

***RUSS REEVES, CEng., P.E.
CIVIL-STRUCTURAL ENGINEERS**

P.O. Box 1433
Troy, New York 12181-1433

Tel: 518-273-0774
e-mail: rreeves2@nycap.rr.com

April 15, 2021

Valerie Scott
vscott@albanyny.gov
Deputy Director
Division of Buildings and Regulatory Compliance
200 Henry Johnson Blvd., Suite # 1
Albany, New York 12210

**Re: Emergency Structural Condition Assessment 92- Alexander Street,
Albany, New York**

Dear Valerie:

On April 14th , 2021 at approximately 2:00 pm Engineering Technician Barbara Tozzi and I arrived at 92 Alexander Street where we met Senior Building Inspector Dan Sherman, Sam Wells, Danielle Smith and Director Rick LaJoy. The purpose of this site visit was to evaluate the interior and exterior portions of the structure as it relates to public safety.



Photograph 1

Photographs 1 and 2 show the Northerly (front) and Westerly side of the building respectively. The existing building is vacant and has been exposed to water damage and rotting for approximately 15 years. Floor and roof joists span in an

East / West direction with interior stud bearing walls that support floor and roof joists at both the first and second floor levels.



Photograph 2



Photograph 3

Floor framing members are fractured and failing at each floor level. Photographs 3 and 4 shows some deteriorated and fractured floor joists and failing underlayment at the first floor. There are multiple floor penetrations present at the first and second floor levels. Hence, extreme caution shall be exercised when accessing these areas. There is black mold present and saturated sheet rock and debris at every floor. Photograph 5 shows a typical view of the basement area. Photographs 6 and 7 show a typical view of the first and second floor levels. It shall be noted that some of the floor penetrations cannot be seen because they are covered with debris and rugging.



Photograph 4



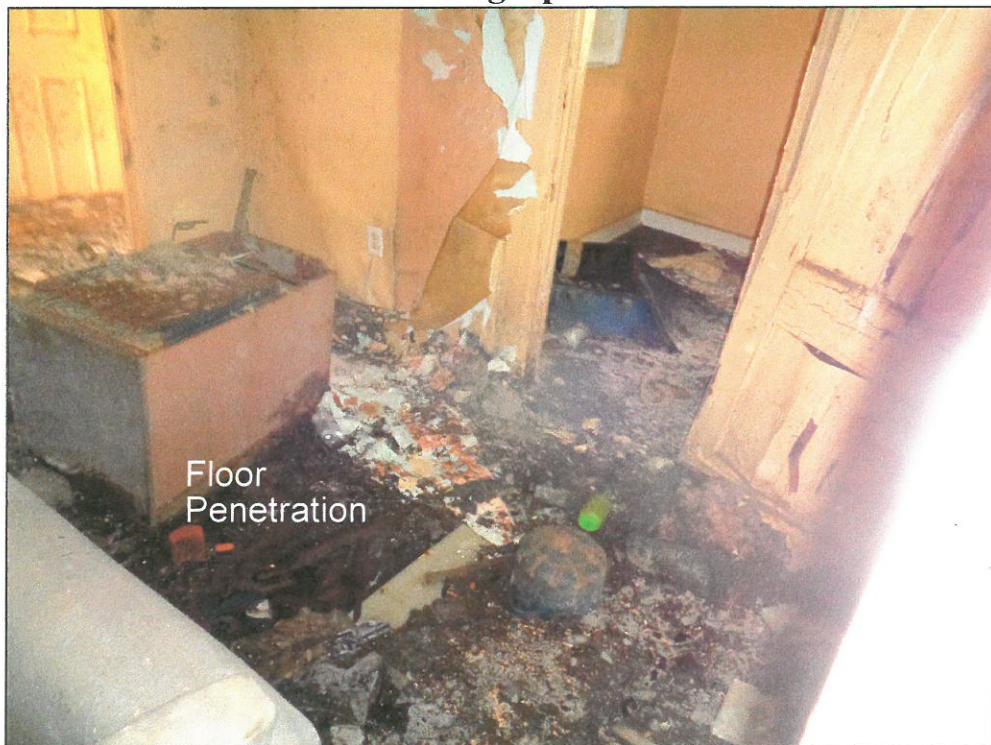
Photograph 5

It is estimated that the building was constructed at the beginning of the 1900's (1910) and the City has identified this structure as having possible historic significance and would like to explore the possibility of building stabilization. Because of the extent of deterioration in floor and roof framing members and failure about the perimeter of the foundation, stabilization procedures include temporary shoring measures that would allow for the safe removal and replacement of the perimeter footing and foundation. This engineering report discusses the required tasks needed for structural stabilization along with the estimated costs associated with labor and materials to perform these tasks. It shall be noted that the building was considered structurally deficient due to numerous failures about

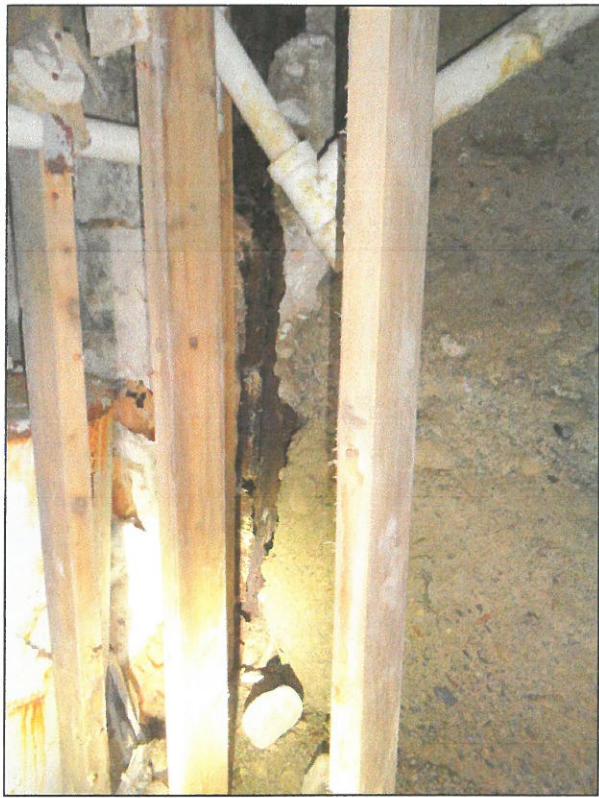
the perimeter foundation and gross deficiencies in the structural framing members. The contractor performing the stabilization work shall be mindful with respect to the overall stability in the structure in that it is possible for the condition of the building to migrate into a dynamic failure state as the work progresses.



Photograph 6



Photograph 7



Photograph 8

At the turn of the century, it was common to excavate for a foundation and use the excavated soils as aggregate for concrete by combining silty clay soils with some rounded stone and Portland Cement. While this deficient “concrete” was functional for a number of years, this Cementous composition degrades substantially with time, variations in moisture contents, subsequent freeze / thaw cycles and heavy loading conditions such as from a combination of both horizontal earth pressures and vertical live and dead loads applied from the weight of the house. Currently, the resulting behavior and consistency of the existing foundation replicates that of a dense Cementous soil and not the resiliency and structural capacity of a proper concrete mixture.

While the present condition of the building is considered structurally deficient and a hazard to public safety, the following represent structural stabilization measures and associated costs required to stabilize and preserve the structural integrity of this building.

Please note that only a qualified and fully insured contractor shall be selected for these stabilization measures. The contractor is wholly responsible for workers' safety, DOL and OSHA compliance. Access is restricted to authorized personnel only due to the hazard classification. For safety, all

utilities with confirmation shall be terminated at the curb line (water/ sewer), natural gas and the electrical service, terminated at the power pole.

Description of engineering design drawings and construction materials

- 1). Plan view of building foundation with proposed temporary 2" x 6" shoring to support floor framing members and supplemental micro- lam and column support for the main bearing beam. Sectional view through the foundation first and second floor levels and the roof that establish the applied live and dead loads to the structure.
- 2). Permanent foundation wall replacement and associated structural details.
- 3). Proposed first and second floor level framing member replacement.
- 4). Roof joists replacement and replacement of the roof and roof underlayment.
- 5). Engineer's estimate of construction.

If you have any questions please do not hesitate to call.

Very truly yours,

Russ Reeves PE

R. Russell Reeves, CEng., P.E.

*Charter Member Structural Engineering Institute &
The American Society of Civil Engineers (40 years)*

cc: Barb Tozzi, Engineering Technician
btozzi3@gmail.com
Reeves Engineering

Rick LaJoy, Director
[rlajoy@albanyny.gov](mailto:rلاjoy@albanyny.gov)
Division of Buildings and Regulatory Compliance

Dan Sherman, Senior Building Inspector
dsherman@albanyny.gov
Division of Buildings and Regulatory Compliance

Sam Wells
[swells@albanyny.gov](mailto:s wells@albanyny.gov)
Division of Buildings and Regulatory Compliance

Jermaine White
jwhite@jawhousing.com



RUSS REEVES CEng., P.E.
Civil + Structural Engineers
NYS Lic #063979

PO Box 1433 Troy, New York 12181-1433
(p) 518.273.0774
(e) rreeves2@nycap.rr.com

JOB 92 ALEXANDER STREET
ALBANY NEW YORK
SHEET NO. 1 OF 7
CALCULATED BY RRR DATE 5/12/2021
CHECKED BY BJT DATE 5/12/2021
SCALE N/A

Structural Stabilization

Engineering Estimate of Construction

Materials & Labor

- 1.0 REMOVE ALL DEBRIS FROM THE BUILDING. REMOVE RUGGING,
i) SHEET ROCK WALLS & CEILINGS IN THE BASEMENT, 1 $\frac{1}{2}$ ' & 2'
FLOOR LEVELS.
- ii) PROVIDE B - 30 CY DUMPSTERS @ \$400/DUMPSTER \$ 4800.00
- iii) INTERIOR DEMOLITION of all WALL, FLOOR &
CEILING COVERING & INSULATION: (LABOR)
4 LABORERS X 8 HR/DAY X 10 DAYS X 20/HR = \$ 9,600.00
- 2.0. BASEMENT AREA: INSTALL 3 - 2"X6" @ 16" ON-CENTER
i). SAW BEARING WALLS (EAST & WEST SIDE OF THE BSMT
AND @ CENTER) situated UNDER THE UPPER BEARING WALLS
TO MAINTAIN LOAD PATHS.
2"X6" @ 16" O.C. 180 LF \approx 135 2"X6" STUDS @ 8' LENGTH
PROVIDE A TOTAL OF 160 EACH 2"-6" X 8' LENGTH TO ACCOMMODATE
MULTIPLE JACK SAWING AT 4' OPENINGS & KNEE BRACING
AT WALL TO FLOOR JOISTS (@ THIRD POINT FOR WALL STABILITY)
2"X6" @ 8' LENGTH STUDS (160 ea x \$14/ea) = \$ 2240 \$ 2,240.00
- ii). TOP & BOTTOM 2"X6" PLATES (DOUBLE TOP PLATE
AND SINGLE BOTTOM PLATE) 2"X6" @ 16' LONG
164 LF x 3 = 492 LF, = 31 pieces
1/16 per piece
31 pieces (2"X6" @ 16') = 30 each = \$ 930.00 \$ 930.00
- iii). LABOR: 5 CARPENTERS X 8 hrs/DAY X 25/hr X 5 DAYS = \$ 5000.00
- iv). MISC MATERIALS: SAW BLADES, NAILS, SCREWS
GARBAGE BAGS, ETC. \$ 1000.00
- v). 2"X10" @ 5' LENGTH (3 EACH) HEADER @ 4' ACCESS
OPENINGS IN EACH WALL SECTION (12 OPENINGS TOTAL)
316 PIECES (2"X6" X 12') @ 33 each = \$ 1188.00 \$ 1188.00
- THIS SHEET \$ 24,758.00



RUSS REEVES CEng., P.E.
Civil + Structural Engineers

NYS Lic #063979

PO Box 1433 Troy, New York 12181-1433
 (p) 518.273.0774

(e) rreeves2@nycap.rr.com

STRUCTURAL STABILIZATION
 ENGINEERS ESTIMATE CON'T MATERIALS & LABOR

92 ALEXANDER STREET
 JOB ALBANY, NEW YORK

SHEET NO. 2 OF 7

CALCULATED BY RRR DATE 5/12/2021

CHECKED BY BJT DATE 5/12/2021

SCALE NOT APPLICABLE

3.0 FIRST FLOOR LEVEL FRAMING

i). 2" x 6" @ 10' lengths studs at 16" on center

ALONG THE EAST & WEST SIDES OF THE BUILDING AND

ALONG THE CENTER OF THE STRUCTURE (longitudinally)

160 studs each @ 10 lengths (2" x 6") @ \$19/stud = \$3,040 ⁰⁰

ii). 2" x 6" (double top plate) & 2x6" bottom plate - single

164 LF x 3 = 492 LF / 16' lengths per piece = 31 pieces

31 pieces (2" x 6" @ 16') x \$30 each = \$930 ⁰⁰

iii). LABOR: 5 CARPENTERS x 8 hrs/day x 25/hr x 5 days = \$5000 ⁰⁰

iv). MISC MATERIALS. SAW BLADE, NAILS, SCREWS
 GARBAGE BAGS, etc. ^{< Refer to sheet 17} \$1000 ⁰⁰

v). PROVIDE 2" x 10" (3 each) Headers 5' lengths @

EACH ACCESS OPENING (4' wide) IN THE ENTRANCE,

INTERIORITY & CENTER 2" x 6" bearing walls.

12 - 4' OPENINGS TOTAL 20 pieces - 2" x 10" @ 12' lengths

5' x 3 each x 12 openings = 180 LF / 12' lengths = 15 pieces

PROVIDE 20 pieces each of 2" x 10" @ 12' lengths

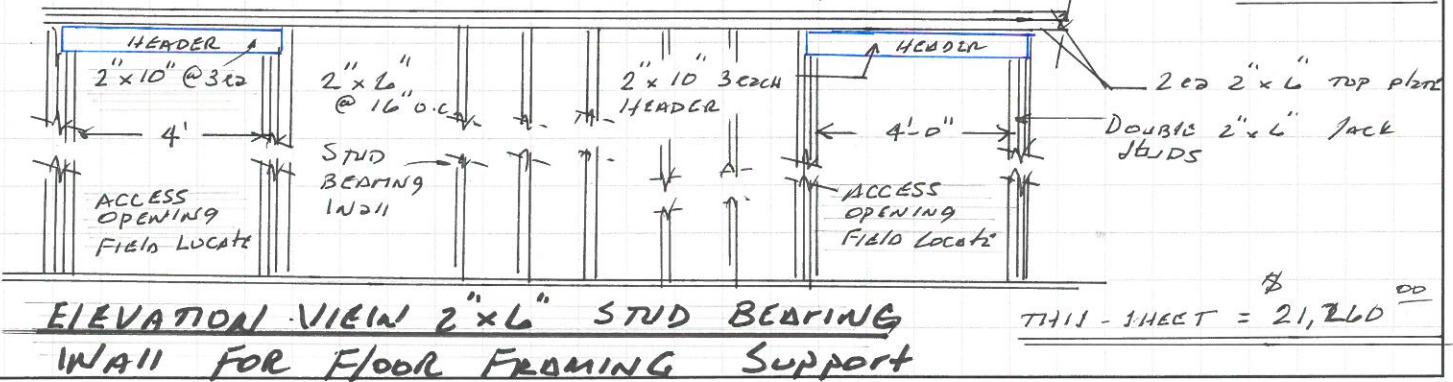
FOR THE HEADERS 20 pieces x \$33 ⁰⁰ each = \$660 ⁰⁰

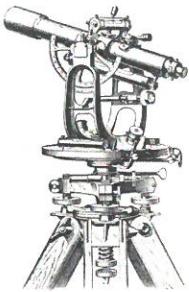
SUB TOTAL \$10,630 ⁰⁰

4.0 SECOND FLOOR LEVEL FRAMING

i). SAME TASKS, MATERIALS & LABOR FOR THE FIRST
 FLOOR AREA. AS SHOWN IN ITEM (3.0)

\$10,630 ⁰⁰





RUSS REEVES CEng., P.E.
Civil + Structural Engineers
NYS Lic #063979

PO Box 1433 Troy, New York 12181-1433
(p) 518.273.0774

(e) rreeves2@nycap.rr.com

Structural Inspection

ENGINEER'S ESTIMATE OF CONSTRUCTION; MATERIALS & LABOR

92 ALEXANDER STREET
JOB ALBANY NEW YORK

SHEET NO. 3 OF 7

CALCULATED BY R.R. DATE 5/13/2021

CHECKED BY B.J.T. DATE 5/13/2021

SCALE Not Applicable

57. REPLACEMENT OF FIRST FLOOR FRAMING & FLOOR UNDERLAYMENT
THAT IS DEMONSTRATED & ROTTED:

i). Floor Framing: 2" x 8" x 12' LENGTH 28 PIECES x 25 ea = \$ 700

ii). ADVANTECH OSB TONGUE & GROOVE 23/32" OSB
BOARD UNDERLAYMENT 4'x8' SHEETS 20 SHEETS x 100 /sheet = \$ 2000

iii). MISC MATERIALS AS SHOWN IN ITEM 1.0-iv (Sheet 1) \$ 1000

iv). LABOR: 5 CARPENTERS x 8 hr/day x 25/hr x 5 Days \$ 5000
SUB TOTAL \$ 8,700

47. 2nd FLOOR LEVEL FRAMING & UNDERLAYMENT
REPLACEMENT (Same As Item 5)

\$ 8,700

7). ROOF Replace DEMONSTRATED & FAILING ROOF JOISTS, ROOF -

i). UNDERLAYMENT. BOLT NEW 2" x 10" ROOF JOISTS TO
EXISTING MEMBERS PROVIDE NEW HEADER & BOXED-OUT HATCHWAY
FOR ROOF ACCESS. USE GRK 3/8" x 4" STRUCTURAL SCREWS

ii). REPLACE 2" x 10" ROOF JOISTS @ 12' LENGTH 30 PIECES x 33 each = \$ 990

iii). ADVANTECH 23/32" 30 SHEETS x 100 /sheet = \$ 3000

iv). SCREW & BOLT (AS NEEDED) FRAMING MEMBERS TO
EXISTING PROVIDE ACCESSWAY TO ROOM

v). 40' x 22' = 1320 SF 12 SHEETS OF 1/2" GAF SUBSTRATE \$ 1200

vi). LABOR: 5 CARPENTERS x 8 hr/day x 25/hr x 5 Days = \$ 5000

vii). EPDM 60 MIL RUBBER ROOF WITH FLASHING \$ 8000

TOTAL THIS SHEET \$ 37,590



RUSS REEVES CEng., P.E.
Civil + Structural Engineers
 NYS Lic #063979

PO Box 1433 Troy, New York 12181-1433
 (p) 518.273.0774

(e) rreeves2@nycap.rr.com
 Structural Stabilization

ENGINEERS ESTIMATE OR CONSTRUCTION

92 ALEXANDER STREET
 JOB ALBANY NEW YORK

SHEET NO. 4 OF 7

CALCULATED BY RRR DATE 5/13/2021

CHECKED BY BJT DATE 5/13/2021

SCALE Not Applicable

CON'T Materials & Labor

8). PROVIDE TEMPORARY RAKER BRACE SUPPORT ABOUT THE 4 SIDES OF THE BUILDING EXTERIOR TO PREVENT MOVEMENT (TRANSLATION) OF THE BUILDING DURING THE DEMOLITION OF THE FAILING FOUNDATION WALL.

i). TOTAL EXTERIOR PERIMETER: $40' + 40' + 22' + 22' = 164 \text{ LF}$.
 MAXIMUM RAKER BRACE SPACING: 8'
 $164 \text{ LF} / 8' = 21 \text{ (22 locations)}$

ii) PROVIDE 2ea 2" x 10" @ 12' LENGTHS per DIAGONAL BRACE $2ea \times 22 \times 33 = 1452$
 CROSS BRACING BETWEEN DIAGONAL BRACES: 8'
 $2" \times 4" \times 14'$ 2 BRACES $\times 22 \text{ locations} \times 20 \text{ ea} = 880$
 2" x 10" BACKER BOARD FOR RAKER BRACES (36" LENGTH)
 $2" \times 10" \times 12' \times 6 \text{ ea}(pieces) \times 33 \text{ ea} = 200$

iii) MISC ITEMS Refer to Sheet 1 item I-IV

iv). LABOR 5 days \times 5 Carpenters \times 8 hr/day $\times 25/\text{hr} = 5000$

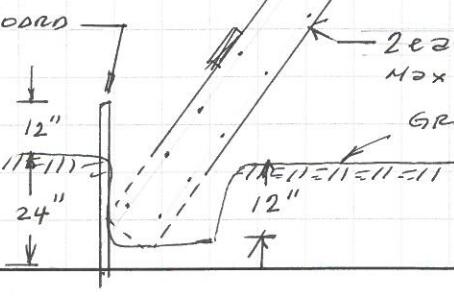
v). LEDGER PLATE 2" x 10" x 12' LENGTHS $164 \text{ LF} / 12' / \text{piece} = 14 \text{ pieces} \times 33 = 462$

vi). 3/8" x 6" LEDGER LOK SCREWS @ 16" O.C. 2 ROWS

TEMPORARY RAKER
BRACE SUPPORT TO
PREVENT SIDE-SWAY &
LATERAL DEFLECTION.

2" x 10" BACKER BOARD
WITH 24" EMBEDMENT

CROSS BRACING
@ EACH DIAGONAL
BRACE

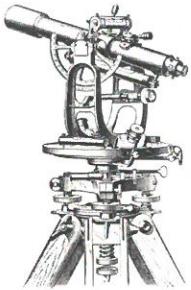


3/8" x 6"
LEDGER LOK SCREWS
TWO ROWS

1/2" D RING SHANK NAILS
WITH ADHESIVE COATING
@ 12" O.C.

2ea 2" x 10" DIAGONAL BRACE @ 12'
MAX SPACING 8" O.C.
GRADE LEVEL

TOTAL THIS SHEET: \$ 93.94



RUSS REEVES CEng., P.E.
Civil + Structural Engineers

NYS Lic #063979

PO Box 1433 Troy, New York 12181-1433
 (p) 518.273.0774
 (e) rreeves2@nycap.rr.com

ENGINEER'S ESTIMATE OF CONSTRUCTION Materials & Labor cont'

9). Basement Area : Demolition of the existing failing foundation wall & replacement with a new 12" thick x 24" wide Reinforced Concrete Footing & 2 8" reinforced CMU block wall.

i). DEMOLITION OF 164 LF @ 8' height existing failing foundation wall

5 WEEKLY MACHINE RENTAL $\frac{\$}{\$}$ $\frac{\$}{\$}$ $\frac{\$}{\$}$ $\frac{00}{00}$
 $2754/\text{MO} + 1377/\text{WEEK} = 4131$

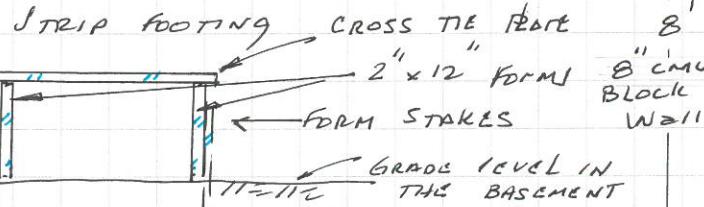
4.5 - 5.0 TON JOHN DEERE 50 G MINI-EXCAVATOR
 OPERATOR 14 DAYS \times 8 hr/day \times $\frac{\$}{\$}$ $\frac{\$}{\$}$ $\frac{00}{00}$
 $25/\text{hr} = 2800$

ii). DUMP TRUCK (10 LOADS) \times $\frac{\$}{\$}$ $\frac{\$}{\$}$ $\frac{00}{00}$
 $500/\text{LOAD} = 5000$

iii). LABORERS (5) \times 20 DAYS \times 8 hr \times $\frac{\$}{\$}$ $\frac{\$}{\$}$ $\frac{00}{00}$
 PREP THE FOUNDATION AREA DAY $= 16,000$

TO RECEIVE THE PERIMETER FOOTING ; FORM & PLACE REINFORCING
 APPLY 8" COMPACTED CRUSHER STONE ; PLACE BLOCK &
 CMU REINFORCING APPLY 2 COATS OF ASPHALTIC
 EMULSION TO THE OUT SIDES

IV). PROVIDE 2" x 12" @ 12' LENGTH
 FOR FORMWORK FOR THE



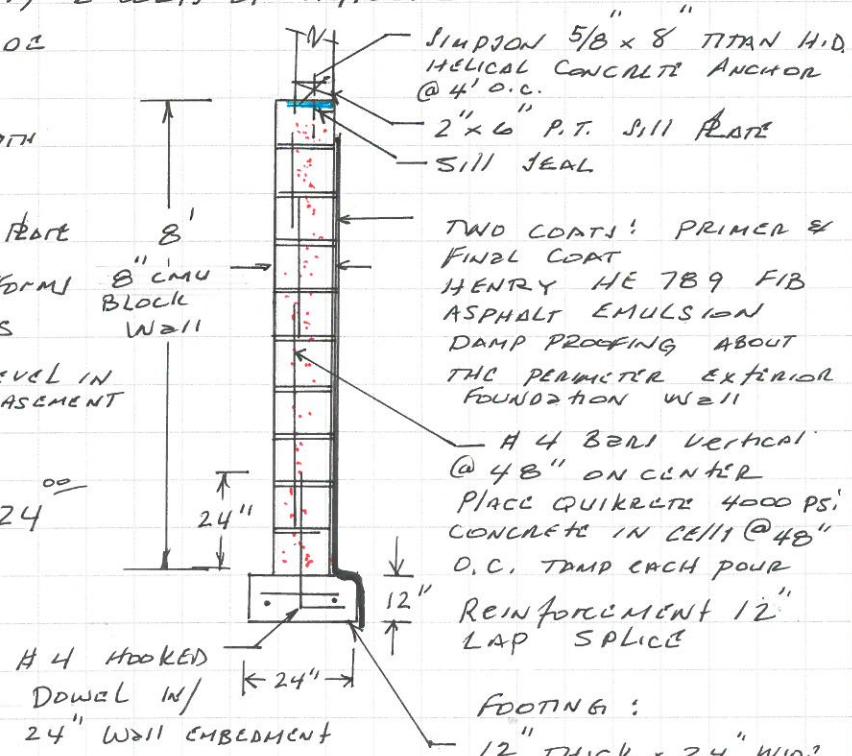
FOOTING FORM WORK

$2 \text{ ea } 164 \text{ LF } \times 33/\text{piece} = 924$

$\frac{\$}{\$}$ $\frac{00}{00}$

12 LF/piece

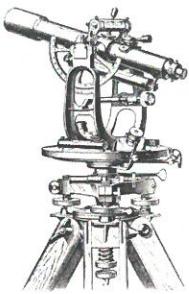
SUB TOTAL THIS SHEET: 28,855



TYPICAL FOUNDATION WALL

SECTION

REINFORCED CONCRETE FOOTING
 4000 PSI CONC 3" MAX SLUMP
 5-7% AIR



RUSS REEVES CEng., P.E.
Civil + Structural Engineers
 NYS Lic #063979

PO Box 1433 Troy, New York 12181-1433
 (p) 518.273.0774
 (e) rreeves2@nycap.rr.com

ENGINEER'S ESTIMATE OF CONSTRUCTION

92 ALEXANDER ST
 JOB ALBANY NEW YORK

SHEET NO. 6 OF 7

CALCULATED BY RRR DATE 5/13/2021

CHECKED BY BJT DATE 5/13/2021

SCALE _____

MATERIALS & LABOR

g). BASEMENT FOUNDATION CON'T.

iV) FORM WORK CON'T.

FORM STAKES & INWOOD (1" x 3") LARCH

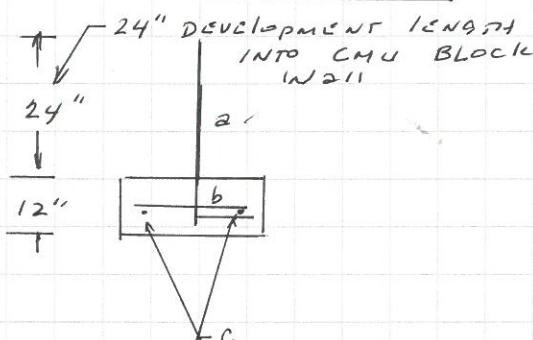
TIE PLATES, NAILS, ETC. LABOR & MATERIALS

Subtotal This

Sheet = \$16,810

\$ 1600

v) REINFORCING:



- a). H4 BENT BAR IN 6" hook 36" total LENGTH @ 48" O.C. USE 45 pieces @ 3' length $\frac{135 \text{ LF}}{2 \text{ ft o.c.}}$
- b). TRANSVERSE H4 BAR @ 2' O.C. USE 86 pieces $86 \times 1.5' = 129 \text{ LF}$
- c). 2 ea H4 BARS CONTINUOUS LONG, TUDOR 2 ea x 164' = $\frac{328 \text{ LF}}{2 \text{ ft o.c.}}$

CMU WALL REINFORCING

$$8' \text{ WALL HEIGHT} \times \frac{164'}{4' \text{ WALL SPACING}} = 41 \text{ ea } 8 \text{ LF} = \frac{(328 \text{ LF})}{\text{d}}$$

TOTAL LENGTH OF REINFORCING IS. $135' + 129' + 328' + 328' = 920'$

THE H4 BARS ARE PURCHASED IN 10' LENGTHS.

OR 92 PIECES TOTAL PROVIDED 110 PIECES. @ 11 each = $\frac{1210}{\$ 100}$

vi) DUR-O-WALL HORIZONTAL REINFORCEMENT EVERY OTHER COURSE! $\frac{\$ 2000}{2000}$

vii) CONCRETE FOR THE FOOTING: $1' \text{ thick} \times 2' \text{ wide} \times 164 \text{ LF} = 12 \text{ cu yds provided}$

$$14 \text{ cu yds} \times \frac{\$ 120/\text{cu yd}}{27 \text{ cu yds/cu yd}} = \frac{1680}{14} = \frac{2000}{\$ 140}$$

PROVIDE A PUMP TRUCK FOR EACH POUR $\frac{3000}{\$ 3000}$

viii) CONCRETE FOR FILLING THE CAVITY OF BLOCK @ 4' ON CENTER
 $4 \text{ bags} @ \frac{\$ 5}{bag} \text{ per location} \times 41 \text{ locations} = \frac{1000}{\$ 1000}$

ix), CONCRETE BLOCK $(164 \text{ LF} \times 12 \text{ in/ft}) \div 16'' \text{ / block} \times 12 \text{ courses} = 1476 \text{ block}$
 $1476 \text{ block} \times \$ 2.00 \text{ ea} = 3000 \text{ block} \& 3000 \text{ MORTAR: } \frac{3000}{\$ 6000}$



RUSS REEVES CEng., P.E.
Civil + Structural Engineers
NYS Lic #063979

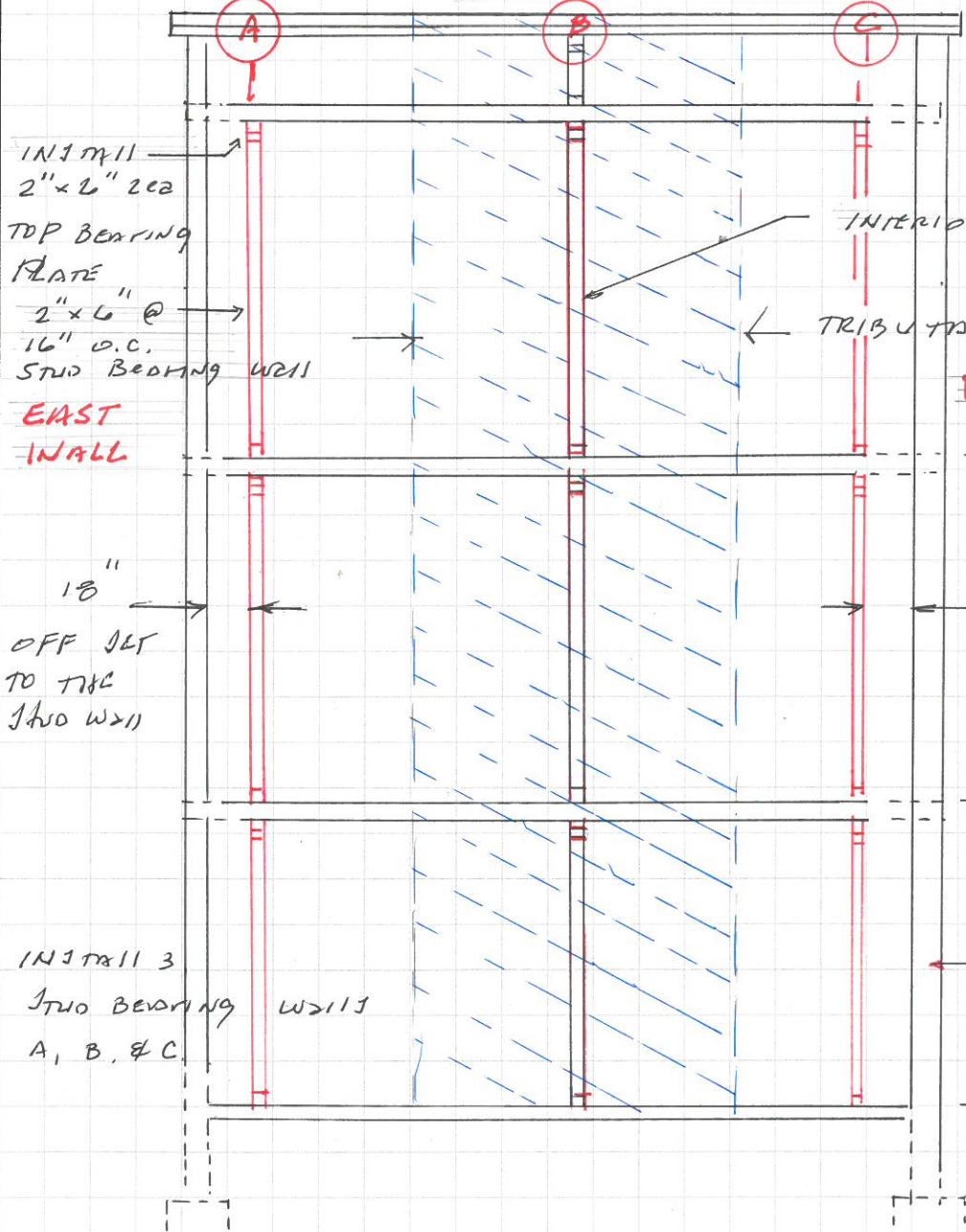
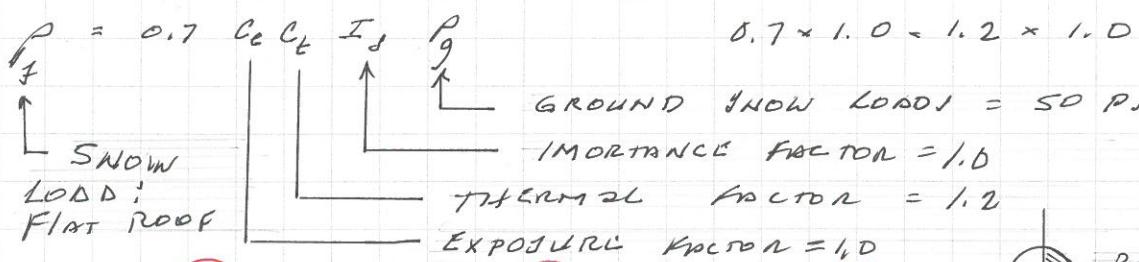
PO Box 1433 Troy, New York 12181-1433
(p) 518.273.0774
(e) rreeves2@nycap.rr.com

JOB 92 ALEXANDER STREET
ALBANY NY
SHEET NO. 7 OF 7
CALCULATED BY R.R.R. DATE 5/13/2021
CHECKED BY B.J.T. DATE 5/13/2021
SCALE w/a

ENGINEERS ESTIMATE FOR STRUCTURAL STABILIZATION MATERIALS & LABOR

SHEET #	SUBTOTAL AMOUNT
1	\$ 24,758 <u>00</u>
2	\$ 21,260 <u>00</u>
3	\$ 37,590 <u>00</u>
4	\$ 9,394 <u>00</u>
5	\$ 28,855 <u>00</u>
6	\$ 16,810 <u>00</u>
NET TOTAL	\$ 138,667 <u>00</u>

LIVE SNOW LOAD ON THE ROOF : ASCE EQN 7.3-1 ASCE 7-14



ROOF

$$\begin{aligned} LL &= 42 \text{ PSF} \\ DL &= 20 \text{ PSF} \\ \hline LL + DL &= 62 \text{ PSF} \end{aligned}$$

WEST WALL

2nd Floor Level

$$\begin{aligned} LL &= 30 \text{ PSF} \\ DL &= 20 \text{ PSF} \\ \hline LL + DL &= 50 \text{ PSF} \end{aligned}$$

18" OFF SET TO STUD WALL

1st Floor Level

$$\begin{aligned} LL &= 40 \text{ PSF} \\ DL &= 20 \text{ PSF} \\ \hline LL + DL &= 60 \text{ PSF} \end{aligned}$$

REPLACE THE FOUNDATION WALL WITH REINFORCED CMU BLOCK (8")

BASEMENT

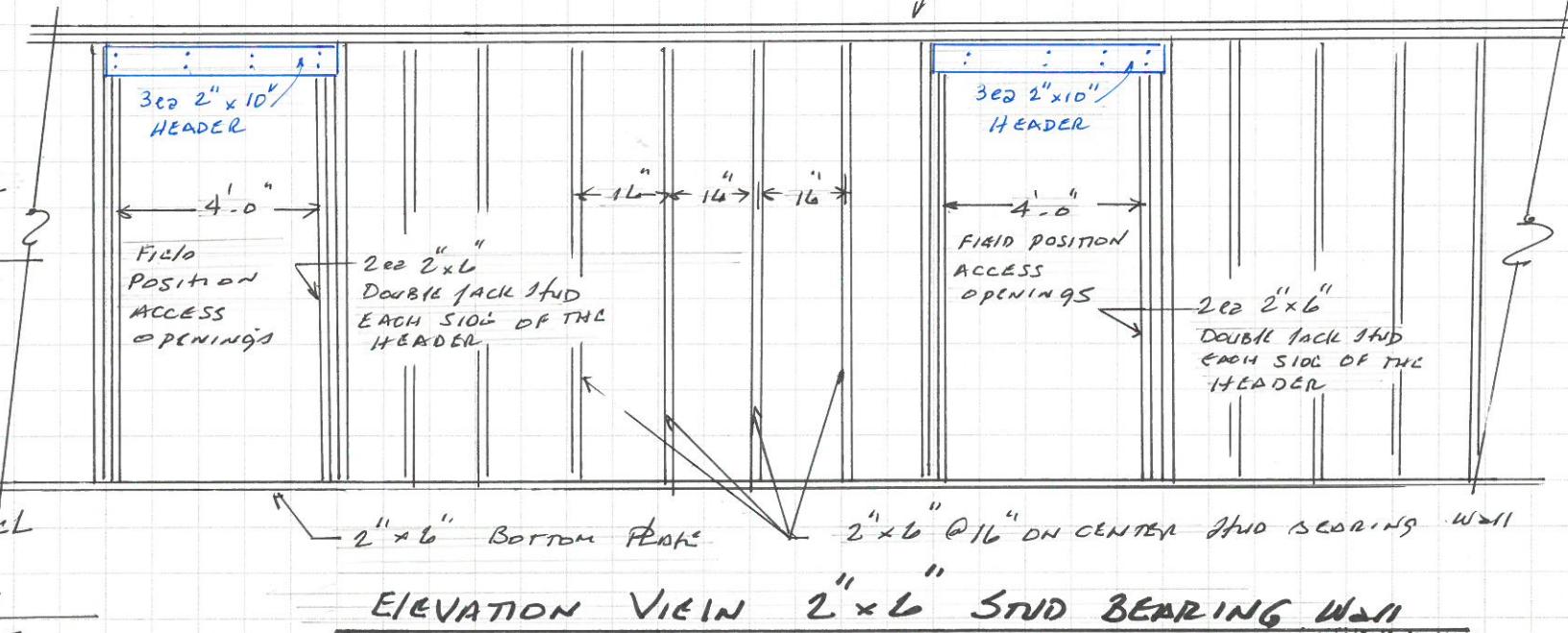
MAXIMUM SPAN OF THE MAIN BEARING BEAM BETWEEN SUPPORTS IS 6'-0" APPLIED UNIFORM LOAD = W
NET APPLIED LOAD FROM THE ROOF, 1st & 2nd FLOOR JOISTS
 $LL + DL = 62 \text{ PSF} + 50 \text{ PSF} + 60 \text{ PSF} = 172 \text{ PSF}$

UNIFORM SPANNED LOAD = $W = 172 \text{ PSF} \times 11' = 1892 \text{ ft/lbf}$

MAXIMUM MOMENT DEVELOPED IN THE 4' OPENING
 $M = WL^2/8 = \frac{1892 \text{ ft/lbf} \times 11'^2}{8} = 3784 \text{ ft-lbs. (MIDDLE STUDE)}$

PROVIDE 2" x 10" (3 each) AT EACH HEADER OPENING IN THE CENTER
2" x 6" @ 16" O.C. STUDE W/S/W

2x2 2" x 6" TOP PLATE



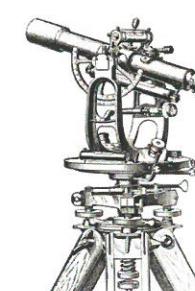
92 ALEXANDER ST
JOB ALBANY NY

SHEET NO. / OF

CALCULATED BY R.R.E. DATE 5/11/2021

CHECKED BY B.J.T. DATE 5/11/2021

SCALE 3/16" = 1'-0"



RUSS REEVES CEng., P.E.
Civil + Structural Engineers
NYS Lic #063979

PO Box 1433 Troy, New York 12181-1433
(p) 518.273.0774
(e) rreeves2@nycap.rr.com

