacement Scoreboard

Randall Wells, CPA, representative of the Blue Wahoos, will be present to review the details of the proposed new video board to replace the existing scoreboard/videoboard at the stadium.



Proposal for:
PENSACOLA BLUE WAHOOS
 Blue Wahoos Stadium
 Pensacola, FL

16mm PIXEL PITCH
 28'4.25" H x 30'5.25" W

INTEGRATED SCORING AND STATS PACKAGE
 FULLY CUSTOMIZABLE VIDEO AND ADVERTISING ZONES
 FULL VIDEO CAPABILITY

FORMETCO
 SPORTS





VINCE J. WHIBBS SR. COMMUNITY

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PENSACOLA, FL

MEMORANDUM

FOR DISCUSSION

TO: CMPA Operations and Audit Committee

THRU: John Merting, Chairman

FROM: Mandy Bills, Executive Assistant

DATE: February 13, 2017

SUBJECT: Item VI – Elevator Repair Quote

At the January 19, 2017 Board of Trustees Meeting, Chairman Reeves mentioned that the passenger elevator at the Stadium is frequently getting stuck between floors with passengers in the elevator. Therefore, the Chairman authorized ThyssenKrupp, the elevator manufacture, to diagnose the issue and determine the cost to repair the elevator.

ThyssenKrupp has completed the assessment and determined that 3 circuit boards and software upgrades are needed for a total cost of \$8,987. The scope of work and cost estimate from ThyssenKrupp is attached.

ThyssenKrupp Elevator Americas



WORK ORDER



Recommended by: Blair, William

Date: January 24, 2017

Location: Blue Wahoos Stadium

Bill To: Community Maritime Park Assoc
Inc

Address: 301 W Main St

Address: 301 W Main St

City/State/Zip: Pensacola , FL 32502

City/State/Zip: Pensacola , FL 32502

Scope of Work:

Purchaser authorizes ThyssenKrupp Elevator Corporation to perform the following described work on the following vertical transportation equipment in the above building:

We will supply the necessary labor, material, and job specific software for the passenger elevator located at the above location. We will replace one (1) IOD, one (1) CWI and one (1) door operator board with new boards, upgrade existing software for TAC32 controller to latest version, test, make necessary adjustments and return elevator to service upon completion. As part of this repair, we will also upgrade software on service elevator. Time spent diagnosing issues on initial trouble call is not included and will be billed separately.

Purchaser agrees to pay the sum of: Eight Thousand Nine Hundred Eighty Seven Dollars (\$8,987.00) plus any applicable sales tax billed in addition to this contract price.
Price includes shipping and delivery and sales/use tax imposed on TKEC but does not include sales or gross receipts tax that may be billed in addition to the contract price. No permits or inspections by others are included in this work, unless otherwise indicated herein.

Terms and Conditions:

ThyssenKrupp Elevator does not assume any responsibility for any part of the vertical transportation equipment other than the specific components that are described in this Work Order and then only to the extent ThyssenKrupp Elevator has performed the work described above. No work, service, examination or liability on the part of ThyssenKrupp Elevator is intended, implied or included other than the work specifically described above.

It is agreed that ThyssenKrupp Elevator does not assume possession or control of any part of the vertical transportation equipment and that such remains Purchaser's exclusively as the owner, lessor, lessee, possessor, or manager thereof.

Unless otherwise stated herein, ThyssenKrupp Elevator's performance of this Work Order is expressly contingent upon Purchaser securing permission or priority as required by all applicable governmental agencies and paying for any and all applicable permits or other similar documents.

It is agreed that ThyssenKrupp Elevator's personnel shall be given a safe place in which to work. ThyssenKrupp Elevator reserves the right to discontinue its work in the location above whenever, in its sole opinion, ThyssenKrupp Elevator believes that any aspect of the location is in any way unsafe until such time as Purchaser has demonstrated, at its sole expense, that it has appropriately remedied the unsafe condition to thyssenkrupp Elevator's satisfaction.

Unless otherwise agreed, it is understood that the work described above will be performed during regular working hours of the trades involved which are defined as Monday through Friday, 7.30 AM to 4.30 PM (except scheduled union holidays). If overtime is mutually agreed upon, an additional charge at ThyssenKrupp Elevator's usual rates for such work shall be added to the price of this Work Order.

In consideration of ThyssenKrupp Elevator performing the work described above Purchaser, to the fullest extent permitted by law, expressly agrees to indemnify, defend, save harmless, discharge, release and forever acquit ThyssenKrupp Elevator, its employees, officers, agents, affiliates, and subsidiaries from and against any and all claims, demands, suits, and proceedings made or brought against ThyssenKrupp Elevator, its employees, officers, agents, affiliates and subsidiaries for loss, property damage (including damage to the equipment which is the subject matter of this Work Order), personal injury or death that are alleged to have been caused by Purchaser or any others in connection with the presence, use, misuse, maintenance, installation, removal, manufacture, design, operation or condition of the vertical transportation equipment that is the subject of this Work Order, or the associated areas surrounding such equipment. Purchaser's duty to indemnify does not apply to the extent that the loss, property damage (including damage to the equipment which is the subject matter of this Work Order), personal injury or death is determined to be caused by or resulting from the negligence of ThyssenKrupp Elevator and/or its employees. Purchaser recognizes, however, that its obligation to defend ThyssenKrupp Elevator and its employees, officers, agents, affiliates and subsidiaries under this clause is broader and distinct from its duty to indemnify and specifically includes payment of all attorney's fees, court costs, interest and any other expenses of litigation arising out of such claims or lawsuits.

ThyssenKrupp Elevator's performance of this Work Order is contingent upon Purchaser furnishing ThyssenKrupp Elevator with any necessary permission or priority required under the terms and conditions of any and all government regulations affecting the acceptance of this Work Order or the manufacture, delivery or installation of any equipment described in this Work Order. Purchaser shall bear all cost(s) for any re-inspection of ThyssenKrupp Elevator's work due to items outside the scope of this Work Order or for any inspection arising from the work of other trades requiring the assistance of ThyssenKrupp Elevator. If any drawings, illustrations or other descriptive materials were furnished in conjunction with this Work Order, they were intended solely as approximations and to illustrate the general style and arrangement of equipment being offered and should, under no circumstances, be relied upon for their accuracy. Unless otherwise agreed, it is understood that the work described above will be performed during regular working hours of the trades involved. If overtime is mutually agreed upon, an additional charge at ThyssenKrupp Elevator's usual rates for such work shall be added to the price of this Work Order.



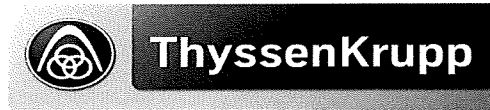
In consideration of ThyssenKrupp Elevator performing the services herein specified, Purchaser, to the fullest extent permitted by law, expressly agrees to indemnify, defend, save harmless, discharge, release and forever acquit ThyssenKrupp Elevator Corporation, ThyssenKrupp Elevator Manufacturing, Inc., their respective employees, officers, agents, affiliates, and subsidiaries from and against any and all claims, demands, suits, and proceedings for loss, property damage (including damage to the equipment which is the subject matter of this Work Order), personal injury or death that are alleged to have arisen out of the presence, use, misuse, maintenance, installation, removal, repair, replacement, modernization, manufacture, design, operation or condition of the equipment that is the subject matter of this Work Order or any equipment located underground, in the elevator car/cab, in the elevator machine room and/or in the hoistways of the project location. Purchaser's duty to indemnify does not apply to the extent that the loss, property damage (including damage to the equipment which is the subject matter of this Work Order), personal injury or death is determined to be caused by or resulting from the sole negligence of ThyssenKrupp Elevator and/or its employees. Purchaser recognizes that its obligation to ThyssenKrupp Elevator under this clause includes payment of all attorneys' fees, court costs, judgements, settlements, interest and any other expenses of litigation arising out of such claims, demands, suits or proceedings.

Purchaser further expressly agrees to name ThyssenKrupp Elevator Corporation and ThyssenKrupp Elevator Manufacturing, Inc. along with their respective officers, agents, affiliates and subsidiaries as additional insureds in Purchaser's liability and any excess (umbrella) liability insurance policy(ies). Such insurance must insure the above-referenced additional insureds for those claims and/or losses referenced in the above paragraph, and for claims and/or losses arising from the additional insureds' sole negligence or responsibility. Such insurance must specify that its coverage is primary and non-contributory. Purchaser hereby waives its right of subrogation.

By executing this Work Order, Purchaser agrees that in no event shall ThyssenKrupp Elevator be liable for any consequential, indirect, incidental, exemplary, special or liquidated damages of any type or kind under any circumstances including any loss, damage, or delay caused by acts of government, labor troubles, strikes, lockouts, fire, explosion, theft, floods, riot, civil commotion, war, malicious mischief, acts of God or any cause beyond its control. ThyssenKrupp Elevator shall automatically receive an extension of time commensurate with any delay regarding the aforementioned. Should loss of or damage to ThyssenKrupp Elevator's material, tools or work occur at the location that is the subject of this Work Order, Purchaser shall compensate ThyssenKrupp Elevator therefore, unless such loss or damage results solely from ThyssenKrupp Elevator's own acts or omissions.

Purchaser agrees that all existing equipment removed by ThyssenKrupp Elevator in the performance of the work described above shall become the exclusive property of ThyssenKrupp Elevator. ThyssenKrupp Elevator retains title to all equipment supplied by ThyssenKrupp Elevator under this Work Order and a security interest therein, (which, it is agreed, can be removed without material injury to the real property) until all payments under the terms of both this Work Order and any mutually agreed to-change orders have been made. In the event Purchaser fails to meet any of its obligations under this Work Order, Purchaser authorizes ThyssenKrupp Elevator to take immediate possession of the equipment installed under this Work Order and enter upon the premises where it is located (without legal process) and remove such equipment or portions thereof irrespective of the manner of its attachment to the real estate or the sale, mortgage, or lease of the real estate. Pursuant to the Uniform Commercial Code, at ThyssenKrupp Elevator's request, Purchaser agrees to join with ThyssenKrupp Elevator in executing any financial or continuation statements which may be appropriate for ThyssenKrupp Elevator to file in public offices in order to perfect its security interest in such equipment.

In the event a third party is retained to enforce, construe or defend any of the terms and conditions of this Work Order or to collect any monies due hereunder, either with or without litigation, the prevailing party shall be entitled to recover all costs and reasonable attorney's fees. Purchaser agrees that this Work Order shall be construed and enforced in accordance with the laws of the state where the vertical transportation equipment that is the subject of this Work Order is located and consents to jurisdiction of the courts, both state and Federal, of that as to all matters and disputes arising out of this Work Order. Purchaser further agrees to waive trial by jury for all such matters and disputes.



The rights of ThyssenKrupp Elevator under this Work Order shall be cumulative and the failure on the part of the ThyssenKrupp Elevator to exercise any rights given hereunder shall not operate to forfeit or waive any of said rights and any extension, indulgence or change by ThyssenKrupp Elevator in the method, mode or manner of payment or any of its other rights shall not be construed as a waiver of any of its rights under this Work Order. In the event any portion of this Work Order is deemed invalid or unenforceable by a court of law, such finding shall not affect the validity or enforceability of any other portion of this Work Order. This Work Order shall be considered as having been drafted jointly by Purchaser and ThyssenKrupp Elevator and shall not be construed or interpreted against either Purchaser or ThyssenKrupp Elevator by reason of either Purchaser or ThyssenKrupp Elevator's role in drafting same.

ThyssenKrupp Elevator does not assume any responsibility for any part of the vertical transportation equipment other than the specific components that are described in this Work Order and then only to the extent ThyssenKrupp Elevator has performed the work described above. ThyssenKrupp Elevator has made no examination of, and assumes no responsibility for, any part of the elevator equipment except that necessary to do the work described above. It is agreed that possession and control of the vertical transportation equipment remains Purchaser's exclusively as the owner, lessor, lessee, possessor, or manager thereof.

ThyssenKrupp Elevator complies with provisions of Executive Orders 11246, 11375, 11758, Section 503 of the Rehabilitation Act of 1993, Vietnam Era Veteran's Readjustment Act of 1974, 38 U.S.C. 4212 and 41 CFR Chapter 60. ThyssenKrupp Elevator supports Equal Employment Opportunity and Affirmative Actions Compliance programs.

ThyssenKrupp Elevator Americas



Unless otherwise stated, you agree to pay as follows: 50% upon signed acceptance and 50% upon completion.

To indicate acceptance of this work order, please sign and return one (1) original of this agreement to the address shown below. Upon receipt of your written authorization and required materials and/or supplies, we shall implement the work order.

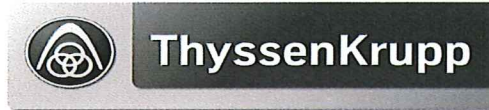
This Work Order is submitted for acceptance within 30 days from the date executed by ThyssenKrupp Elevator Corporation.

Purchaser's acceptance of this Work Order together with the terms and conditions printed on subsequent pages hereof and which are expressly made a part of this proposal and agreed to, will constitute exclusively and entirely the agreement for the work herein described. All prior representations or agreements regarding this work, whether written or verbal, will be deemed to be merged herein, and no other changes in or additions to this agreement will be recognized unless made in writing and properly executed by both parties. This Work Order specifically contemplates work outside the scope of any maintenance contract currently in effect between the parties; any such contract shall be unaffected by this Work Order.

No agent or employee shall have the authority to waive or modify any of the terms of this agreement without the written approval of an authorized ThyssenKrupp Elevator Corporation manager.

| ThyssenKrupp Elevator Corporation | | ThyssenKrupp Elevator Corporation Approval |
|--|---|---|
| By: _____ (Signature of ThyssenKrupp Elevator Representative) | By: _____ (Signature of Authorized Individual) | By: _____ (Signature of Authorized Individual) |
| Amanda Edwards Account Manager amanda.edwards@thyssenkrupp.com +1 | Robbie McGuire _____ (Print or Type Name) _____ (Print or Type Title) | Kyle Jordan Branch Manager |
| January 24, 2017 _____ (Date Submitted) | _____ (Date of Approval) | _____ (Date of Approval) |

ThyssenKrupp Elevator Americas



SCHEDULING AND PRODUCTION REQUEST FOR PAYMENT

Contract Number:

Please Remit To: thyssenkrupp Elevator Corporation
PO Box 933004
Atlanta, GA 31193-3004

Attn:

Community Maritime Park Assoc Inc
301 W Main St
Pensacola , FL 32502

| Terms | Repair Quote No. | Customer Reference No./PO | Date | Reference Number |
|-----------|------------------|---------------------------|------------------|------------------|
| Immediate | 2017-2-319001 | | January 24, 2017 | ACIA-18C1NLU |

| | |
|----------------------|------------|
| Total Contract Price | \$8,987.00 |
| Current Amount Due | \$4,493.50 |

For inquiries regarding your contract or services provided by thyssenkrupp Elevator, please contact your local account manager at +1. To make a payment by phone using your check or credit card, please call 786-336-5324 with the reference information provided below.

Thank you for choosing thyssenkrupp Elevator Corporation. We appreciate your business.

Please detach the below section and provide along with payment.

Remit To:

thyssenkrupp Elevator Corporation
PO Box 933004
Atlanta, GA 31193-3004

| | |
|---------------------------|---------------|
| Customer Number: | |
| Payment Reference Number: | ACIA-18C1NLU |
| Quote Number: | 2017-2-319001 |
| Remittance Amount: | \$4,493.50 |

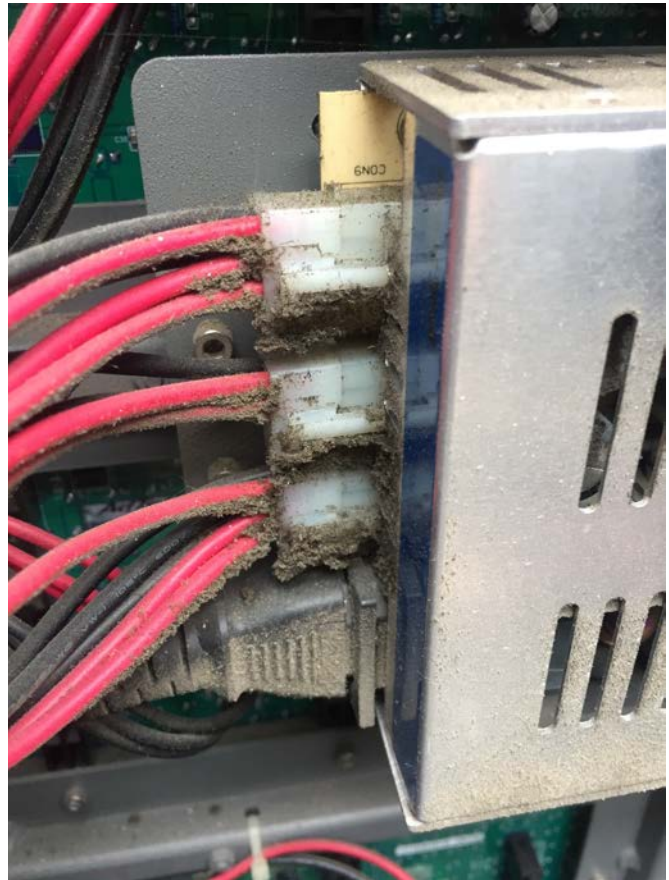
Customer Name: Community Maritime Park Assoc Inc
Location Name: Blue Wahoos Stadium

Environmental Management

Contaminate and Waterproofing

Historically, the number one reason for electronic failures in a LED Screen is contaminate, corrosion caused by Water and contaminate intrusion into the LED screen cabinet. The following will outline failure issues common on typical LED Screens:

- Power supply fail do to fan failure or fans blowing contaminates and moisture into the LED screen cabinet.
- LED Tile failures do to the cabinet intake fans blowing contaminate and moisture into the enclosed LED Screen cabinet. This problem is magnified in coastal areas and areas where salt is used on the roads in the winter.
- Data cable connector failure do to corrosion caused by high Humidity conditions from moisture being blown into the LED screen cabinet by the cabinet fans.
- Power supply, tile, and data cable connectors' premature failure caused by operating in over temp conditions caused by cabinet fan failures and or clogged air intake filters.
- Excessive cost of power, caused by power supplies operating at higher temperatures caused by cabinet fan failures and or clogged air intake filters. Power supplies are less efficient at higher temperatures.
- Premature LED degeneration and/or discoloration caused by the LED's operating in higher temperature conditions caused by fan failures and/or clogged air intake filters.
- Failures caused by Water intrusion from Leaking cabinets or loose LED Tiles. Big LED screens structures can sag over time causing cracks in the LED cabinet causing additional leaks. LED tiles that are not installed correctly will also leak. This leads to water corrosion, higher humidity and component failure.
- Large enclosed cabinets capture the heat and humidity. Most large cabinet designs we analyzed had insufficient air exchange volume and had inefficient air circulation design to properly cool the internal components.





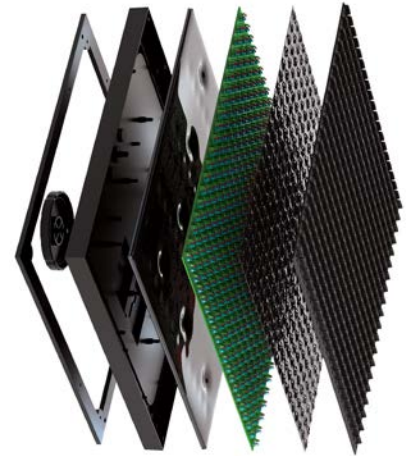
POWERED
BY **AdTech**

Formetco's FTX LED Screen design is completely sealed without fans. Extensive engineering efforts went into the design of heat management and energy efficiency.

Formetco's Contaminate and Waterproofing

The below will outline Formetco's product design for proper control of Contaminates and Waterproofing:

- Louver Face – Ridges to direct Sunlight (and Solar Heat) up and away from the louver face. Curved louver hoods to keep water from accumulating on top of the louver causing moisture problems and visual issues during and after Rain.
- LED Tile- 100% Totally Sealed front and back with a highly efficient heat conductive silicon potting material. The LED tile Housing is completely filled without any air gaps to improve heat dissipation.
- Data and Power Connections – At the LED Tile, connections are located behind a sealed cap and connected behind the potting material so the LED tile is completely sealed and the connector is sealed. At the power supply and data receiver card end, the connections are in a sealed watertight box. Also, we have 50% to 75% less connections.
- All data connections have water resistance Dow Corning Electrical Insulation Compound applied to reduce the possibly of corrosion.
- Power Supply and Data Receiver Card Enclosure – The enclosure is sealed and it is also Fan-less. In addition, we only use Fan-less Power Supplies. No air exchange with external environment.
- Cabinet – The cabinet is vented and open. It does not need to be sealed because all the components are waterproof. No possible problems with traditional leaking cabinets.







Formetco's Heat Management

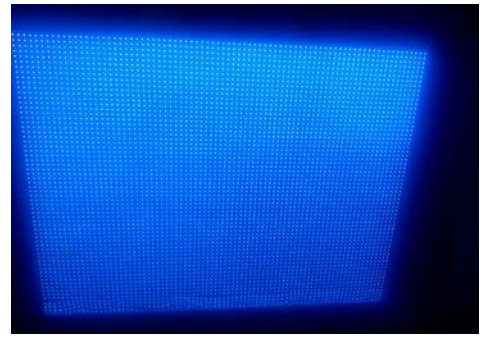
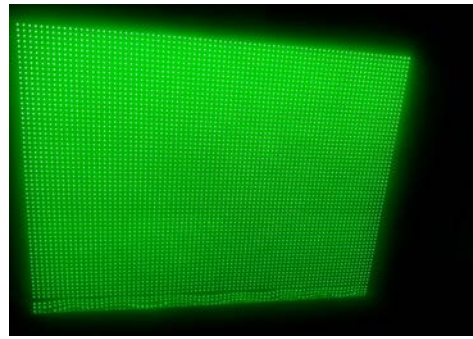
The FTX product design process took three years. The main hurdle in specifying and testing the components with regards to energy efficiency and heat dissipation. We had to develop the correct balance of heat generated and thermal cooling effectiveness. Heat testing and field testing has proven that the fan-less design of the FTX runs cooler in high temperature conditions than traditional cabinets with fans. The FTX product started shipping at the end of 2014, we have almost 1,000 installations operating 24 hours a day 365 days a year from Cairo Egypt, Lima Peru, Phoenix Arizona and all over Alabama, Georgia and Florida.

The basic theory is that if a LED Screen consumes less power it will generate less heat that needs to be dissipated. The main cause of premature failure and reduced useful life of an LED Screen is Heat and Humidity. Please review the following:

- Energy Efficiency components and design uses less power so the LED Screen generates less heat to dissipate.
- Louver face designed to reflect sunlight and solar heat up and away from the LED electronics. By incorporation angle ridges in the background of the louver face, sunlight and heat is reflected up and away from the louver face. This also increases the amount of surface area also improving the cooling capabilities. This is called Formetco's Louver Face Mirror Reflector Design.
- LED Tile- 100% Totally Sealed front and back with a highly efficient heat conductive silicon potting material. The LED tile Housing is completely filled without any air gaps; this improves heat dissipation. The conductive silicon pulls the heat away from the components to improve radiant cooling.
- The power supply is enclosed in a sealed power supply box. The power supply uses a special heat transfer material between power supply and the heat dissipating aluminum housing. Delta has tested our design with the power supply suspended in the box not using the aluminum housing for additional cooling and have certified that their power supply will operate at a ambient temp of 70C/158F.
- Each power supply box has one data receiver card. On each data receiver card is a temp sensor. Over the years, we have monitored the internal temperature of our F4X that uses a traditional cabinet with fans. In 100F ambient temperature day, operating in direct sunlight on the face of the sign, the internal temperature on the receiver card will reach a temperature of just over 140 F. The highest recorded internal temperature on the fan-less FTX this summer with 104F ambient temperature in direct sunlight recorded was 128F.
- Total system testing - Formetco has tested a complete cabinet operating a full bright white in a heat chamber for 192 hours continually at 70C and 90% humidity without any operational issues.
- See Heat Test Reports- See the test report XSP-016 Power Supply Test Report at the end of this section.

Environmental Reliability Test Report

| | | | | |
|---|--|--|-----------|--|
| 1. Sample Info : | | Test No. : XSP-135 | | |
| Name : Cabinet | | Applicable Ambient:Outdoors | | |
| Part No.F16 | | Material Code : | | |
| Sampling number : 1PCS | | Manufacturer : ledman | | |
| Start Date : 2015-3-20 | | Completion Date : 2015-3-28 | | |
| 2. State of test sample : product in production | | | | |
| 3. Main evaluation purpose : reliability evaluation of products in production | | | | |
| 4. Test standard: Custom test methods provided by application division | | | | |
| 5. Environmental test device : Programmable constant temperature and humidity test chamber | | | | |
| 6. Test method,condition and duration: | | | | |
| (1) High-temperature and high-humidity test:70°C90%RH , all white pattern/192H | | | | |
| 7. Criterion: LED display inspection specification | | | | |
| 8 Testing process: Initial detection(OK)→High-temperature and high-humidity test(OK)→Terminated detection(OK)→End | | | | |
| 9. Judgement: | | | | |
| Sample Name | Pre-test | Post-test | Judgement | |
| Cabinet | OK | System operating normally and without LED fail | OK | |
| Picture description |   | | | |
| | Put the whole-white cabinet into the test chamber , setting it as 70°C90%RH | | | |
| |   | | | |



Running normally during and after the test

Comprehensive judgement result

After doing the 192H High-temperature and high-humidity Environmental Reliability Test ,it still running normally(Noted: This testing result is effective only for this sample.)

Remark

"-": No test or no condition for testing

責 Responsible departments will make an improvement plan according to the above defective condition.

Tested by/Date : Chunheng Liu
2015-3-31

Reviewed by/Date : Guozhong Zhu
2015-3-31

Rechecked by/Date : Shengwu Zhou
2015-3-31

Lighting Products' Environmental Reliability Test Report

| | | | | | | |
|--|------------|--|---|---|----------------|-----------|
| 1. Sample Info: | | Test No.: XSP-016 | | | | |
| Test No.: power supply | | Applicable Ambient: outdoor | | | | |
| Part No.: | | Material Code: L.B.182.TD4260-01 | | | | |
| Sampling number: 1PCS | | Manufacturer:Delta | | | | |
| Start Date: 2014-11-3 | | Completion Date: 2014-11-8 | | | | |
| 2.State of test sample: raw material | | | | | | |
| 3. Main evaluation purpose: Reliability evaluation of raw material | | | | | | |
| 4. Test standard: sampling and unqualified disposal regulations for LED display products' reliability | | | | | | |
| 5. Environmental test device:Programmable constant temperature and humidity test chamber,Switching surge tester,salt spraying tester | | | | | | |
| 6. Test method,condition and duration: | | | | | | |
| (1) Low temperature test: -30°C/running with 85% of the 220V power load/24H | | | | | | |
| (2) High temperature test: 55°C/running with 85% of the 220V power load/24H | | | | | | |
| (3) Humid heat test: 45°C90%RH/running with 85% of the 220V power load/24H | | | | | | |
| (4) Switching surge test: ON 10S ~ OFF 10S/24H | | | | | | |
| (5) Salt spray test: test solution PH: 6.5-7.3/24H | | | | | | |
| 7. Criterion: sampling and unqualified disposal regulations for LED display products' reliability | | | | | | |
| 8. Judgement: | | | | | | |
| Sample No. | | 1# | | | | |
| Test item | | Initial detection | Testing process | Terminated detection | rate of change | Judgement |
| Appearance | | OK | Apperance inspection(OK)→Low temperature load(OK)→High temperature load(OK)→Wet and hot load(OK)→Switching surge(OK)→Salt spray test(OK)→Terminated detection(OK)→End | OK | -- | OK |
| Function | Voltage(V) | 4.20 | | 4.20 | 0 | OK |
| | Current(A) | 51.00 | | 51.00 | 0 | OK |
| | Power(W) | 214.20 | | 214.20 | 0 | OK |
| Picture description | | leave out | | | | |
| Comprehensive judgement result | | After doing the Environmental Reliability Test, we didn't find any abnormality, so this test's comprehensive judgement result is qualified. (Noted: This testing result is effective only for this sample.) | | | | |
| Remarks | | No test or no condition for testing | | | | |
| | | Responsible departments will make an improvement plan according to the above defective condition. | | | | |
| Tested by/Date : Chunheng Liu 2014-11-8 | | Reviewed by/Date : Guozhong Zhu 2014-11-8 | | Rechecked by/Date : Shengwu Zhou 2014-11-8 | | |

Power Supplies

Formetco uses a Delta PMR-4V320WDE Fanless power supply. The attached manufactures data sheet shows a Meantime between failures of 700,000 hours on page 3 under Reliability Data.

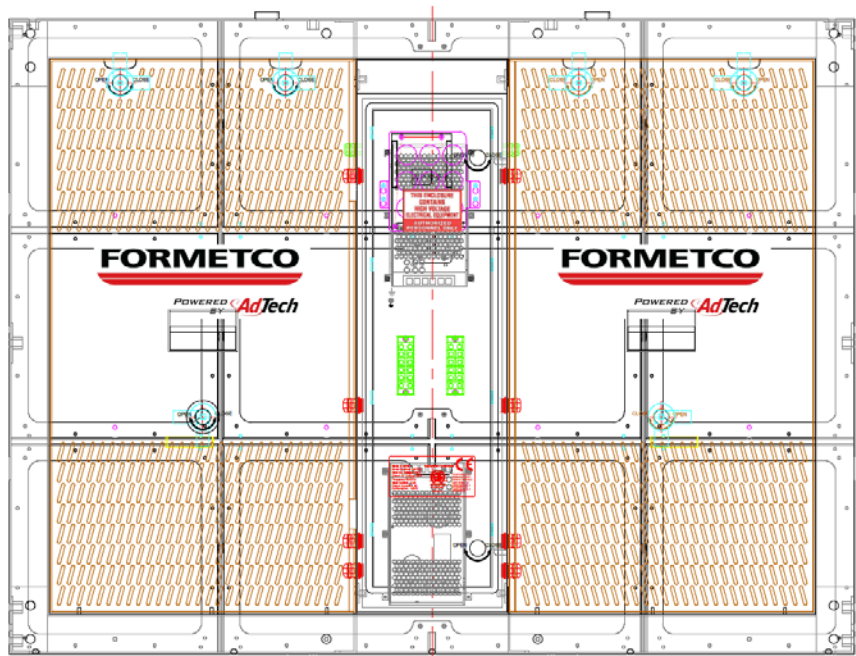
Power Supply Key Features:

- Manufactured by the number one power supply manufacturer in the world - Delta
- Universal AC input voltage
- Full corrosion resistant Aluminum case and chassis
- Conformal coated
- MTBF > 700,000 hours
- Built-in active PFC and conforms to harmonic current IEC/EN 61000-3-2, Class A and Class D
- High reliability with fan-less design and conductive cooling
- Built-in DC OK and redundancy operation
- Operating temp range specified to 70C
- Hiccup mode (auto-recovery) non-latching for all modes, overvoltage/overcurrent/over temperature
- Certified for worldwide use

Historically Formetco has been using conformal coated power supplies for over 5 years. There are three ways that conformal coating can be applied, brushed, sprayed or dipped. The first two methods do not produce acceptable results. Delta power supplies conformal coating is applied with a dipping process.

This power supply draws a lower electrical inrush current than traditional power supplies. In addition, it also emits less noise.

Another advantage of the Delta power supply is its intelligent self-monitoring. In the event of an over-voltage or low power fault, the power supply goes into a safety mode and shuts down. In a traditional power supply, the only way to restart a power supply that has shut down for these faults is to manually power cycling the LED Screen. In the case of the Delta power supply, it continually monitors the incoming voltage and its own temperature and will automatically restart once the critical condition has passed.



Power supply percent of load calculations – The below chart shows the percent of load on the power supplies at various operating temperatures and load conditions:

| Temp | Capacity (ea.) Two power supplies are used | Total Load - 4,800 Pixels 7,500NIT White | Percent of Capacity at Full Load (ea.) | Percent of Capacity at Normal Operating - 40% (ea.) | Night Time Percent of load |
|------|---|---|---|---|----------------------------------|
| 40 | 252 | 288 | 57.1% | 22.9% | 3% |
| 50 | 226 | 288 | 63.7% | 25.5% | 3% |
| 60 | 189 | 288 | 76.2% | 30.5% | 4% |
| 70 | 152 | 288 | 94.7% | 37.9% | 5% |

The power supply is enclosed in a sealed power supply box. The power supply uses a special heat transfer material between power supply and the heat dissipating aluminum housing. Delta has tested our design with the power supply suspended in the box not using the aluminum housing for additional cooling and have certified that their power supply will operate at a ambient temp of 70C/158F.

The power supply can also be wired in a parallel configuration for redundancy. Because of the high mean time between failure, and low observed failure rate, we have opted not to utilize the redundancy configuration as it can reduce the efficiency of the overall power supply system by up to 10%.



The Delta power supply is equipped with screw terminal connections. In the prior 4 years with the F4X product line, we used power supplies with quick disconnect molded connectors. Through the F4X's product life we have encountered an unacceptable failure rate with this type of connector. In the design criteria for the FTX product we searched for a power supply with a high mean time between failures rating, so that the need to replace a power supply was minimized and the quick disconnect connector unnecessary.

The recorded failure rate of the Delta Power supply is less than .005%



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A power supply failure typically takes out 6 to 12 Sq.Ft of the sign area.

For our service made simple instructional video scan the QR code:

FTX Power Supply Change

<https://www.youtube.com/watch?v=51SxPI0mDZs>

