

**VILLAGE OF LOMBARD**  
**REQUEST FOR BOARD OF TRUSTEES ACTION**  
**For Inclusion on Board Agenda**  
**BIDS AND PROPOSALS**

To: President and Village Board of Trustees  
FROM: Scott Niehaus, Village Manager  
DATE: July 5<sup>th</sup>, 2016 Agenda Date: July 21, 2016  
TITLE: Fire Station Wireless

SUBMITTED BY: John Doser, IT Manager

**RESULTS:**

Date Bids Were Published: N/A ..... Date Bidding Closed: N/A  
Total Number of Bids Received: N/A  
Total Number of Bidders Meeting Specifications .....N/A  
Bid Security Required .....  Yes  No  
Performance Bond Required.....  Yes  No  
Were Any Bids Withdrawn .....  Yes  No  
Explanation .....  
Waiver of Bids Requested? .....  Yes  No  
If yes, explain: Sole Vendor for Federal Siren  
Award Recommended to Lowest Responsible Bidder  Yes  No  
If no, explain: N/A

**FISCAL IMPACT:**

Engineer's estimate/budget estimate: \$24,000.00  
Amount of Award: \$23,287.00 G/L ACCT: 640.840.840.73910

**BACKGROUND/RECOMMENDATION:**

Has Recommended Bidder Worked for Village Previously  Yes  No  
If yes, was quality of work acceptable  Yes  No  
Was item bid in accordance with Public Act 85-1295?  Yes  No  
Waiver of bids - Public Act 85-1295 does not apply  Yes

**REVIEW** (as needed):

Finance Director XX \_\_\_\_\_ Date \_\_\_\_\_  
Village Manager XX \_\_\_\_\_ Date \_\_\_\_\_

**NOTE: All materials must be submitted to and approved by the Village Manager's Office by 12:00 Noon, Wednesday, prior to the Board Agenda distribution.**



To: Scott Niehaus  
Village Manager

From: John Doser  
I.T. Staff

Date: July 5th, 2016

Subject: Fire Station Wireless

Fire Station 44 and 45 at present are connected to the Village of Lombard's internal network with T1 lines. T1 lines provide 1.5 MB a second data through put which is about 5% of the network speed a person on any home internet provider would receive.

While the T1s work and the fire staff are completing their tasks the network connection can be slow at times. For example every month when the IT department pushes the Microsoft updates to the computers at the fire stations the network becomes very slow.

IT recommends installing a high speed wireless system to increase the network connection speeds from the Fire Stations to the Village Hall to 100MB per second. The wireless system will be owned and managed by the Village of Lombard and will not have any monthly reoccurring costs.

The new wireless system should be free of any additional costs for 7 years and will improve the computer productivity of the fire staff. After the system is in place for a few months the existing T1 lines will be removed. This cost savings will offset the cost of wireless network installation over time.

This project was budgeted in the 2016 budget for less than 20K. The cost of the project went up due to needed changes to meet engineering requirements for attaching a tower of this size to the exterior wall of the Fire Station. For this reason we are requesting Village Board approval.

Staff is requesting authorization to install the high speed wireless network connecting both fire stations to the Village Hall.



211 S. Prospect Rd.  
 Suite 11  
 Bloomington, IL 61704  
 PO Box 818  
 Normal, IL 61761  
 Phone: 309-452-3157

**Entre Solutions II**

**QUOTE**

**Number** ENTQ1612

**Date** Jun 13, 2016

<b>Sold To</b>	<b>Ship To</b>	<b>Your Sales Rep</b>
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**Village of Lombard**  
 John Doser  
 255 E. Wilson Ave.  
 Lombard, IL 60148  
 United States

**Village of Lombard**  
 John Doser  
 255 E. Wilson Ave.  
 Lombard, IL 60148  
 United States

Tom Blumenshine  
 309-452-3157  
 tomb@entrebloom.com

**Phone** (312) 292-0461  
**Fax**

**Phone** (312) 292-0461  
**Fax**

<b>Terms</b>	<b>P.O. Number</b>	<b>Ship Via</b>
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Qty	Description	Unit Price	Ext. Price
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*Link One (Charles Fire House to Water Tower)*

1	Airaya 375 Mbps Outdoor Wireless Backhaul Link <i>with bulkhead PoE Connectors, 300 Mbps radios with dual TX/RX paths, PoE surge protectors, 2 x 24dBi Dual-feed Panel Antennas, 4 x 6ft RF Cables</i>	\$3,099.00	\$3,099.00
1	Rohn 25G 50ft Bracketed Tower, including Stamped Rohn Engineer drawing, materials, and labor	\$5,995.00	\$5,995.00
1	1000' Belden Outdoor rated CAT5e	\$198.00	\$198.00
2	PoE Lightning Arrestor <i>- 48VDC, 0.3A Power. 10/100 Mbps Ethernet</i>	\$104.00	\$208.00
2	Misc. Hardware (Mast, Mounting Hardware, and Cinder Blocks)	\$250.00	\$500.00
43	Entre Tech Time - 1 Hour	\$120.00	\$5,160.00

*Link Two (Village Hall Tower to Water Tower)*

1	Airaya 375 Mbps Outdoor Wireless Backhaul Link <i>with bulkhead PoE Connectors, 300 Mbps radios with dual TX/RX paths, PoE surge protectors, 2 x 24dBi Dual-feed Panel Antennas, 4 x 6ft RF Cables</i>	\$3,099.00	\$3,099.00
2	PoE Lightning Arrestor	\$104.00	\$208.00

PRICES SUBJECT TO CHANGE - PRICES BASED UPON TOTAL PURCHASE - ALL DELIVERY, TRAINING OR CONSULTING SERVICES TO BE BILLED AT PUBLISHED RATES FOR EACH ACTIVITY INVOLVED - GENERALLY ALL HARDWARE COMPUTER COMPONENTS PROPOSED ABOVE ARE COVERED BY A LIMITED ONE YEAR WARRANTY, COVERING PARTS AND LABOUR FOR HARDWARE ONLY AND ON A DEPOT BASIS - WE SPECIFICALLY DISCLAIM ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OR WITH REGARD TO ANY LICENSED PRODUCTS. WE SHALL NOT BE LIABLE FOR ANY LOSS OF PROFITS, BUSINESS, GOODWILL, DATA, INTERRUPTION OF BUSINESS, NOR FOR INCIDENTAL OR CONSEQUENTIAL MERCHANTABILITY OR FITNESS OF PURPOSE, DAMAGES RELATED TO THIS AGREEMENT. MINIMUM 15% RESTOCKING FEE WITH ORIGINAL PACKAGING. (NEGOTIABLE)

Qty	Description	Unit Price	Ext. Price
	- 48VDC, 0.3A Power. 10/100 Mbps Ethernet		
2	Misc. Hardware (Mast, Mounting Hardware, and Cinder Blocks)	\$250.00	\$500.00
36	Entre Tech Time - 1 Hour	\$120.00	\$4,320.00

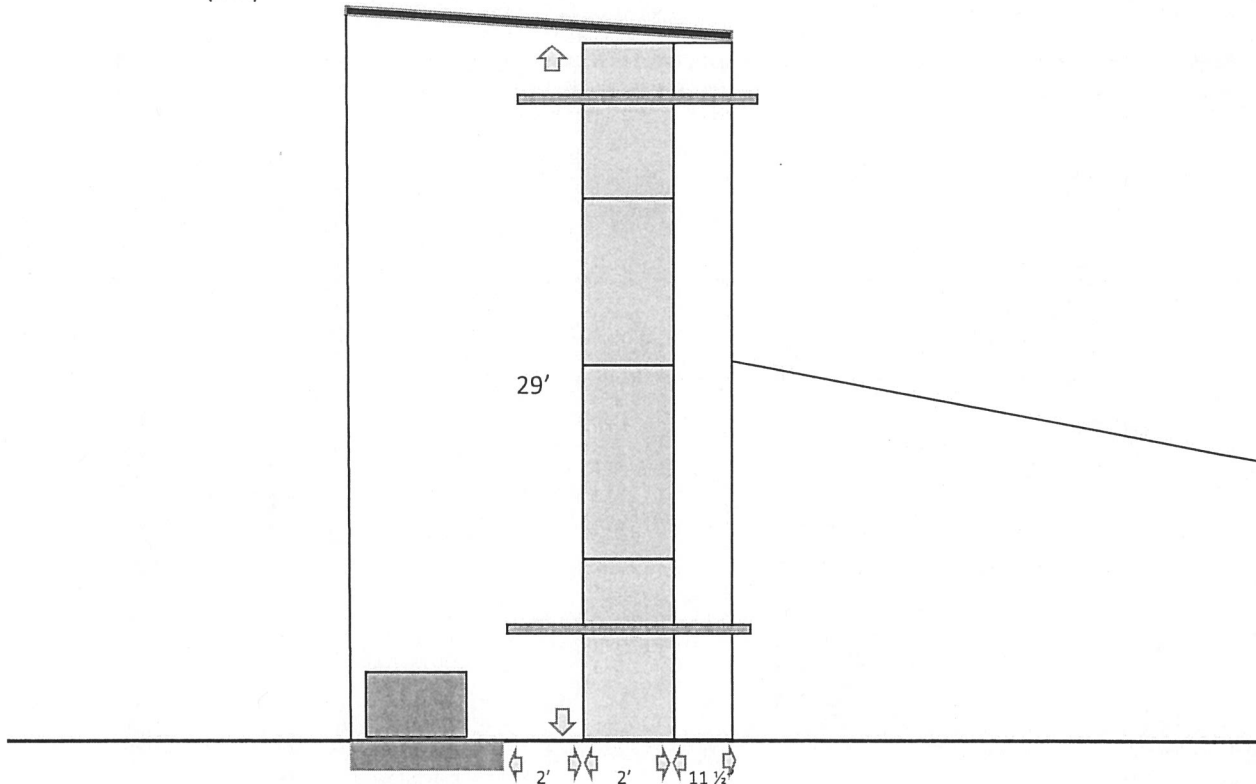
<b>SubTotal</b>	\$23,287.00
<b>Tax</b>	\$0.00
<b>Shipping</b>	\$0.00
<b>Total</b>	<b>\$23,287.00</b>

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

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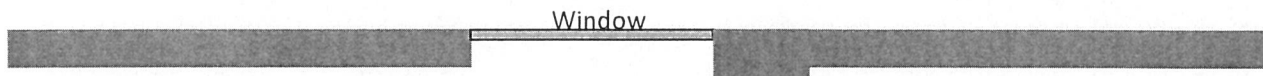
-Lombard Fire Department-

(1-A)

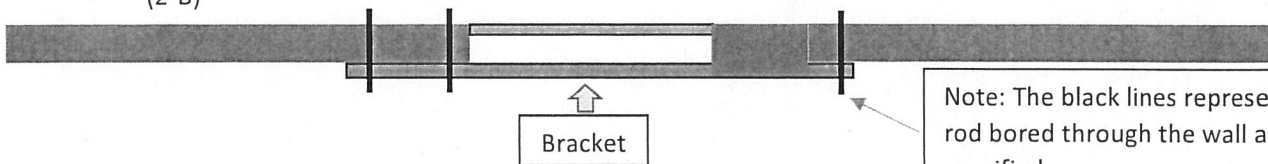


-Figure (1-A) shows the wall we will be mounting the tower support bracket to. By notching the brick on the right side (2-A) we will be able to evenly mount the wall bracket across the surface of the brick on both side. Centering the bracket on the window gives us a hole on each side of the bracket to use for connecting to the building, we can also add an additional hole on either side of the bracket for the purpose of connecting into the building. For the top bracket the bracket itself will over hang 6" off the side of the brick on the right. This is due to the need to keep the top and bottom brackets aligned with one another. We will use a custom bracket utilizing 2" square steel tubing and Steel plates that will be bolted together to form a solid bracket that will mount to the wall, and will be bolted to the portion of the bracket that is over hanging the brick. Note figure (3-A) and (3-B).

(2-A)



(2-B)



Note: The black lines represent threaded rod bored through the wall and braced as specified.

-In figure (2-A) and (2-B) you can see that the brick on the right side of the window bumps out farther than that of the brick surface on the left. To be able to get the tower support bracket to mount evenly across the wall we will need to notch out the brick on the left  $1\frac{3}{4}$ " tall at a depth of  $1\frac{1}{2}$ " to allow the tower support bracket room to fit. This will give us an even surface across to mount the top and bottom brackets on both sides of the window. We will use a grinder with a masonry wheel to make the necessary notches in the brick to fit the tower support bracket.

(3-A)

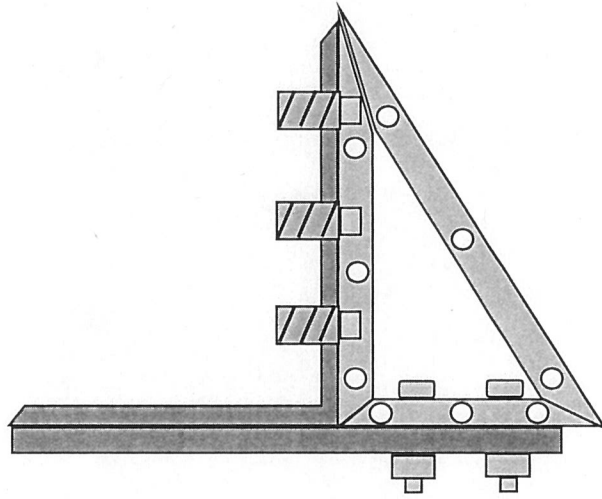
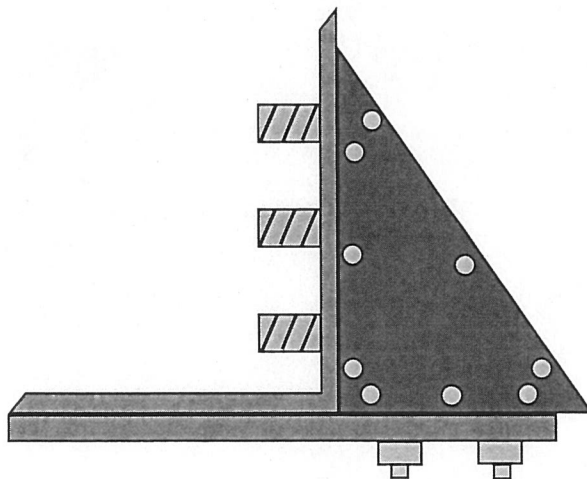


Figure (3-A) represents the 2" square steel tubing frame work of the bracket. The overhang of the tower support bracket will bolt to the square steel tubing frame work. From there the Frame work of our custom bracket will be mounted to the brick wall with the use of lag sleeves and lag bolts.

(3-B)



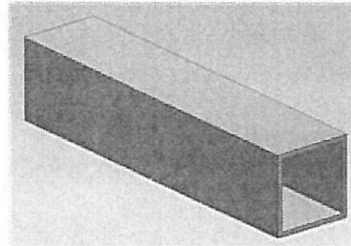
-Figure (3-B) represents the bracket once the steel plates are mounted over the 2" square steel tubing frame work drawn out in figure (3-A). Bolts will be ran through holes on the steel plates that match up with pre-drilled holes in the square steel tubing. Once bolted tightly together this will make for a rigid bracket capable of withstanding a large amount of force.

**-Square Steel Tubing Manufactures Specifications-**

**2" SQ {A} x 1.500" ID {B} x .250" Wall {C} Square Steel Tubing**

[E-mail this product to a friend](#)

[Click here for material description, specification sheets and typical uses.](#)



[View larger image](#)

Click [here](#) for important information about telescoping.

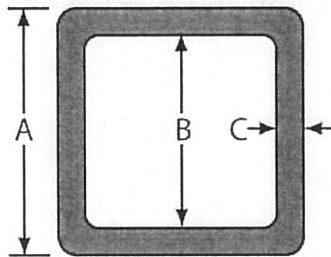
Square Steel Tubing

**Dimensions:**

- A: 2" SQ
- B: 1.500" ID
- C: .250" Wall

**Material:** Steel

**Shape:** Square Tube



Produced by cold forming flat rolled steel into tubular shapes and electric-resistance welded into solid wall tubing. Controls during the cold forming to square or rectangular shapes prevent irregularities in structure or loss of physical properties across the weld area. Since it begins as a flat rolled product, the finished tube has a uniform wall thickness and equal strength throughout. It is easy to machine and fabricate, using all common machining and fabricating operations. It can be bent or drawn, flattened or flared, expanded or swaged, drilled or punched easily. It is easily mechanically joined or welded using all the commonly used practices. Because of ease of fabrication, and a surface suitable for painting or plating, Structural Steel Square and Rectangular tube has almost unlimited applications.

**ANALYSIS**

<i>Carbon (C)</i>	<i>Manganese (Mn)</i>	<i>Phosphorus (P) Max</i>	<i>Sulfur (S) Max</i>
0.08-0.23	0.03-0.06	0.04	0.05

**MECHANICAL PROPERTIES**

<i>Condition</i>	<i>Tensile Strength (PSI)</i>	<i>Yield Strength (PSI)</i>	<i>Elongation in 2"</i>
Grade A	45,000	33,000	25
Grade B	58,000	42,000	23

Structural Steel Tubing conforms to ASTM A500. This specification covers cold formed welded and seamless carbon structural tubing respectively. Above are minimum mechanical properties.

## APPLICATIONS

Structural Steel Tube can be used for a wide variety of mechanical applications. It may be used either statically or dynamically. Its close tolerances, good finish, and dense structure make it ideal for parts such as structural support and parts, frames, racks, trailer beds and trailer components, structural components and supports for buildings, bridges, and highways, conveyors, machine parts, guides, and supports, safety and deck rails, sign posts, athletic equipment, ornamental usages and a wide range of applications in industrial, construction, automotive, appliance, furniture and agricultural industries.

## MACHINEABILITY AND WELDABILITY

Machinability is rated at 78% of B1112. Average cutting speed 130 ft/min. This grade is easily welded by all welding processes including gas, air, and submerges arc, and the resultant welds and joints are of extremely high quality. Preheat and post-weld heating is generally not necessary.

## HEAT TREATING

Generally not applicable as structural steel tube is generally used in the "as supplied" condition and may be annealed or stress relieved. Annealing - May be annealed if necessary at 1600°F and slow furnace cooled. Hardens from cold working, although it will also respond to any carburizing method and subsequent heat treatments. Case hardening results in a hard case and relatively soft core. Carburize at 1650°-1700°, oil or water quench and temper at 300°. Carburizing depth is typically .060-.070".

## TOLERANCES

### OUTSIDE DIMENSIONS TOLERANCE

Largest Outside Dimension Across Flats	Tolerance (+/-) inches*
2-1/2 and under	0.020
Over 2-1/2 to 3-1/2 incl	0.025
Over 3-1/2 to 5-1/2 incl	0.030
Over 5-1/2	1%

\* Tolerances include allowance for convexity or concavity. Tolerance may be increased 50% when applied to the smaller dimension of rectangular sections whose ratio if the cross-sectional dimensions is between 1.5 and 3, and 100 percent when the ratio exceeds 3.

### WALL THICKNESS TOLERANCE

The tolerance for wall thickness exclusive of weld area shall be plus or minus 10% of the nominal wall thickness specified. The wall thickness is to be measured at the center of the flat.

### STRAIGHTNESS TOLERANCE

The permissible variation for straightness shall be 1/8" times the number of feet of the total length divided by 5.



**SQUARENESS OF SIDES**

Adjacent sides may deviate from 90° by a tolerance of plus or minus 2° maximum.

**RADIUS OF CORNERS**

The radius of the outside corner of the section shall not exceed three times the specified wall thickness.

**TWIST TOLERANCES**

Twist is measured by holding down one end of square or rectangular tube on a flat surface plate with the bottom side of the tube parallel to the surface plate and noting the height that either corner, at the opposite end of the bottom side of the tube, extends above the surface plate.

Specified Dimension of Longest Side	Maximum Twist (inches) in 3 feet
1-1/2 and Under	0.050"
Over 1-1/2 to 2-1/2 incl	0.062"
Over 2-1/2 to 4 incl	0.075"
Over 4 to 6 incl	0.087"
Over 6 to 8 incl	0.100"
Over 8	0.112"