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Chimney Inspection Report

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*ACME STEEL CORPORATION
SOUTH COKE BATTERY CHIMNEY
SOUTH CHICAGO, ILLINOIS
Original*



**INTERNATIONAL
CHIMNEY CORPORATION**

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*ACME STEEL CORPORATION
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SOUTH CHICAGO, ILLINOIS
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INTERNATIONAL CHIMNEY CORPORATION

ENGINEERS  CONTRACTORS

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July 15, 1996
ICC # CE-29302-C

Acme Steel Corporation
13500 Perry Avenue
Riverdale, IL 60627-1182

Attention: Mr. John Hickman
Manager of Purchasing

Subject: Purchase Order X18300496
South Coke Battery Chimney
Exterior Inspection

Gentlemen:

In accordance with the above purchase order number, we have completed the visual exterior climbing inspection of the south coke battery chimney.

We are submitting our complete written report which includes our findings, photographs and recommendation for repairs.

We wish to thank you for giving us the opportunity to be of service. Should you have any questions concerning this report, please feel free to contact the writer at our Mid-West General Office at 815-727-0966.

Respectfully Submitted,

INTERNATIONAL CHIMNEY CORPORATION

by 

Dennis M. Sweeney
Project Manager

DMS/lhb

enclosures





**INTERNATIONAL CHIMNEY
CORPORATION
FILE #CE-29302-C**

*Acme Steel
South Coke Battery Chimney
South Chicago, Illinois*

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DESCRIPTION OF CHIMNEY

The chimney is approximately 250' in height constructed of reinforced concrete for the lower 245' with the top 5' of the column being constructed of buff radial brick.

The chimney is equipped with a full height radial brick lining with a top I.D. of 9'. A cast iron cap covers the top of the chimney column and liner.

The chimney has an exterior cage rail type ladder located on the south quadrant interconnecting 2 partial platforms with the first being approximately 120' above grade and the second being the top platform located approximately 12' below the top of the chimney.

The chimney is equipped with a Lightning Protection system consisting of 5 air terminals and 2 downleading cables.

The chimney is equipped with aviation beacon lights located at the top of the chimney.

The flue enters the chimney below grade elevation through the base.

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INSPECTION PROCEDURE

At this time the inspection was completed on the exterior of the chimney only. Our inspector made a complete visual inspection of all areas immediately adjacent to the ladder system and platforms. All other areas were viewed utilizing telephoto camera equipment and binoculars.

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INSPECTION FINDINGS

Chimney Column

Overall, the concrete column was found to be in solid & sound condition, however, it was noted that minor openings in the construction joints has occurred. This condition was noted at the 50' and 80' elevations only.

No excessive vertical stress relief cracking was noted throughout the full height of the concrete column.

Cast Iron Caps

The cast iron caps covering the chimney column and lining were found to be intact and in good condition.

Lightning Protection System

The Lightning Protection system was found to be intact, however, it was noted that six (6) anchors have broken loose on the mid-point encircling cable. This condition is not detrimental to the lightning protection system and should be monitored.

It was also noted that the lead covered copper cable throughout the top portion of the chimney is intact, however, the lead cover is cracking and is exposing the copper cable to you exiting flue gas gasses.

Tension Bands

The tension bands located throughout the top portion of the chimney column were found to be intact. All bands on the exterior of the concrete column were found to be in good condition.

Cage Rail Type Ladder

The cage rail type ladder or step irons, were found to be intact and in a safe and sound condition.

Access Platforms

The platforms were found to be intact and in a safe condition, however, they were noted to be rusting freely. This rusting is only minor in nature at this point.

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INSPECTION FINDINGS cont.

Aviation Beacon Lights

The aviation beacon lights were found to be intact, however, it was noted that the light on the east quadrant of the chimney was not functioning at the time of our inspection.

Section IV

***INSPECTION
PHOTOGRAPHS***

*Included with this report are a total of 41
color photographs which clearly depict
the conditions found during our
inspection.*

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Photo #1 -
Overall View of
the chimney

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Photo #2 - View
of access door at
the base of the
chimney. Concrete
column is solid &
sound.

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Photo #3 - View
looking up the
caged step irons.
The entire system
was found to be
safe & sound.

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Photo #4 - View of the Lightning Protection system download cable on the east quadrant from grade elevation.



Photo #5 - View of cement patches at 50' above grade elevation. Note fractures and spalling of patch material.

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Photo #6 - Cement patch at 75' above grade elevation, right of step irons.



Photo #7 - Open construction joint at the 80' elevation, right of the step irons.

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Photo #8 -
Midpoint circular
cable at
connection to
downlead, west
quadrant. Note
broken anchors.



Photo #9 -
Midpoint circular
cable at
connection to
downlead, east
quadrant. Note
broken anchors.

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Photo #10 - Close view of the broken anchor, east quadrant, on midpoint of circular cable.



Photo #11 - Typical condition of platform at midpoint of chimney on the east quadrant. Platform is safe & sound.

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Photo #12 - South quadrant, typical condition of platform at midpoint of chimney. Minor rusting of hand rails noted.



Photo #13 - Typical condition of platform at midpoint of chimney, west quadrant. Minor rusting of hand rails noted.

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Photo #14 - View
of Lightning
Protection system
download from
mid-platform.



Photo #15 -
Typical condition
of concrete
column, east
quadrant.
Concrete is solid
& sound.

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Photo #16 - View looking up the cages step irons from middle platform. Entire system is safe & sound.



Photo #17 - The support band and bottom support angles for the top platform are all solid & sound. Minor rusting noted.

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Photo # 18- The support band and bottom support angles for the top platform are all solid & sound. Minor rusting noted.

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Photo # 19-
Typical condition
of brickwork
throughout the
top 5' of the
chimney. All
brickwork is
solid & sound.

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Photo # 20-
Typical condition
of brickwork
throughout the
top 5' of the
chimney. All
brickwork is
solid & sound.

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Photo # 21- The bands and the Lightning Protection system were found to be intact throughout the top 5' of the chimney.

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Photo # 22-
Typical condition
of the step irons
at the top of the
stack.

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Photo # 23- View
looking down the
caged step irons
from the top
platform.

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Photo # 24 View of the top platform. Minor rusting was noted.



Photo #25 - Close up view of the top platform handrail. Note the steel is rusting freely.

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Photo #26 - Close up view of the top platform handrail. Note the steel is rusting freely.



Photo #27 - The grating on the top platform is safe & sound.

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Photo #28 - Minor rusting of handrails on the top platform was noted.

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Photo #29 - View
of the aviation
beacon light at
the top of the
chimney, west
quadrant.

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Photo #30 - East
aviation beacon
light was not
functioning at
the time of our
inspection.

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Photo #31 - The lead coating covering the Lightning Protection system cable was found cracked and split open in several areas throughout the top of the chimney.

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Photo #32 -
Column & liner
caps are intact.
Note minor
corrosion &
rusting
conditions.



Photo #33 -
Column & liner
caps are intact.
Note minor
corrosion &
rusting
conditions.

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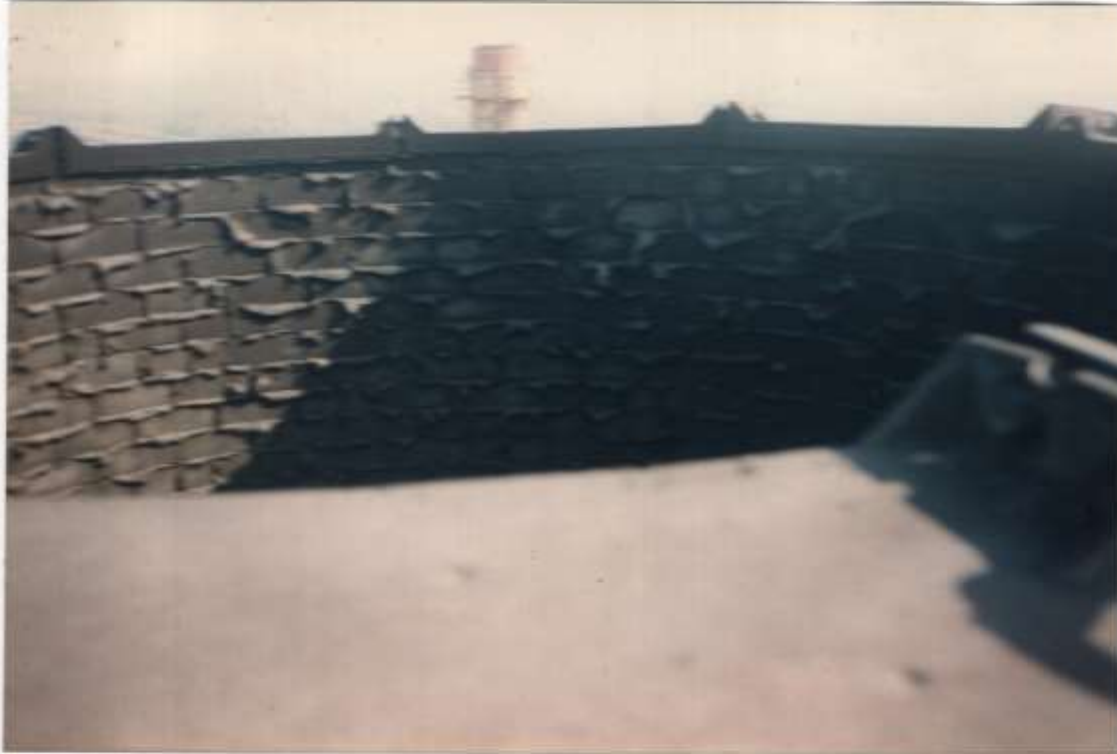


Photo #34 -
Column & liner
caps are intact.
Note minor
corrosion &
rusting
conditions.



Photo #35 -
Column & liner
caps are intact.
Note minor
corrosion &
rusting
conditions.

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Photo #36 -
Column & liner
caps are intact.
Note minor
corrosion &
rusting
conditions.



Photo #37 - View
into the air
space between the
liner and the
column interior.
Brickwork is
solid & sound.

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Photo #38 - View
into the air
space between the
liner and column
interior.
Brickwork is
solid & sound.



Photo #39 - View
looking into the
top of the liner.
All brickwork is
solid &
sound.

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Photo #40 - View
looking into the
top of the liner.
All brickwork is
solid & sound.



Photo #41 - View
looking into the
top of the liner.
All brickwork is
solid & sound.

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RECOMMENDATION FOR REPAIRS

Overall, the exterior of the subject chimney appears to be intact and in solid & sound condition with no immediate repairs being required. Consideration should be given to coating the external platforms to prevent any further deterioration from occurring. The open construction joints at the 50' and 80' elevations should also be given consideration for future repair.

As you are aware, at this time, the interior of the liner was not inspected however, we would recommend that consideration be given to a "Hot Camera" inspection which would allow a close visual view of the entire liner for the full height.

If there are any questions concerning our report, please feel free to contact the writer.

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THANK YOU

for conducting business with

*International
Chimney
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Contractors and Engineers



