



# City of Chicago



Or2014-354

Office of the City Clerk

## Document Tracking Sheet

<b>Meeting Date:</b>	7/30/2014
<b>Sponsor(s):</b>	Suarez (31)
<b>Type:</b>	Order
<b>Title:</b>	Issuance of permits for sign(s)/signboard(s) at 4345 W Belmont Ave - 176 sq ft
<b>Committee(s) Assignment:</b>	Committee on Zoning, Landmarks and Building Standards

City Council  
Meeting Date: 7/30/14  
Committee on Buildings

(signs)

ORDERED, That the Commissioner of Buildings is hereby directed to  
issue a sign permit to: (Contractor's name and address)  
Corporate ID Solutions 5563 N. Elston Ave  
Chicago, IL 60630

for the erection of a sign / signboard over 24 feet in height and / or over 100  
square feet (in area of one face) at: (Business NAME & ADDRESS)

Pole Sign 24'-10" x 7'-1"  
CITGO 4345 W. Belmont Ave  
Chicago, IL 60641

Dimensions: Length 7'-1" Height 24'-10"

Height above grade / roof to top of sign 4'

TOTAL SQUARE FOOT AREA 176 ft<sup>2</sup>

Such sign(s) shall comply with all applicable provisions of TITLE 17 of the  
Chicago Zoning Ordinance and all other applicable provisions of the Municipal  
Code of the City of Chicago governing the construction and maintenance of  
outdoor signs, signboards and structures.

Ray J. Jerny  
Alderman, 31 Ward

Handwritten signature or scribble.



CITY OF CHICAGO

# DEPARTMENT OF BUILDINGS

## Sign Permit Application

APPROVAL NUMBER	APPLICATION NUMBER 100514514	ANNUAL FEE	WORK CODE	DRAWINGS ATTACHED <input type="checkbox"/> YES <input type="checkbox"/> NO
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DATE OF APPLICATION 10/23/2013	
ADDRESS OF SIGN 4345 W BELMONT AVE, 60641-	
BUILDING	ORIGINAL PERMIT NUMBER
TYPE OF PERMIT NEW CONSTRUCTION (SIGN)	
PAYER OF ANNUAL INSPECTION MANAGER, STORE 4357 W BELMONT AVE CHICAGO, IL 60641 (773)777-7288	
SIGN MANUFACTURER FEDERAL HEATH	
ADDRESS WHERE SIGN CAN BE SEEN PRIOR TO ERECTION	
TICKET NUMBER 0	REINSPECTION CONTROL NUMBER
TYPE OF SUPPORT FOR SIGN CANOPY	
SIGN BOARD SUPPORT MEMBERS OTHER	
ANNUAL FEE	_____
CONSTRUCTION FEE	200.00
1017 B FEE	_____
TOTAL FEE	200.00
AMOUNT PAID	200.00
BALANCE DUE	_____

TYPE OF SIGN FLAT OR BOX					
LENGTH	FT. 7	IN. 1	HEIGHT	FT. 24	IN. 10
AREA	SQ. FT. 176	WEIGHT		LBS 500	
SIGN HEIGHT ABOVE GRADE/ROOF				FT. 4	
SHAPE OF SIGN IRREGULAR					
SIGN WILL READ CITGO					
NO. OF LAMPS 8			TOTAL WATTAGE 960		
TYPE OF LAMP OTHER					
NO. OF BALLAST/TRANSFORMERS 2			INPUT OF TRANSFORMERS		
CONTRACTOR WILL INSTALL			<input checked="" type="checkbox"/> FEEDERS <input type="checkbox"/> CUSTOMER LEADS		
TYPE OF SWITCH KNIFE					
LOCATION OF SWITCH LISTED FLUSH TOGGLE					
SIGN LOCATION CITGO - POLE SIGN					

The undersigned certify that the statements in this application are true and correct and that all work done under the proposed permit will conform to the requirements of the Chicago Municipal Code

REG NO	E93308
ELECT CONTR LITE ZONE ELECTRIC	ELECTR
ADDRESS 7943 N. KENNETH SKOKIE, IL 60076-	
SUPERVISOR SIGNATURE	<i>Mark Noub</i>

BOND NO.	REG. NO.	N93077
SIGN ERECTOR CORP.ID SOLUTIONS INC	SIGNER	
ADDRESS 5563 N ELSTON AVE CHICAGO X IL, 60630		
SIGNATURE	<i>Greg K...</i>	

The permit issued on this application will authorize only signs here applied for. If other signs are to be erected they must be covered by additional permits

City of Chicago  
Rahm Emanuel, Mayor



Department of Buildings  
Michael Merchant, Commissioner

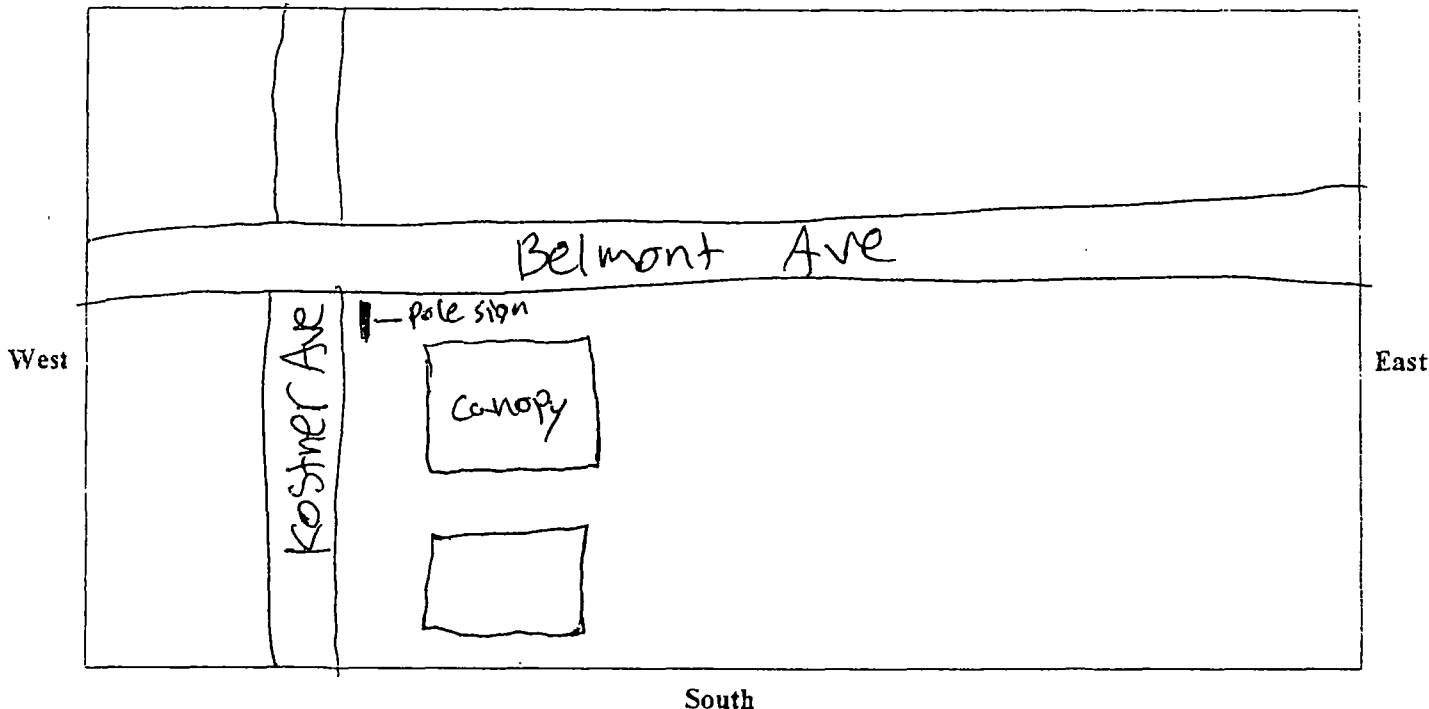
TYPE OF BUSINESS <u>COM GAS STATION</u> Other: <u>CITGO</u> Name: <u>CITGO</u> LIC #: _____ Renewal Date: _____	SIGN BOND REQUIRED? <input type="checkbox"/> YES COUNCIL ORDER REQUIRED <input checked="" type="checkbox"/> YES		
Projects Over: <input checked="" type="checkbox"/> Private Property <input checked="" type="checkbox"/> Public Way Grant Permit #: _____ <input type="checkbox"/> Planned Development/Manufacturing PMD/PD#: _____ Zoning District: <u>C1</u> Other: <u>C1-1</u>	IS SPECIAL PERMISSION REQUIRED FROM CHIEF ELECTRICAL <input checked="" type="checkbox"/> YES IF YES, ATTACH LETTER OF REQUEST		
TYPE OF SIGN: <input type="checkbox"/> ADVERTISING <input checked="" type="checkbox"/> ILLUMINATE <input type="checkbox"/> MOVEABLE <input checked="" type="checkbox"/> BUSINESS <input type="checkbox"/> FLASHING	TIME STAMP		
TOTAL STREET FRONTAGE OF LOT (IN FEET) <u>275</u> TOTAL AREA OF NEW SIGN (SQ.FT.) <u>176</u> TOTAL AREA OF ALL SIGNS ON LOT (SQ.FT.) <u>948</u> HEIGHT OF SIGN ABOVE GRADE (TO TOP) <u>28ft 10in</u>	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">SIGN CLERK</td> <td style="width:50%;">APPROVED FOR PERMIT</td> </tr> </table>	SIGN CLERK	APPROVED FOR PERMIT
SIGN CLERK	APPROVED FOR PERMIT		
DISTANCE OF CURB LINE OUTER EDGE (ft) <u>10</u> DISTANCE OF STRUCTURE INNER EDGE (ft) <u>17</u>	REMARKS		
DISTANCE FROM (ft): A. PUBLIC PARK (OVER 10 ACRES) <u>1,000</u> B. EXPRESSWAY (IF LESS THAN 1,000 FT.) <u>1,000</u> C. RESIDENCE DISTRICT (ADVERTISING SIGNS ONLY) <u>150</u>			
IF REPLACEMENT SIGN OR CHANGE OF FACE, WHAT DOES THE EXISTING SIGN READ?  Original Payee: _____  Landmark Hold: <input type="checkbox"/> Status: _____			
ZONING (OFFICE USE ONLY)			

**CITY OF CHICAGO**  
**DEPARTMENT OF ZONING AND LAND USE PLANNING**  
**SIGN SITE PLAN**  
*(ALL INFORMATION MUST BE COMPLETED AND LEGIBLE)*

Site Address: 4345 W. Belmont Ave 1 of 5 applications

Sign Company: Corporate ID Solutions Rep Name: Sean Ratchford

Phone (773) 763-9600 EXT \_\_\_\_\_ (Below: Building, streets and location of sign on lot or structure)  
 North



**SIGN USE:**

- Bus. ID (On-premise)
- Business Lice. #*
- Advertising (Off-premise)

**PERMIT TYPE:**

- New Construction
- Change of Face
- Previous Permit #

**TOTAL SQUARE FOOTAGE:**

Square footage of this proposed sign 176 ft<sup>2</sup>  
 Gross area of all proposed signs 1076 ft<sup>2</sup>  
 Area of all existing signs  
 (not including proposed) on Zoning Lot 948 ft<sup>2</sup>

**South**

**TYPE OF SIGN:**

- Flat Wall
- Freestanding
- Awning
- Marquee
- High Rise Building
- Projecting Private
- Projecting Public Way
- Public Way Use -Permit #*

**SIGN CHARACTERISTICS:**

- Non- Illuminated
- Illuminated
- Changing Image
- Video Display
- Flashing

**DISTANCE FROM:**

Curb Line: 10'  
 Expressway, Toll Roads  
 or Major Route  
 (n/a if over 1000 ft) 1000  
 Park (over 10 acres) 1000  
 Residential Zone 150  
 Existing Off-premise on  
 same side of street: N/A

Signature: *Sean Ratchford*

Date: 10/24/2013



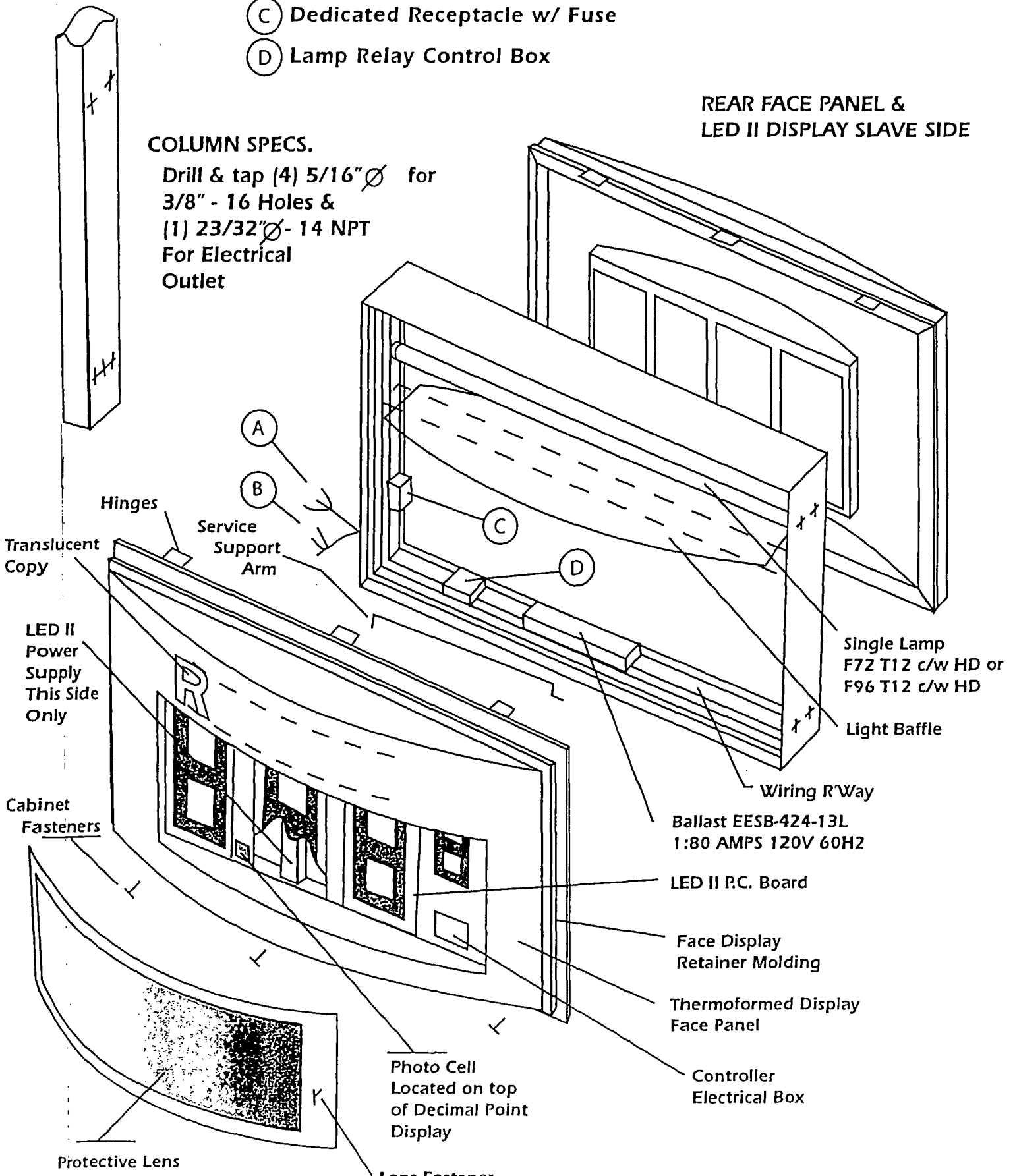
# ELECTRICAL WIRING INFORMATION

- (A) Black/ White/ Green 120V 60HZ Ballast Power 1.8 amps
- (B) Blue/ White/ Green Twisted LED II Power Leads
- (C) Dedicated Receptacle w/ Fuse
- (D) Lamp Relay Control Box

## COLUMN SPECS.

Drill & tap (4) 5/16"  $\varnothing$  for  
3/8" - 16 Holes &  
(1) 23/32"  $\varnothing$  - 14 NPT  
For Electrical  
Outlet

## REAR FACE PANEL & LED II DISPLAY SLAVE SIDE



Hinges

Service  
Support  
Arm

Translucent  
Copy

LED II  
Power  
Supply  
This Side  
Only

Cabinet  
Fasteners

Protective Lens

Photo Cell  
Located on top  
of Decimal Point  
Display

Single Lamp  
F72 T12 c/w HD or  
F96 T12 c/w HD

Light Baffle

Wiring R'Way

Ballast EESB-424-13L  
1:80 AMPS 120V 60HZ

LED II P.C. Board

Face Display  
Retainer Molding

Thermoformed Display  
Face Panel

Controller  
Electrical Box

Existing  
sign



  
CITGO

GALVA  
WASH

WITH WASH PURCHASE

unleaded	409 <sup>9</sup>
unleaded plus	429 <sup>9</sup>
unleaded premium	459 <sup>9</sup>

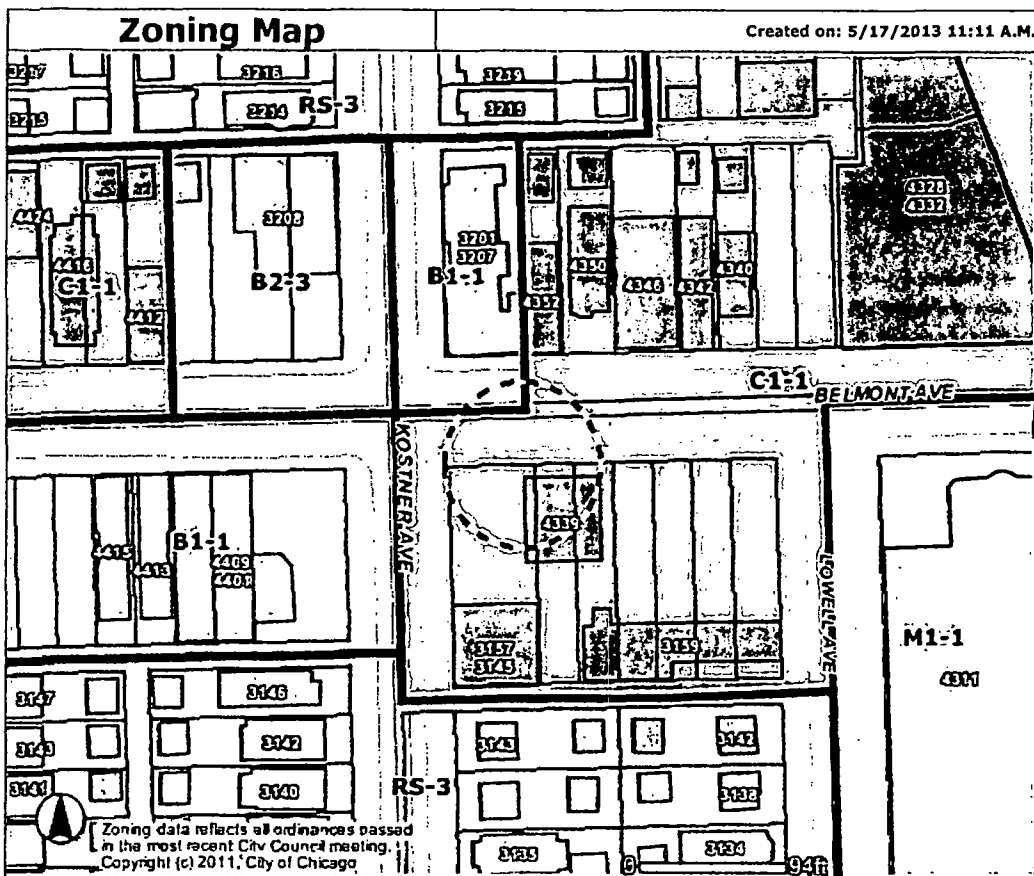
GAS ONLY	
unleaded	439 <sup>9</sup>
unleaded plus	459 <sup>9</sup>
unleaded premium	489 <sup>9</sup>

DIESEL 449<sup>9</sup>

ATM  
Inside

PI NEER  
AUTO WORKS

CON SALES



Zoning data reflects all ordinances passed in the most recent City Council meeting. Copyright (c) 2011, City of Chicago

**Address**

3159 N KOSTNER AVE

<p><b>Zoning</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Business</li> <li><input type="checkbox"/> Commercial</li> <li><input type="checkbox"/> Manufacturing</li> <li><input type="checkbox"/> Residential</li> <li><input type="checkbox"/> Planned Development</li> <li><input type="checkbox"/> Planned Manufacturing</li> <li><input type="checkbox"/> Downtown Core</li> <li><input type="checkbox"/> Downtown Service</li> <li><input type="checkbox"/> Downtown Mixed</li> <li><input type="checkbox"/> Downtown Residential</li> <li><input type="checkbox"/> Transportation</li> <li><input type="checkbox"/> Parks &amp; Open Space</li> <li><input type="checkbox"/> Zoning Boundaries</li> </ul>	<p><b>Historic Preservation</b></p> <p><b>CHICAGO LANDMARKS</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Chicago Landmarks</li> <li><input type="checkbox"/> Landmark Districts</li> </ul> <p><b>Chicago Historic Resources Survey - Buildings subject to Demolition-Delay Ordinance</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Red</li> <li><input type="checkbox"/> Orange</li> </ul> <p><input type="checkbox"/> Water</p> <p><input type="checkbox"/> Cemetery</p> <p>Municipalities</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Lakefront</li> <li><input type="checkbox"/> Pedestrian Streets</li> <li><input type="checkbox"/> Buildings</li> <li><input type="checkbox"/> Parcels</li> <li><input type="checkbox"/> Streets</li> <li><input type="checkbox"/> Curbs</li> <li><input type="checkbox"/> Forest Preserve</li> <li><input type="checkbox"/> City Boundary</li> </ul>	
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**SUPPLEMENTAL APPLICANT**

This Supplemental Application must be completed and submitted along with the Sign Permit Application. All fields must be completed. If a field is not applicable you must answer "n/a" in the field.



**CITY OF CHICAGO  
SIGN PERMIT APPLICATION  
(THIS IS NOT A PERMIT)**

Application Number: 100 514514 Date of Application: 10/23/2013

Address of property where sign will be erected: 4345 W. Belmont Ave

Does property have multiple addresses?  Yes  No

If yes, please list all addresses: \_\_\_\_\_

Is this building vacant?  Yes  No

If yes, is it registered under the Vacant Building Ordinance? Registration # \_\_\_\_\_

**Section 1 - Applicant**

Applicant is the Owner (of the real property)  Lessee (of the real property)

Name of Owner of Real Property: \_\_\_\_\_

Address: \_\_\_\_\_

Phone #: \_\_\_\_\_ Mobile #: \_\_\_\_\_ Email: \_\_\_\_\_

Name of Lessee of Real Property: Cit90

Name: Tedd Hupp Address: 1293 Eldridge Parkway, suite 44083A Houston TX 77077

Phone #: 832-486-1966 Mobile #: \_\_\_\_\_ Email: t.hupp@cit90.com

**Section 2 - Contractors**

Payer Company of Annual Inspection Fee:

Name of Contact of Payer Company: \_\_\_\_\_

Name of Payer Company: \_\_\_\_\_ Address: \_\_\_\_\_

Phone #: \_\_\_\_\_ Mobile #: \_\_\_\_\_ Email: \_\_\_\_\_

Electrical Contractor: Lite Zone Electric

Address: 7943 N. Kenneth Skokie, IL License #: E93308

Phone #: 847-702-5747 Mobile #: \_\_\_\_\_ Email: nnonah@litezoneelectric.com

Website: www.litezoneelectric.com

Sign Erector: Corporate ID Solutions

Bond #: \_\_\_\_\_ Registration #: N93077

Address: 5563 N. Elston Ave Chicago, IL 60630

Phone #: 773-763-9600 Mobile #: \_\_\_\_\_ Email: sean@corporateidsolutions.com

Website: www.corporateidsolutions.com

Picture or rendering must be attached depicting sign placement with before and after view. Section 2 continues on next page

# CITY OF CHICAGO SIGN PERMIT APPLICATION CONTINUED

Expediter: \_\_\_\_\_

Address: \_\_\_\_\_ License #: \_\_\_\_\_

Phone #: \_\_\_\_\_ Mobile #: \_\_\_\_\_ Email: \_\_\_\_\_

Website: \_\_\_\_\_

## Section 3 - Sign and Structure Details

(Please check all that apply)

### Sign Category:

On-Premise (Business ID):  Dynamic  Static

Business License # of Tenant Business: \_\_\_\_\_

Off-Premise (Advertising):  Dynamic  \_\_\_\_\_

Temporary:  Special Event:

Sign will read (Please provide a description, picture and shop drawing): CITGO

### Type of sign (Mark all that apply):

Awning  Canopy  Freestanding  Marquee  Projecting  Dynamic Image Display

Wall  Painted  Cabinet/Frame  Vinyl  Projected image  Flashing

High Rise Building  Hotel/Hospitals  Other buildings: \_\_\_\_\_

What is the dimension of the wall on which the sign will be installed? \_\_\_\_\_

Where is sign or sign structure mounted?  Inside the building  Outside the building

Is the sign or sign structure attached to a building or wall?  Yes  No If yes, which wall of building? N E S W

Is this a freestanding sign?  Yes  No Location of sign on lot: (N) (E) (S) (W)

Which direction does sign copy face? (N) (E) (S) (W)

Does any portion of the sign, sign structure or attachments cover, obscure or obstruct an existing window in a residential unit whether occupied or not?  Yes  No

Does any portion of the sign, sign structure, or attachments extend on or over the public way?  Yes  No

If yes, what is the public way use permit number? \_\_\_\_\_

Sign Panels: Back to back within 30 degrees of parallel  Yes  No

Number of Faces: 2

Sign Support Structure:  Pole  Roof  Ground  Building  Windows  Other: \_\_\_\_\_

Does any portion of the sign or sign structure extend 24 inches above the roof line as defined in 17-17-02149 of the Municipal Code of Chicago?  Yes  No

Picture or rendering must be attached depicting sign placement with before and after view.

Section 3 continues on next page

# CITY OF CHICAGO SIGN PERMIT APPLICATION CONTINUED

Section 3 continued

## Dimensions of Sign Structure (i.e. cabinet, frame, awning, canopy)

Length: 7 Feet 1 Inches Height: 24 Feet 10 Inches Depth: 1 Feet 0 Inches

Area: 176 Sq Ft. Weight: 500 lbs.

Shape of Sign: rectangle

## Sign Height above Grade:

From Grade to Bottom of sign or sign structure, whichever is lowest: 4 Ft.

From Grade to Top of sign or sign structure, whichever is highest: 28'-10" Ft.

Is City Council Order required?\*  Yes  No

\*All signs in excess of 100 Square Feet in area OR in excess of 24 feet above grade require a City Council Order pursuant to Section 13-20-680 of the Municipal Code of Chicago

## Dimension of Sign Elements pursuant to Section 17-12-0601 of the Chicago Zoning Ordinance:

Length: 7 Feet 1 Inches Height: 24 Feet 10 inches Area: 176 Sq Ft.

Electrical Contractor will install: Feeders:  Yes  No Customer Leads:  Yes  No

Number of Lamps: 8 Total Wattage: 960 Type of Lamp: other

Number of Ballast/Transformers: 2 Input of Transformers: \_\_\_\_\_

Type of Switch: knife Location of Switch: outside sign

Static:  Yes  No

Illuminated:  Yes  No

If yes - External \_\_\_\_\_ Internal X

Dynamic Image Display:  Yes  No

(An affidavit of compliance is required for all dynamic image display signs pursuant to Section 13-20-675(d)(2) of the Municipal Code of Chicago.)

Max Nits \_\_\_\_\_ Max Foot Candles \_\_\_\_\_ Message Time (Screen Hold): \_\_\_\_\_ seconds

Self Dimming Capability:  Yes  No

What is the total of the sign face area devoted to dynamic image display? \_\_\_\_\_ Sq Ft.

## Section 4 - Zoning Information

Zoning District or Planned Development #: C1-1

Is sign located in a special sign district?  Yes  No

If yes:  Michigan Avenue Corridor  Oak Street Corridor  State Street/Wabash Avenue Corridor

Total Street frontage of Zoning Lot: 275 (Ft.)

Total Area of new sign: 176 (Sq Ft.) Gross Area of all proposed signs: 1076 (Sq Ft.)

Total Area of all existing signs on Zoning Lot: 948 (Sq Ft.)

Picture or rendering must be attached depicting sign placement with before and after view.

Section 4 continues on next page

# CITY OF CHICAGO SIGN PERMIT APPLICATION CONTINUED

Section 4 continued

Distance from outer edge of sign or structure to curb line: 10 (Ft.)

Distance from inner edge of sign or sign structure to curb line: 17 (Ft.)

Distance from:

Public Park 10 acres or more: 1000 (Ft.)

Public Park 2 acres or more: 1000 (Ft.)

Expressway or Toll Road: N/A (Ft.)

Lake Shore Drive: N/A (Ft.)

Michigan Avenue (Oak St. to Roosevelt Rd.): N/A (Ft.)

Residential District: 150 (Ft.)

Residential building in a D district: N/A (Ft.)

Existing off-premise/advertising signs on same side of street?  Yes  No

In a B or C District: \_\_\_\_\_ (Ft.)

In a D or M District: \_\_\_\_\_ (Ft.)

Waterways: N/A (Ft.)

## Section 5 - Sign Permit History

Does the proposed sign, change, alter or replace an existing sign?  Yes  No

If yes, were permits issued for the sign being replaced, changed or altered?  Yes  No

If yes, please list each permit number and date each permit was issued:

Permit Number: \_\_\_\_\_ Date issued: \_\_\_\_\_

Permit Number: \_\_\_\_\_ Date issued: \_\_\_\_\_

Permit Number: \_\_\_\_\_ Date issued: \_\_\_\_\_

Permit Number: \_\_\_\_\_ Date issued: \_\_\_\_\_

Does the proposed sign change a static sign to a dynamic image display sign?  Yes  No

Does the proposed sign change or alter the square footage or the height of the sign or sign structure?  Yes  No

Does the proposed sign change an on-premise sign to an off-premise/advertising sign?  Yes  No

## Section 6 - Attestation and Signatures

We, the undersigned, under penalty of perjury, do hereby affirm and attest that the above information is true, complete, and correct and acknowledge that incorrect information is grounds to revoke or rescind a permit.

Owner of Real Property: \_\_\_\_\_ Date \_\_\_\_\_

Lessee of Real Property: \_\_\_\_\_ Date \_\_\_\_\_

Expediter: \_\_\_\_\_ Date \_\_\_\_\_

Supervising Electrician: Mael March Date 6/30/2014

Sign Erector: Sam R... Date 6-30-2014

Picture or rendering must be attached depicting sign placement with before and after view.

**CITY OF CHICAGO SIGN PERMIT APPLICATION CONTINUED**

For Office Use

<b>ZONING</b>	<b>PUBLIC WAY</b>

**Sign Review Fee:**

Zoning Review Fee: \$ \_\_\_\_\_ Total Fee: \$ \_\_\_\_\_

Amount Paid: \$ \_\_\_\_\_ Balance Due: \$ \_\_\_\_\_

**PERMIT IS VALID FOR A PERIOD OF FIVE YEARS AFTER ISSUANCE. IT IS SOLELY THE RESPONSIBILITY OF THE OWNER OR LESSEE TO FILE FOR RENEWAL**

\* Once zoning fee is paid, this application is valid for a period of up to six months from payment date.

Applies to sign permits applied for on or after April 2, 2014.

City of Chicago  
Mayor Rahm Emanuel



Department of Buildings  
Felicia Davis, Commissioner

signDesign for ASCE 7-05 Case B - Two Column Structure with Offset Loading  
Wind Load and Force Computer

Code = 2009 IBC      Project No.: 130431  
 Overall Ht (ft) = 28.84      Signage Ht (S) = 24.71      Location: Chicago, IL  
 Wind Speed 90 mph      Gust Effect Factor 0.85      Description: CITGO @ 28'10 oah  
 Date: 09/13/13

\*\* This calculation sheet is intended for two column structures with Case B offset loading. This structure has been determined to have a maximum of 55% of the load on one column

A#	Ht	Width	F=1	P=2	Cf	Dia	Wall	Yield	fb	fv	Unity Check	thagl	bhagl	Pt	Pb	Force	Y-bar	Mw	Tors
1	7.17	7.06	1	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.84	21.67	30.00	30.00	1.52	25.26	5.44	2.14
2	6.23	7.06	1	1.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.67	15.44	30.00	30.00	1.32	18.56	19.02	4.01
3	6.23	7.06	1	1.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.44	9.21	30.00	30.00	1.32	12.33	40.81	5.87
4	2.67	7.06	1	1.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.21	6.54	30.00	30.00	0.57	7.88	52.66	6.67
5	2.41	7.06	1	1.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.54	4.13	30.00	30.00	0.51	5.34	84.66	7.39
6	4.13	1.00	1	1.7	HSS 8x8	0.3750	46.0	28.42	0.38	0.00	0.94	4.13	0.00	30.00	30.00	0.12	2.07	86.53	7.41
7				0				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.53	7.41

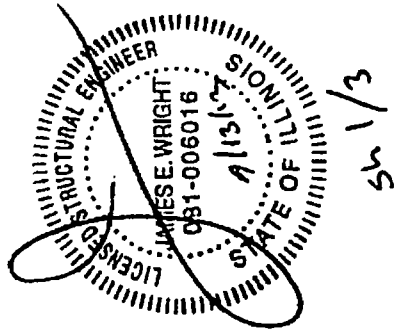
Estimate footing depths to find design moments  
 Auger Footing Design  
 Offset % 55%      Dia 2.5      Soil 300      Depth 9.05      Md 56.98

Total Force (kips) = 5.36  
 hbar (ft) - equivalent centroid = MUP 16.15

Cf = Shape factor  
 thagl = top of the area ht above ground (ft)  
 bhagl = bottom of the area ht above ground (ft)  
 Pt = wind pressure at top of area (psf)  
 Force = total wind force on the area (kips)  
 Y-bar = centroid height of each area (ft)  
 Mw = wind (only) moment at the base of the area (ft-k)  
 Tors = Mz = torsional moment about the vert axis (ft-k)

PLEASE REFER TO DRAWING #CA19451 IN CONJUNCTION WITH THESE CALCS.  
 SEE PAGE 2 FOR ANCHOR BOLT CALCS.

CORNERSTONE ENGINEERING, INC  
 1020 WILLIAM BLOUNT DRIVE  
 MARYVILLE, TN 37801  
 (865) 273-2688



sh 1/3

**CONCRETE**

Fc 3000 psi

**REBAR**

USE REBAR TO REMOVE BOLT BREAKOUT IN TENSION  
USE REBAR TO REMOVE BOLT BREAKOUT IN SHEAR

**BOLT**

Bolt Grade A307  
Bolt Ø 1.250 in  
Asc 0.97 in<sup>2</sup>  
Futa 58000 psi

**EDGE OF CONCRETE (IF CUBE OR SPREAD) - (0.0) AT MIDDLE OF ANCHOR BOLT PATTERN**

Footing Depth = 7.00 ft

x coordinate y coordinate

Front Left -60.000 -18.000  
Front Right 60.000 -18.000  
Back Left -60.000 18.000  
Back Right 60.000 18.000

**EDGE OF CONCRETE (IF AUGER) - ENTER 0 IF FOUNDATION IS NOT AUGURED**

Diameter 2.500 ft

**ANCHOR BOLT/PLATE DESIGN (ENTER BOLTS FROM INSIDE OUT)**

x coordinate y coordinate # bolts

5.5 5.5 4 121.0 121.0  
0.0 0.0  
0.0 0.0

Ix 121.000  
Iy 121.000  
J 242.000

**Factored Loads**

Mx 48.009 ft-k 1.6 78.8 ft-k  
My 0.000 ft-k 1.6 0.0 ft-k  
Mz 1.139 ft-k 1.6 1.8 ft-k  
Vx 0.000 k 1.6 0.0 k  
Vy 0.000 k 1.6 0.0 k  
Vz 3.324 k 1.6 5.3 k  
T 26.19 k Nuc 41.899 k  
R<sub>v</sub>/Q = 27.60 Vus 2.032 k  
V 1.27 k  
R<sub>v</sub>/Q<sub>v</sub> = 29.50  
R 27.02 ksi  
fv 1.04 ksi

**BOLT LAYOUT**

embedment 42 in  
hook 0.00 in  
hook design Z A in  
C<sub>1</sub> 5.107 in  
C<sub>2</sub> 5.107 in  
C<sub>3</sub> 5.107 in  
C<sub>4</sub> 5.107 in  
S<sub>1</sub> 11.000 in  
S<sub>2</sub> 11.000 in  
Anc 486.845  
Anco 121.000  
Anc/Anco 3.66

**SHEAR/TENSION INTERACTION**

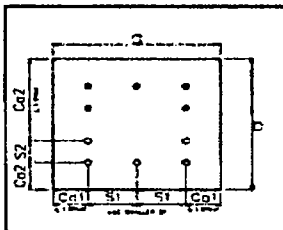
Nuc/0.85N<sub>u</sub> + V<sub>u</sub>/0.85V<sub>n</sub> < 1.2 1.12 OK  
Nuc = 41898.78 lbs OK  
o n = 0.75  
V<sub>u</sub> = 2032.49 lbs  
o v = 0.7  
N<sub>n</sub> = 56202.00 lbs  
V<sub>n</sub> = 22578.68 lbs

**TENSION**

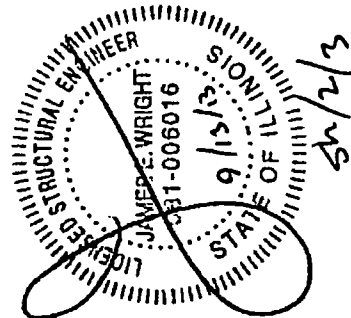
**ANCHOR STRENGTH**  
N<sub>as</sub> 56202.00 lbs  
**EFFECTIVE EMBEDMENT DEPTH**  
h<sub>ef</sub> 3.67 in  
**CONCRETE BREAKOUT STRENGTH**  
N<sub>cbg</sub> N/A SEE REBAR SHEET lbs  
**PULLOUT STRENGTH**  
N<sub>pn</sub> 61051.20 lbs  
**CONCRETE SIDE FACE BLOWOUT**  
N<sub>sb</sub> 60323.99 lbs

**SHEAR**

**ANCHOR SHEAR**  
V<sub>sa</sub> 26978.96 lbs  
**BREAKOUT SHEAR**  
V<sub>cb</sub> N/A SEE REBAR SHEET lbs  
**PRYOUT SHEAR**  
V<sub>cp</sub> 22578.68 lbs



(use 0.0 kips unless up/ft)



**REBAR DESIGN**

Fy            60000 psi  
 Φ             0.75

Bar Size	db	As	ΦNu	#bars/ab	Ld	min c/c	max dist to ab
#3	0.375	0.110	4970.098	8.43	9.86	0.9375	21
#4	0.500	0.196	8835.729	4.74	13.15	1.25	21
#5	0.625	0.307	13805.83	3.03	16.43	1.5625	21
#6	0.750	0.442	19880.39	2.11	19.72	1.875	21
#7	0.875	0.601	27059.42	1.55	28.76	2.1875	21
#8	1.000	0.785	35342.92	1.19	32.86	2.5	21
#9	1.125	0.994	44730.88	0.94	36.97	2.8125	21
#10	1.250	1.227	55223.31	0.76	42.79	3.125	21
#11	1.375	1.485	66820.2	0.63	51.78	3.4375	21
#12	1.500	1.767	79521.56	0.53	61.62	3.75	21
#13	1.625	2.074	93327.39	0.45	72.32	4.0625	21
#14	1.750	2.405	108237.7	0.39	83.87	4.375	21

db = bar diameter

As = cross-sectional area of one bar

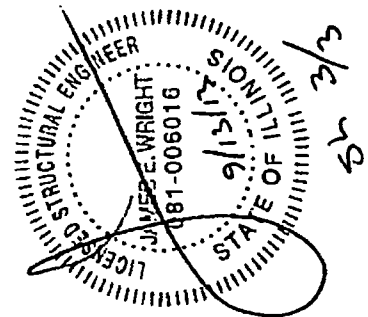
ΦNu = tensile strength of one piece of rebar

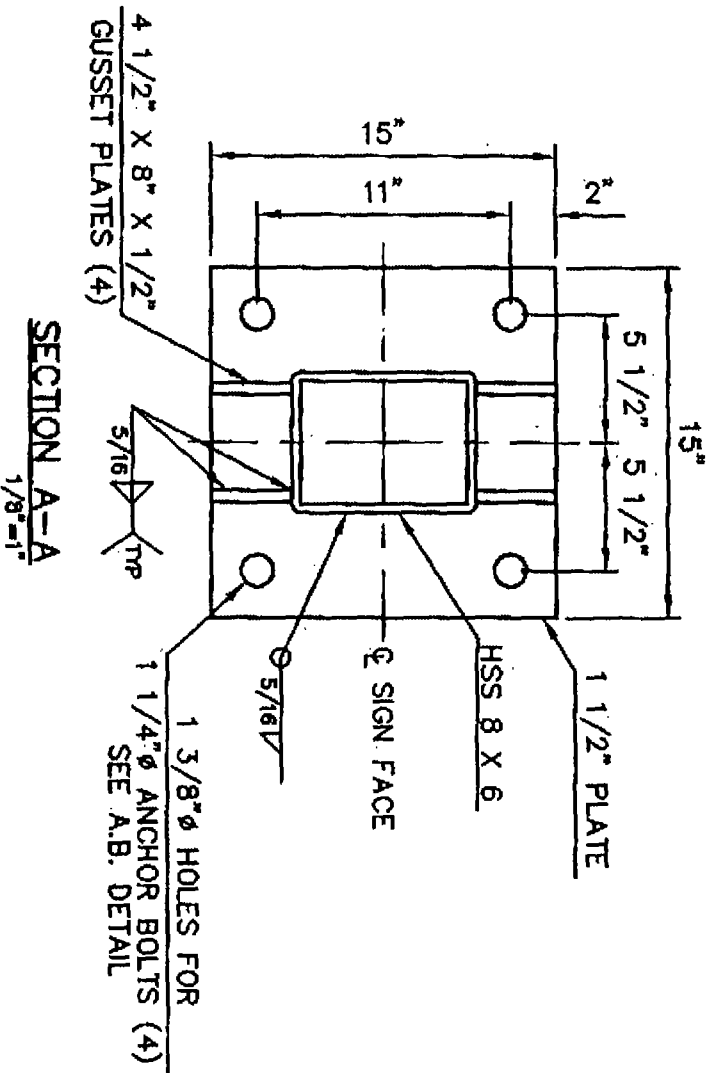
#bars/ab =  $N_{ua}/\Phi N_u$

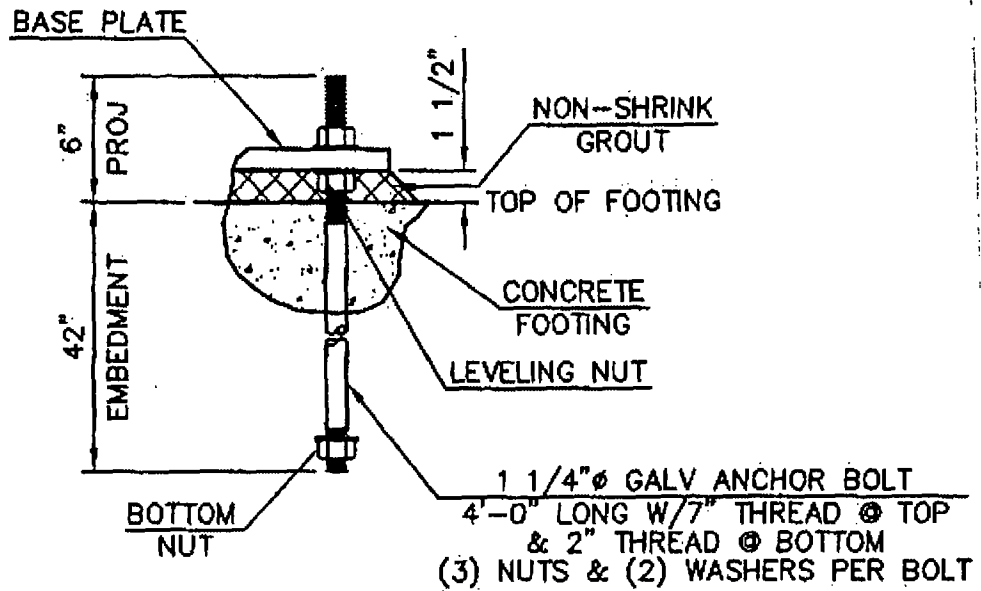
Ld = development length required for bar (anchor bolts must be embedded more than Ld)

min c/c = minimum center to center spacing of vertical rebar

max dist to ab = maximum distance rebar can be from anchor bolts in order to neglect breakout in design



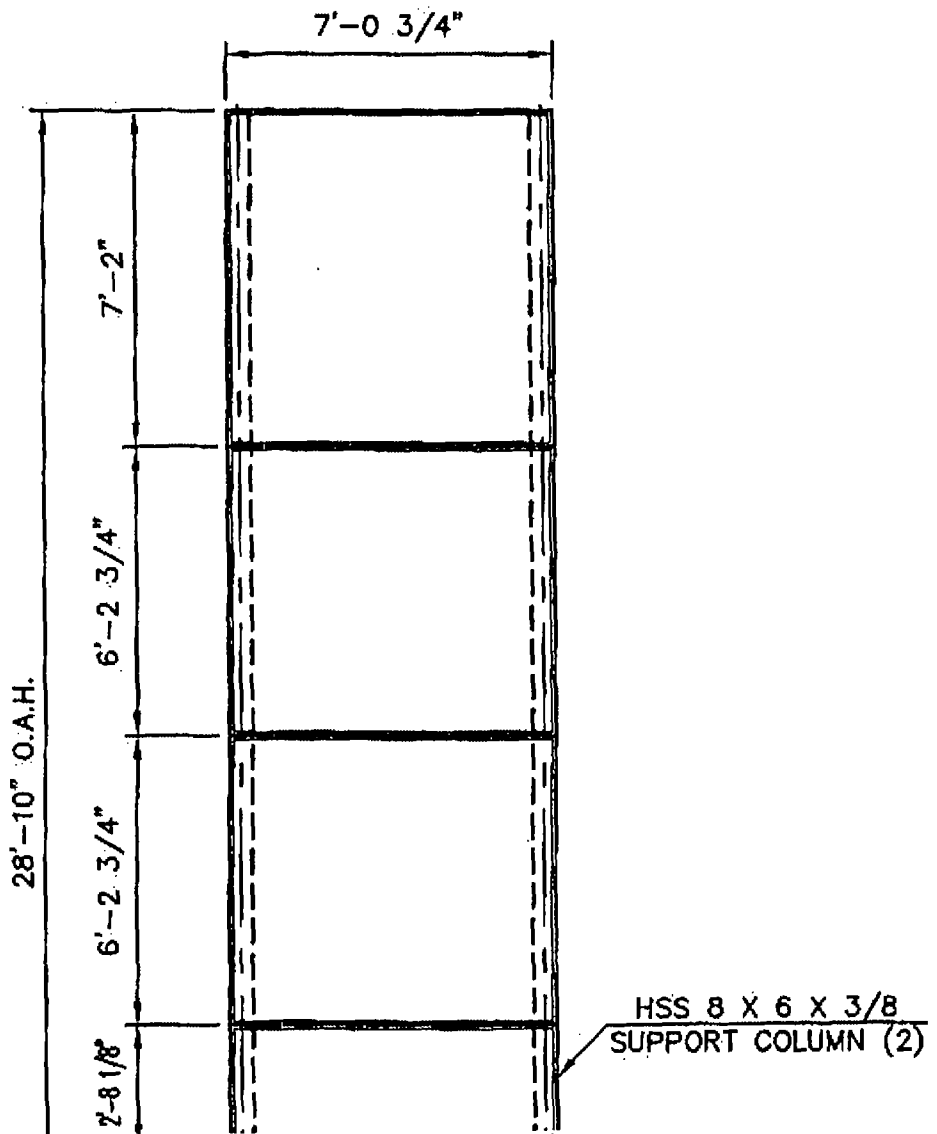


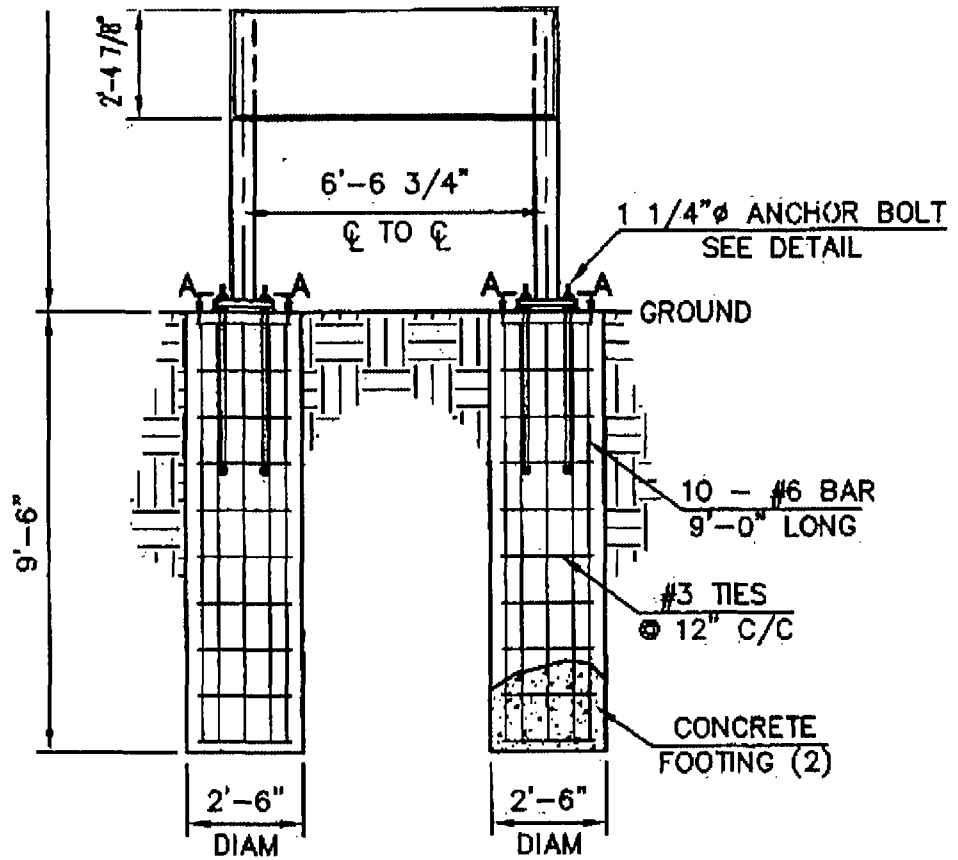


**ANCHOR BOLT DETAIL**

N.T.S.

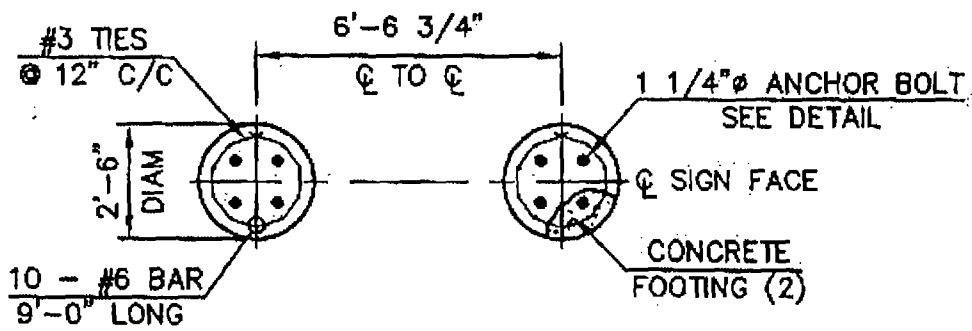
**NOTICE:**  
 CORNERSTONE ENGINEERING, INC IS RESPONSIBLE FOR COLUMN AND FOOTING DESIGN ONLY. SIGN CABINET COMPONENTS AND ATTACHMENT ARE THE RESPONSIBILITY OF THE SIGN MANUFACTURER.





**ELEVATION VIEW**

REVISIONS AND NOTES: (1) SEE DETAIL FOR ANCHOR BOLT CONNECTION



FOUNDATION PLAN VIEW