Form # P 04

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING INSPECTION

PERMIT

Please Read Application And Notes, If Any, Attached

PERMIT ISSUED
MAR 2 9 2006
CITY OF PORTLAND

Permit Number: 060303

This is to certify that CITY OF PORTLAND /TBL

has permission to Commercial Clock Tower: r int, clea extra elect sto or steel restoration, new copper roofing at dome; Clock mechanism restorati elevate alk to s vation

AT 389 CONGRESS ST 027 C012001

provided that the person or persons rm or tion a epting this permit shall comply with all of the provisions of the Statutes of ine and of th nances of the City of Portland regulating the construction, maintenance and e of buildings and ctures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

ification f inspe n mus e n and w en perm on proc d re this lding o rt there s ed or losed-in 4 UR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. _____

Health Dept. _____

Appeal Board _____

Other _____
DepartmentName

Director - Building & Inspection Services 3/29/06

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, **Fax:** (207) 874-8716

PERMIT ISSUED
MAR 2 9 2006
CITY OF PORTLAND

Permit No:	Issue Date:	CBL:
06-0303		027 C012001

Location of Construction:	Owner Name:	Owner Address:	Phone:
389 CONGRESS ST	CITY OF PORTLAND	389 CONGRESS ST	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	TBD	Portland	
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		Alterations - Commercial	B-3

Past Use:	Proposed Use:	Permit Fee:	Cost of Work:	CEO District:
Commercial	Commercial Clock Tower: repoint, clean & extract select stone for steel restoration, new copper roofing at dome, Clock mechanism restoration, relocate clock to observation room		$0.00	1

FIRE DEPT: ☐ Approved ☐ Denied

N/A

Signature:

INSPECTION:

Use Group: Type:

REPAIR PERMIT

3/28/06

Signature:

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied

Signature: Date:

Permit Taken By:	Date Applied For:
dmartin	03/07/2006

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☐ Shoreland	☐ Variance	☐ Not in District or Landmark
☒ Wetland	☒ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☑ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☐ Site Plan	☐ Approved	☑ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
Date: 3/9/06	Date:	Date: to D.A 3/9/06

D. Andrews 3/9/06

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if **a** permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT ADDRESS DATE PHONE

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE DATE PHONE

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, **Fax:** (207) 874-8716

Permit No:	Date Applied For:	CBL:
06-0303	03/02/2006	027 C012001

Location of Construction:	Owner Name:	Owner Address:	Phone:
389 CONGRESS ST	CITY OF PORTLAND	389 CONGRESS ST	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	TBD	Portland	
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		Alterations - Commercial	

Proposed Use:	Proposed Project Description:
Zommercial Clock Tower: repoint, clean & extract select stone for steel restoration, new copper roofing at dome, Clock mechanism restoration, relocate clock to observation room	Commercial Clock Tower: repoint, clean & extract select stone for steel restoration, new copper roofing at dome, Clock mechanism restoration, relocate clock to observation room

Dept: Historical **Status:** Approved with Conditions **Reviewer:** Deborah Andrews **Approval Date:** 03/09/2006

Note: **Ok to Issue:** ☑

1) * Any design revisions or alterations in response to unforeseen field conditions must be reviewed and approved by Historic Preservation staff.

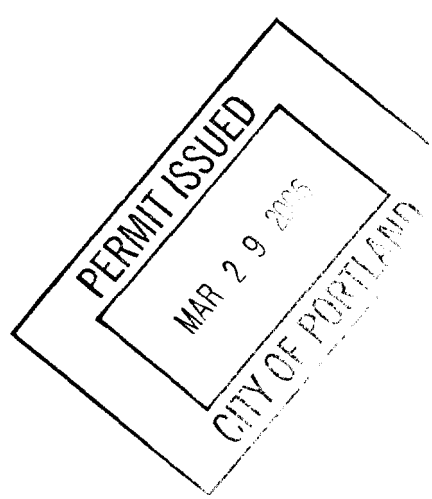
Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 03/09/2006

Note: **Ok to Issue:** ☑

Dept: Building **Status:** Approved with Conditions **Reviewer:** Mike Nugent **Approval Date:** 03/28/2006

Note: **Ok to Issue:** ☑

1) Must provide engineerinf inspections during the repair process and a final report certifying the repair. AI Hodsdon has agreed to this and is meeting with M.Nugent on 3/31/06 to formalize this.



General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: 389 Congress Street, Portland		
Total Square Footage of Proposed Structure: Exterior Restoration	Square Footage of Lot	
Tax Assessor's Chart, Block & Lot Chart# Block# Lot#	Owner: City of Portland	Telephone:
Lessee/Buyer's Name (If Applicable)	Applicant name, address & telephone: City of Portland Bob Leeman 233 0350	Cost Of Work: $ ± 1.8 mil Fee: $ C of O Fee: $

Current Specific use: clock Tower & Exterior Parapets
Proposed Specific use: Clock Tower / " "

Project description: Primarily an exterior restoration: Repoint, clean masonry; extract select stones to allow for steel restoration, reinstall stone; new copper roofing at dome; clock mechanism restoration, relocate clock to Observation Room

Contractor's name, address & telephone: TBD
Who should we contact when the permit is ready: Bob Leeman XXcell
Mailing address: Phone: 233 0350

Wavele & MV

Please submit all of the information outlined in the Commercial Application Checklist. Failure to do so will result in the automatic denial of your permit. will bring

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information visit us on-line at www.portlandmaine.gov, stop by the Building Inspections office, room 315 City Hall or call 874-8703. - 11 x 17

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature of applicant: Date: 3/2/06

DEPT. OF BUILDING INSPECTION
CITY OF PORTLAND, ME
MAR - 2 2006
RECEIVED

This is not a permit; you may not commence ANY work until the permit is issued.

CITY OF PORTLAND
BUILDING CODE CERTFICATE
389 Congress St., Room 315
Portland, Maine 04 101

TO: Inspector of Buildings City of Portland, Maine
Department of Planning & Urban Development
Division of Housing & Community Service

FROM: John Turk AIA ttl-architects, llc

RE: Certificate of Design

DATE: 9 FEB 06

These plans and / or specifications covering construction work on:

City Hall Clock Tower and Parapets

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the ***2003 International Building Code*** and local amendments.
See attached letter from structural engineer.

REGISTERED ARCHITECT
JOHN
TURK
No. 2059
STATE OF MAINE

(SEAL)

Signature: John Turk

Title: Principal

Firm: ttl-architects, llc

Address: 92 Exchange St.
Portland ME 04101

As per Maine State Law:

$50,000.00 or more in new construction, repair expansion, addition, or modification for Buildings or Structures, shall be prepared by a registered design Professional.

FROM DESIGNER: ttl-architects, llc

DATE: 9 FEB 06

Job Name: City Hall clock Tower & Parapet Restoration

Address of Construction: 389 Congress St. Portland

2003 *International Building Code*

Construction project was designed according to the building code criteria listed below:

Building Code and Year IBC 2003 Use Group Classification(s) U - Utility & Misc.

Type of Construction III B

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IBC NO

Is the Structure mixed use? NO if yes, separated or non separated (see Section 302.3)

Supervisory alarm system? NO Geotechnical/Soils report required? (See Section 1802.2) n/a

STRUCTURAL DESIGN CALCULATIONS

✓ Submitted for all structural members *(106.1, 106.1.1)*

DESIGN LOADS ON CONSTRUCTION DOCUMENTS (1603)

Uniformly distributed floor live loads *(1603.1.1, 1607)*

Floor Area Use	Loads Shown
N/A	N/A

SEE ATTACHED FOR SEISMIC INFO.

Wind loads *(1603.1.4, 1609)*

- ____ Design option utilized (1609.1.1, 1609.6)
- 100 mph Basic wind speed *(1609.3)*
- 1.15 Building category and wind importance factor, I_w (Table *1604.5*, 1609.5)
- C Wind exposure category *(1609.4)*
- N/A Internal pressure coefficient *(ASCE 7)*
- 44.5 PSF Component and cladding pressures *(1609.1.1; 1609.6.2.2)*
- 44.5 psf Main force wind pressures (7603.1.1, *1609.6.2.1)*

Earthquake design data *(1603.1.5, 1614 - 1623)*

- ____ Design option utilized *(1614.1)*
- IV Seismic use group ("Category") *(Table 1604.5, 1615.2)*
- 0.37/0.16 Spectral response coefficients, S_{DS} & S_{D1} *(1615.1)*
- Site class *(1615.1.5)*

- N/A Live load reduction *(1603.1.1, 1607.9, 1607.10)*
- N/A Roof live loads *(1603.1.2, 1607.11)*

Roof snow loads *(7603.1.3, 1608)*

- N/A Ground snow load, P_g (1608.2)
- ____ If P_g > 10psf, flat-roof snow load, P_f *(1608.3)*
- ____ If P_g > 10psf, snow exposure factor, C_s *(Table 1608.3.1)*
- ____ If P_g > 10 psf, snow load importance factor, I_s *(Table 1604.5)*
- ____ Roof thermal factor, C_t *(Table 1608.3.2)*
- ____ Sloped roof snowload, P_s *(1608.4)*
- III Seismic design category *(1616.3)*
- ____ Basic seismic-force-resisting system *(Table 1617.6.2)*
- ____ Response modification coefficient, R_I, and deflection amplification factor, C_d *(Table 1617.6.2)*
- ____ Analysis procedure *(1616.6, 1617.5)*
- 0.59W Design base shear (1617.4, *1617.5.1)*

Flood loads *(1603.1.6, 1612)*

- N/A Floodhazard area (1612.3)
- ____ Elevation of structure

Other loads

- N/A Concentrated loads (1607.4)
- N/A Partition loads (1607.5)
- N/A Impact loads *(1607.8)*
- N/A Misc. loads *(Table 1607.8, 1607.8.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404)*

CITY OF PORTLAND
BUILDING CODE CERTIFICATE
389 Congress St., Room 315
Portland, Maine 04101

ACCESSIBILITY CERTIFICATE — N/A

Designer: _____

Address of Project: _____

Nature *of* Project: _____

_____

_____

The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable referenced standards found in the Mains Human Rights Law and Federal Americans with Disability Act.

Signature: _____

Title: _____

(SEAL)

Firm: _____

Address: _____

_____

Phone: _____

NOTE: If this project is a new Multi Family Structure of 4 units or more, this project must also be designed in compliance with the Federal Fair Housing Act. *O n* a separate submission, please explain in narrative form the method of compliance.

RESURGENCE

ENGINEERING AND PRESERVATION, INC

132 BRENTWOOD STREET
PORTLAND, MAINE 04103
V/F (207) 773-4880
EMAIL: RESURGENCEINC@AOL.COM

January 4, 2006

TTL Architects
92 Exchange Street
Portland, ME 04101
Attn: John Turk

RE: Clock Tower & Parapet Rehabilitation: Portland City Hall, 389 Congress Street, Portland, Maine
Structural Engineering Project Scope
Resurgence Project Number 05-007

John,

The following letter outlines my understanding of the engineering scope for the above-mentioned project. This is based upon my initial discussions with Tobin Tracey in 2002-03, with Emmit Meade and Bob Leeman in 2004 and 2005, and discussions with Mike Nugent, Codes Enforcement Officer for the City of Portland in early 2005.

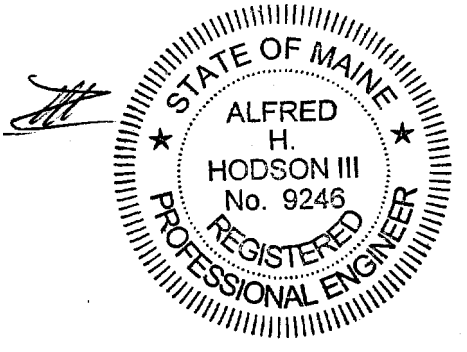
As I understand it, the project scope was always intended to be a repair/rehabilitation project, not a complete seismic analysis and retrofit of the tower. A complete seismic retrofit of the tower would be significantly more expensive than the currently anticipated $2,000,000.00 project cost, because much of the tower would need to be dismantled and reassembled using significant quantities of reinforcement and steel. A more comprehensive seismic repair to the parapets is planned, because they are more accessible and simpler to dismantle and rebuild.

In conversations with Mike Nugent, City of Portland Codes Enforcement Officer, we agreed that the overall project would fall under the definition of a *"Repair"* as defined in Chapter 2 of the ***2003 International Building Code.*** Repair is defined as "The reconstruction or renewal of any part of an existing building for the purpose of its maintenance." Thus, the clocktower would not be subject to a complete seismic analysis and seismic retrofit.

The City of Portland has switched to the 2003 International Building Code since the project began. When the project began, the city had adopted the 1999 BOCA/National Building Code. Seismic requirements have changed in the new code, becoming more stringent for Essential Facilities. City Hall itself is defined as an Essential Facility per Section 1602 of the ***2003 International Building Code.*** Essential Facilities are Buildings and other structures that are intended to remain operational in the event of extreme environmental loading from flood, wind, snow or earthquakes. Seismic design of parapet repairs was performed in accordance with the 1999 Code. Parapet repairs will need to be reviewed in comparison with the original parapet rehabilitation design.

The overall goal of the project has been to minimize moisture penetration in an effort to stabilize the clocktower structure and to repair existing steel supports where they have corroded. The tower repairs themselves may not completely conform with the latest seismic requirements in the 2003 International Building Code. If you have any questions, please do not hesitate to contact me to discuss them. I look forward to continuing work with you on this project.

Sincerely,



Alfred H. Hodson III, P.E.

AHH/ah
C:\05jobs\0507chct\jt010306.ltr

RESURGENCE

ENGINEERING AND PRESERVATION, INC.

132 BRENTWOOD STREET
PORTLAND, MAINE 04103
V/F (207) 773-4880
EMAIL: RESURGENCEINC@AOL.COM

DESIGN MEMORANDUM
January 17, 2006

RE: Structural Design Criteria for City Hall Parapet Restoration, Portland, Maine
Resurgence Engineering and Preservation Project Number 05-007

Discussion:

Determine wind and seismic design criteria for parapets:

Wind:

Parapet restoration design for this project considers the effect of wind loading per the 2003 International Building Code, which in turn references ASCE 7-02. Chapter 6 of ASCE 7-02 provides information about Wind Load design.

Building Classification	IV -- essential facility
Exposure coefficient	C
Wind Importance Factor I_w	1.15
Basic Wind Speed (3-sec gust)	100 mph

Find Velocity Pressure, q_z

$$q_z = 0.00256 K_z * K_{zt} * K_d * V^2 * I$$

Where K_z = velocity pressure exposure coefficient per 6.6.6.6, Table 6-3, pg 75.
K_z = 1.26 for z = 100 feet (height to top of parapet).

K_{zt} = topographic factor per 6.5.7.2, Figure 6-4, page 47 = 1.41 (see below)

$$K_{zt} = (1 + (K_1 * K_2 * K_3))^2$$

Where
$K_1 = H/L_h = 200'/500' = 0.40; K_1 = 0.42$

$K_2 = x/L_h = 1.00$ (City Hall located at top of hill)

$K3 = z/L_h = 100'$ above ground/500' ; $K3 = 0.45$

$$K_{zt} = (1 + (.42 * 1 * 0.45))^2$$

$K_{zt} = 1.41$

K_d = directionality factor per 6.5.4.4 = 0.85 for components and cladding, Main Windforce Resisting System, and Open Signs! (see Table 6-4, page 76)
V^2 = square of wind velocity where velocity = 100 mph
I = importance factor for structure type, structure type IV, (Table 1-1, Page 4); = 1.15

From previous page, Calculate Velocity **Pressure, q_z**

$$q_z = 0.00256 K_z * K_{zt} * K_d * V^2 * I$$

$$= 0.00256 * 1.26 * 1.41 * 0.85 * (100)^2 * 1.15$$

$$q_z = 44.46 \text{ psf}$$

The velocity pressure derived above is then applied into the design wind force for open buildings and other *structures;* Equation 6-25, page 34. It is not applied into parapet **equations,** because this ***structure*** is largely open and does not behave like the typical "parapet".

$$F = q_z * G * C_f * A_f$$

Where
q_z = velocity pressure per 6-15, pg 31.
q_z = 44.46 psf
G = ***gust*** effect factor **from** Section 6.5.8, page 30; G = **0.85** for rigid structures
C_f = Net force coefficients, Figure 6-19, page 69
= 1.4 for square members with h/D approximately 7.0
A_f = projected **area normal** to the wind (say 220 **square** feet from parapet **area** calcs)

F = 44.46 psf * 0.85 * 1.4 * 220.0 = **11.69 kips base wind force.**

Base Parapet Weight = 165pcf * 220 **square** feet * **2** cubic foot volume per **square** foot **area**
Base Parapet Weight = 72.60 kips

Wind force at **base** is approximately 11.69 kips/72.60 kips = 16.1% of the parapet weight.

Conclusion for Wind Analysis:

When applying wind load to the 2'-0" **thick** open parapet ***structure,*** the wind shear at the parapet **base,** in proportion to the parapet weight is:

$$F_{windbase} = 0.16 * W_p$$

Or approximately one-sixth the dead weight of the granite parapet structure.

Compare ***this*** force with the seismic forces that follow:

Seismic:

Criteria	Variable Symbol	Variable Value
Building Classification (Occupancy Category) (ASCE-7, Table 1-1, page 4)	Category	IV
Seismic Use Group (ASCE-7, Table 9.1.3, page 96) (based on Building Occupancy Category IV)	Use Group (S.U.G.)	III
Occupancy Importance Factor (ASCE-7, Table 9.1.4, page 97) (based on Seismic Use Group III)	I_e	1.5
Short-Period (0.2 second) Structural Acceleration (ASCE-7, Figure 9.4.1.1(a), page 111) (percentage of gravity /100 , g)	S_S	0.37
1.0-second Structural Acceleration (ASCE-7, Figure 9.4.1.1(b), page 113) (percentage of gravity /100, g)	S_1	0.10
Site Classification (ASCE-7, Table 9.4.1.2, page 108) (As confirmed by construction documents for Merrill Auditorium Addition) (For ledge within 50 feet of ground surface, consider Soil Type D) *(Note: It appears that the site is borderline C or D, depending on ledge depth)*	Stiff Soil	D
Site Coefficients and Adjusted Maximum Considered Earthquake (MCE) Spectral Response Acceleration Parameters (used to calculate S_{MS}) (ASCE-7, Table 9.4.1.2.4a, page 129) F_a = 1.50 when interpolating between S_s = 0.25 and S_s = 0.50 for Site Class D	F_a	1.50
Site Coefficients and Adjusted Maximum Considered Earthquake (MCE) Spectral Response Acceleration Parameters (used to calculate S_{M1}) (ASCE-7, Table 9.4.1.2.4b, page 130) F_a = 2.40 for S_1 </= 0.10 for Site Class D	F_v	2.40
Short-Period (0.2 second) MCE, 5% Damped Spectral Response Acceleration Adjusted for Site Class Effects (ASCE-7, Equation 9.4.1.2.4-1, page 129; $S_{MS} = F_a S_s$ →→ 1.50 x 0.37)	S_{MS}	0.56g
1.0-second MCE, 5% Damped Spectral Response Acceleration Adjusted for Site Class Effects (ASCE-7, Equation 9.4.1.2.4-2, page 129; $S_{M1} = F_v S_1$ →→ 2.40 x 0.10)	S_{M1}	0.24g
Short-Period (0.2 second) Design Spectral Response Acceleration (ASCE-7, Equation 9.4.1.2.5-1, page 129; $S_{DS} = \frac{2}{3} S_{MS}$ →→ ⅔ x 0.56)	S_{DS}	0.37g
1.0-second Design Spectral Response Acceleration (ASCE-7, Equation 9.4.1.2.5-2, page 129; $S_{D1} = \frac{2}{3} S_{M1}$ →→ ⅔ x 0.24)	S_{D1}	0.16g
Seismic Design Category based on short period response accelerations (ASCE-7, Table 9.4.2.1a, page 131; S_{DS} = 0.37g, Seismic Use Group (SUG) III)	SDC_S	D
Seismic Design Category based on 1-second period response accelerations (ASCE-7, Table 9.4.2.1a, page 132; S_{D1} = 0.16g, Seismic Use Group (SUG) III)	SDC_1	D

Perform Seismic Design per ASCE 7-02 Section 9.6 Architectural Components, page 159

Seismic Design Procedure per ASCE 7-02 Section 9.6, Architectural Components:

Seismic Forces for Parapet: Determine Seismic forces in accordance with Equation 9.6.1.3-1 through 9.6.1.3-2, page 159:

$F_p = [0.4 * a_p * S_{DS} * W_p / (R_p / I_p)] * (1 + 2*z/h)$ (Eq. 9.6.1.3-1)

where

Variable	Variable Value	Code Reference
component importance factor, I_p	$I_p = 1.0$	9.6.1.5, page 160
height of structure in relation to average roof height z/h	$z/h = 1.0 = z_{max}$	9.6.1.3, page 159
component response modification factor R_p	$R_p = 2.5$ *$R_p = 1.5$ (anchors)*	Table 9.6.2.2, page 162, *modified per Section 9.6.1.6.1, page 160.*
component amplification factor a_p = 1.0	$a_p = 2.5$	Table 9.6.2.2, page 162

$F_p = [0.4 * 2.5 * 0.37 * W_p / (1.5/1.0)] * (1 + (2* 1.0))$

$F_p = 0.75 * W_p$ *(does not govern Seismic Design)*

Seismic Force need not be more than:

$F_p \leq [1.6 * S_{DS} * I_p * W_p]$ (Eq. 9.6.1.3-2)

$F_p \leq [1.6 * 0.37 * 1.0 * W_p]$

$F_p \leq [0.59 * W_p]$ **(Governs** *Seismic Design)*

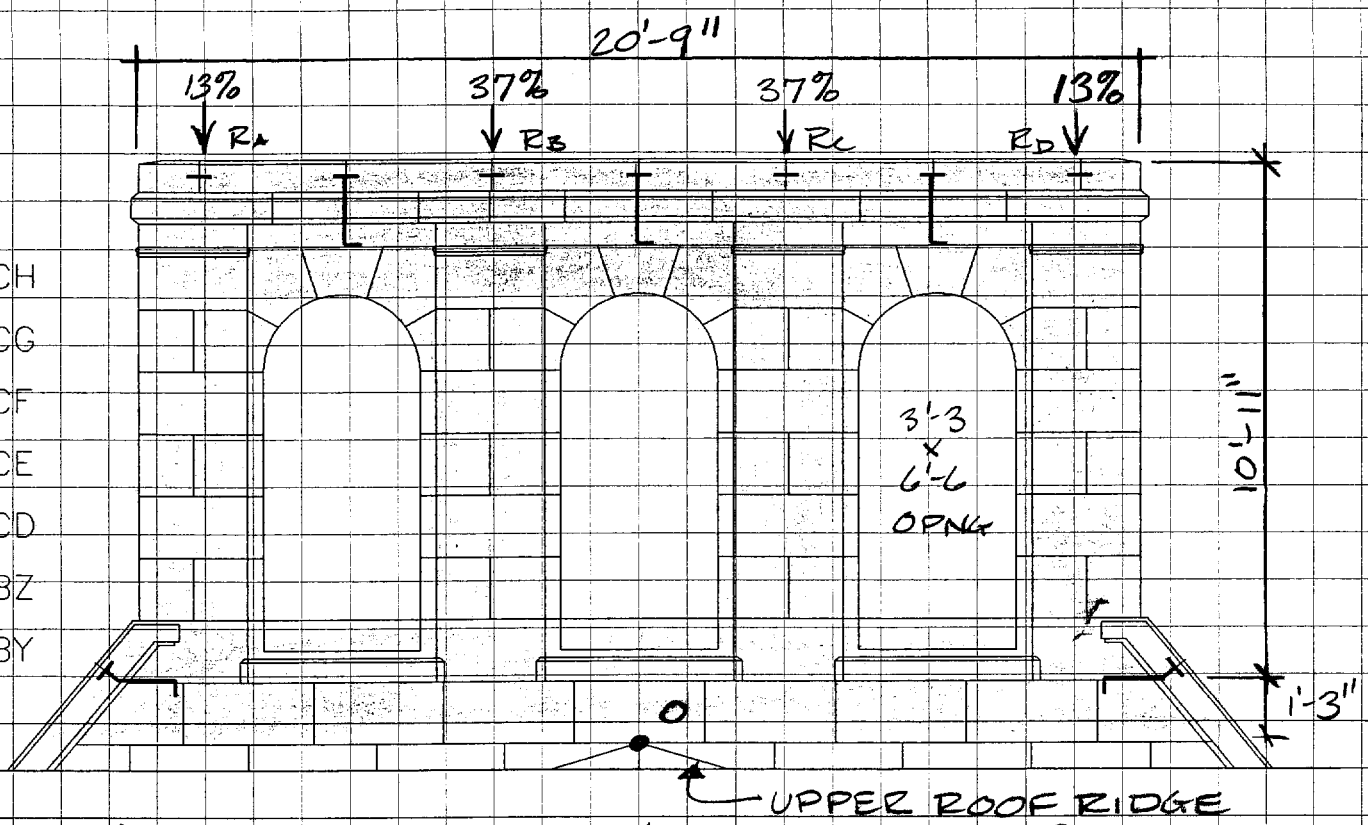
And, the minimum design Seismic Force is:

$F_p \geq [0.3 * S_{DS} * I_p * W_p]$ (Eq. 9.6.1.3-3)

$F_p \geq [0.3 * 0.37 * 1.0 * W_p]$

$F_p \geq [0.11 * W_p]$ **(does** *not govern seismic design)*

Use the Seismic Force of $0.59W_p$, applied at the C.G of the parapets.



2'-0" THICK PARAPETS; AREA & WEIGHT CALCULATION

AREA: 20.75' x 12.25' - (3.25' x 6.5') x 3 OPENINGS

254.2 − 63.38

AREA = 191 SQ FT (NEGLECTING TRIANGULAR "TAILS")

PARAPET WEIGHT:

191 SQ FT x 2' THICK x .165 KCF = 63.03 KIPS

LOADING DISTRIBUTION OF TOP BEAM TO COLUMNS

SIMPLIFY TO BEAM CASE 36, AISC 9th ed, p. 2-308

$R_A = R_D = 0.400\,wl$ = 13% OF TOTAL LOAD

$R_B = R_C = 1.100\,wl$ = 37% OF TOTAL LOAD

RESURGENCE
ENGINEERING & PRESERVATION. INC
engineering assessment and structural design to preserve and restore historic buildings
132 BRENTWOOD STREET
PORTLAND. ME 04103
V/F(207) 773-4880
RESURGENCE@VERIZON.NET

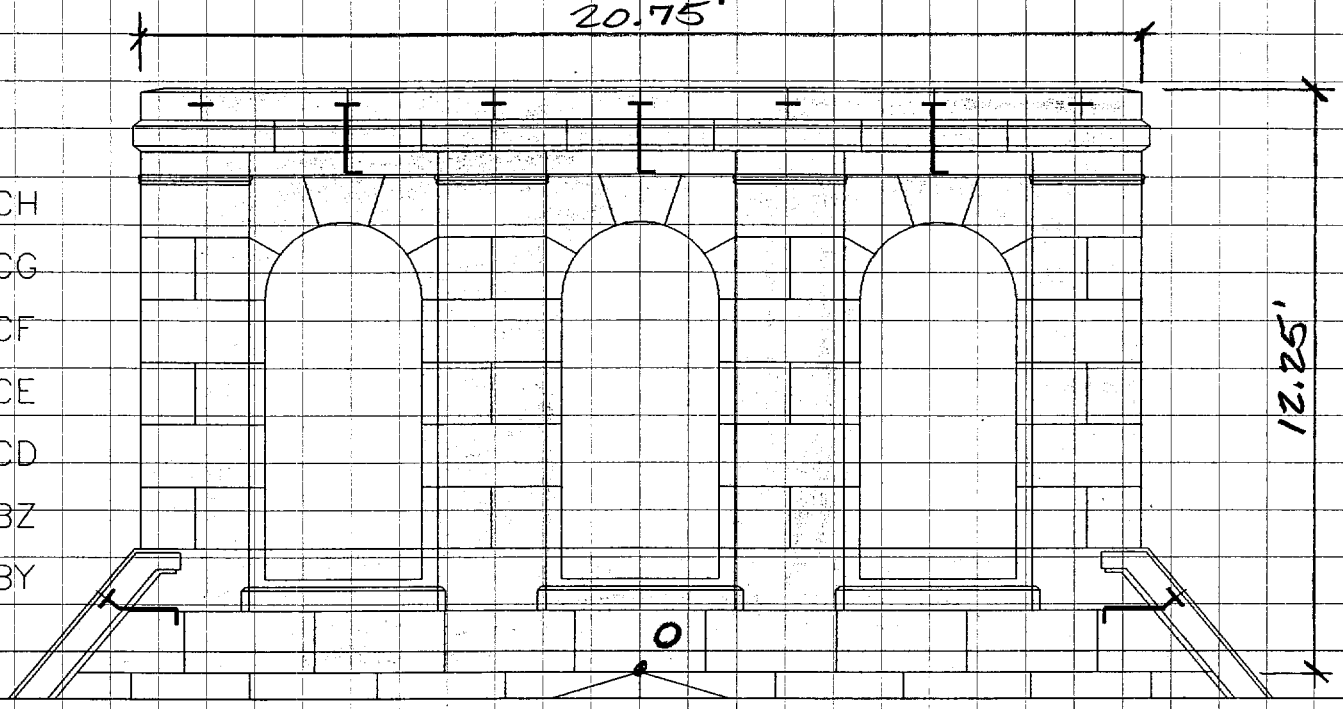
CLIENT
CITY OF PORTLAND, MAINE
PUBLIC WORKS DEPARTMENT
65 HANOVER STREET, PORTLAND, ME 04101

PROJECT
E/W GABLE PARAPET REHABILITATION

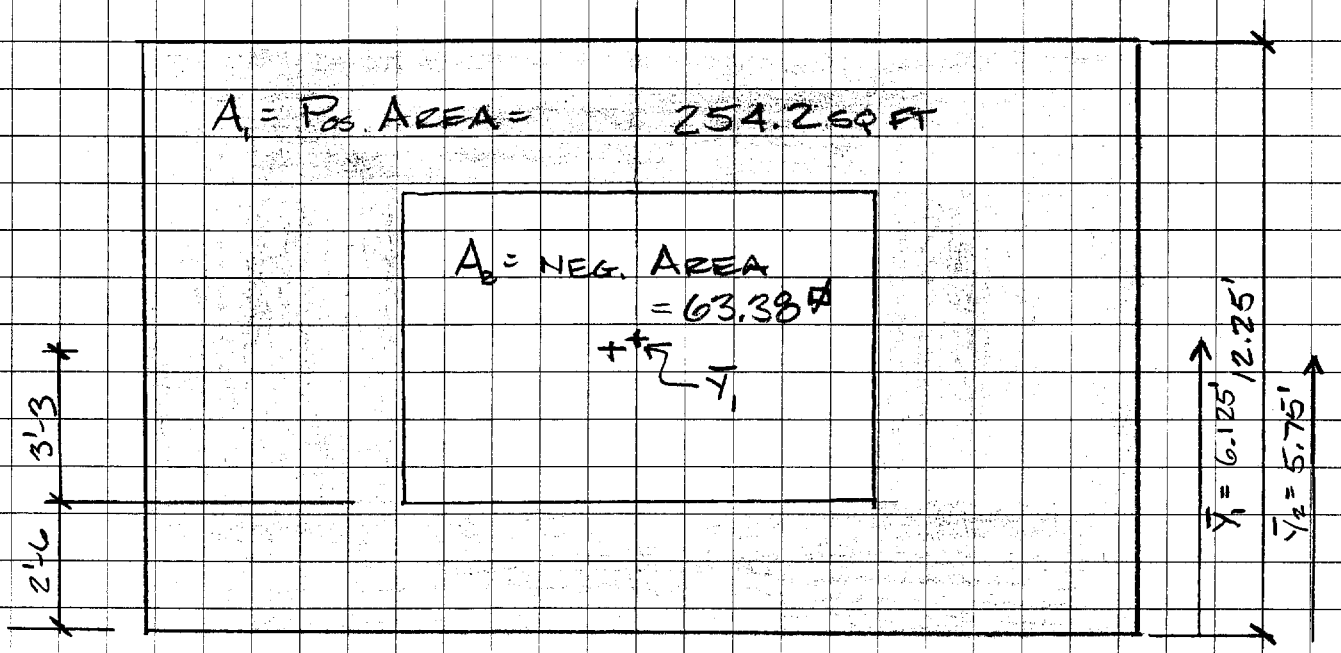
DRAWING TITLE:

CLIENT P.O. NUMBER: NOT APPLICABLE
DATE: 17 JAN 06
SCALE: NOTED
DRAWN BY: A. HODSON
CHECKED BY: A. HODSON
PROJECT NUMBER: 05-007
CADFILE NAME:
DRAWING/PAGE NUMBER: P1 OF 5

DETERMINE PARAPET CENTER OF MASS LOCATION



SIMPLIFY TO:



1557 − 364

$$\frac{\Sigma A_Y}{\Sigma A} = \frac{(254.2^{\#})(6.125') - (63.38^{\#})(5.75')}{191^{\#}} \qquad \bar{Y}_{CG.} = 6.25'$$

RESURGENCE
ENGINEERING & PRESERVATION, INC
engineering assessment and structural design to preserve and restore historic buildings
132 BRENTWOOD STREET
PORTLAND, ME 04103
V/F(207) 773-4880
RESURGENCE@VERIZON.NET

CLIENT:
CITY OF PORTLAND, MAINE
PUBLIC WORKS DEPARTMENT
65 HANOVER STREET, PORTLAND, ME 04101

PROJECT: **E/W GABLE PARAPET REHABILITATION**

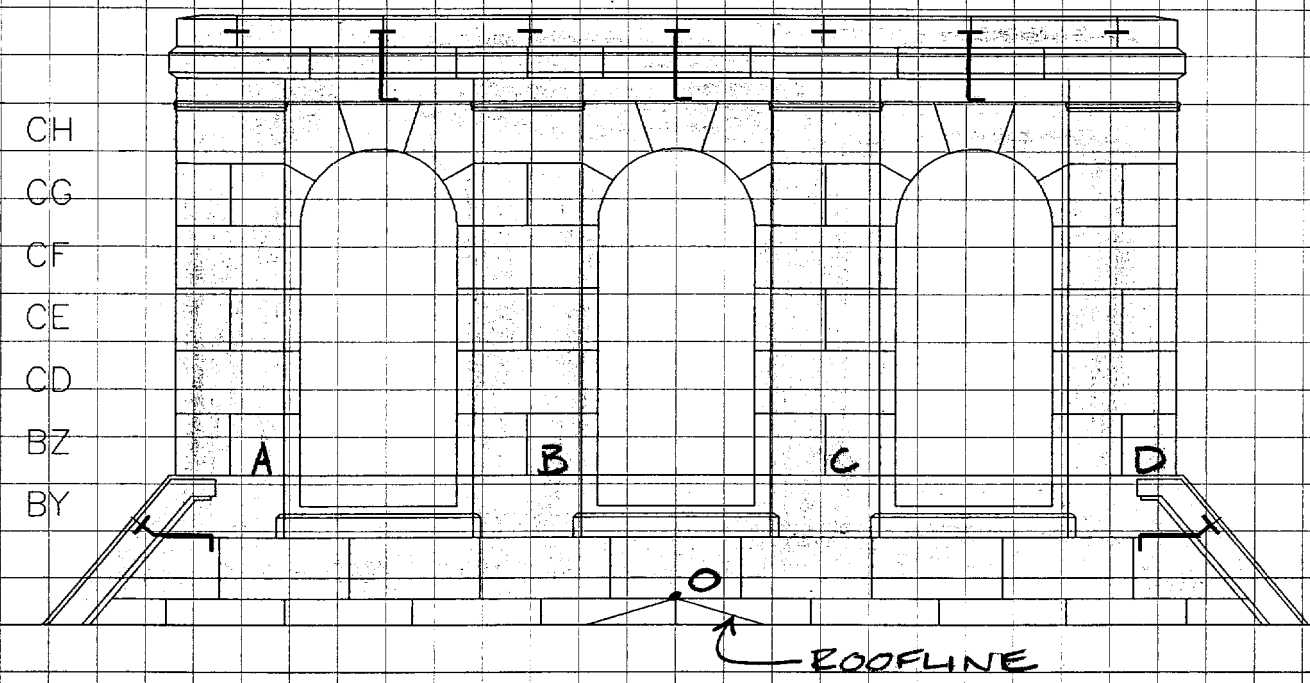
DRAWING TITLE: .

CLIENT P.O. NUMBER: NOT APPLICABLE

DATE	SCALE
17 JAN 06	NOTED
DRAWN BY: A. HODSON	CHECKED BY: A. HODSON
PROJECT NUMBER: 05-007	CADFILE NAME:

DRAWING/PAGE NUMBER: .P2 OF 5

DISTRIBUTE SEISMIC FORCE TO COLUMNS AT C.G.



$F_p = 0.59\,W = 0.59\,(63\ \text{KIPS})$

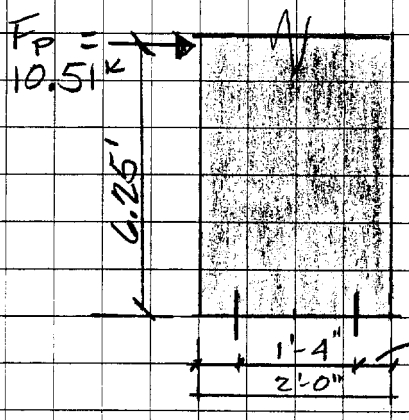
$F_p = 37.2\ \text{KIPS}$

$0.13\,F_p = 4.83\ \text{KIPS}$ AT "A" & "D", 6.25' UP

$0.37\,F_p = 13.76\ \text{KIPS}$ AT "B" & "C" 6.25' UP

AT "B" & "C",

$M_{Fp} = 13.76^{\text{KIPS}} \times 6.25' = 86.0^{\text{'-K}}$



$\frac{86^{\text{'-K}}}{2(0.67')} = 64.66^{\text{KIPS}}\ \text{TENSION}$

$= 32^{\text{KIPS}}\ \text{PER ROD}$

½ϕ S.S. ROD; A304/316; $F_u = 100^{\text{KSI}}$

$F_{\text{PROVIDED}} = 20^{\text{KIPS}}$

⅝ϕ $A = 0.31\ \text{in}^2$; $F_{PROV} = 31\ \text{KIPS}$

∴ BASE NEEDS ⅝ ANCHOR! O.K

RESURGENCE
ENGINEERING & PRESERVATION, INC.
engineering assessment and structural design to preserve and restore historic buildings
132 BRENTWOOD STREET
PORTLAND, ME 04103
V/F(207) 773-4880
RESURGENCE@VERIZON.NET

CLIENT: CITY OF PORTLAND, MAINE
PUBLIC WORKS DEPARTMENT
65 HANOVER STREET, PORTLAND, ME 04101

PROJECT: E/W GABLE PARAPET REHABILITATION

DRAWING TITLE: .

CLIENT P.O. NUMBER: NOT APPLICABLE
DATE: 17 JAN 06
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DRAWN BY: A. HODSON
CHECKED BY: A. HODSON
PROJECT NUMBER: 05-007
CADFILE NAME:
DRAWING/PAGE NUMBER: P3 OF 5

SEISMIC ANCHORING DISCUSSION:

THE SEISMIC LOADS IMPOSED ON THE PARAPET ARE EXTREMELY CONSERVATIVE

FIRST, ADJACENT LOT SOIL BORINGS SHOW LEDGE APPROXIMATELY 15 FEET BELOW THE GROUND SURFACE. THE BUILDING FOUNDATION IS LIKELY WITHIN 10 FEET OF LEDGE, AND THE SITE COULD QUITE LIKELY BE CLASSIFIED AS SITE CLASS "C" IN ACCORDANCE WITH ASCE 7-02 SECTION 9.4.1.2, pgs 107-108.

SECOND, IF THE SITE WERE CLASSIFIED AS SITE CLASS C, F_a AND F_v WOULD REDUCE AS FOLLOWS

	"D"	"C"	
F_a	1.50	1.20	
F_v	2.40	1.70	
S_{MS}	0.56g	0.44g	
S_{M1}	0.24g	0.17g	
S_{DS}	0.37g	0.30g	(0.296g)
S_{D1}	0.16g	0.11g	
S_{DCS}	D	C	
S_{DC1}	D	C	
F_p	0.59g	0.48g	(19% REDUCTION)

∴ ADJUST BASE ANCHORS TO 5/8"ϕ IS O.K.

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engineering assessment and structural design to preserve and restore historic buildings
132 BRENTWOOD STREET
PORTLAND ME 04103
V/F(207) 773-4880
RESURGENCE@VERIZON.NET

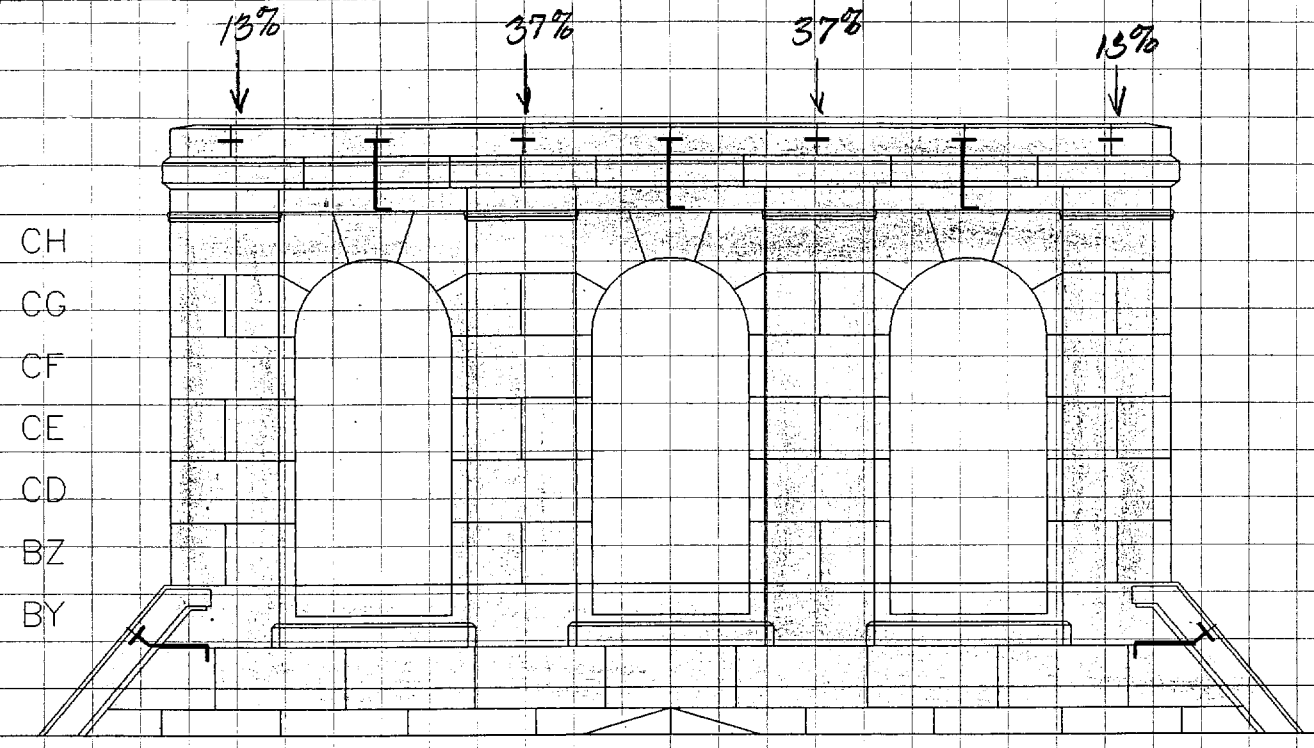
CLIENT: CITY OF PORTLAND, MAINE
PUBLIC WORKS DEPARTMENT
65 HANOVER STREET, PORTLAND, ME 04101

PROJECT: E/W GABLE PARAPET REHABILITATION

DRAWING TITLE: .

CLIENT P.O. NUMBER: NOT APPLICABLE
DATE: 17 JAN 06
SCALE: NOTED
DRAWN BY: A. HODSON
CHECKED BY: A. HODSON
PROJECT NUMBER: 05-007
CADFILE NAME:
DRAWING/PAGE NUMBER: . P4 OF 5

WIND LOADING COMPARISON



If closed; $M_{WIND} = 52.9_{PSF}(20.75')(13.67')(13.67')/2 = 102.6^{1-K}$

$M_{RESIST} = WEIGHT = 170_{PCF}(20.75')(13.67')(2')(1') = 96.44^{1-K}$

NEED TO LOOK AT FOR OPEN CONDITION.

BASE WIND SHEAR = $53_{PSF}(20.75')(13.67') = 2923^{\#}$

$-53_{PSF}(3)(7')(3') = 63^{\#}$

$= 11.69^{KIPS}$ BASE SHEAR

BASE WEIGHT = $165_{PCF}\ 220\ SF(2\ CF/SF) = 72.6^{KIPS}$

$11.69^{KIPS}/72.60^{KIPS} = 16.1\%\ W$

RESURGENCE
ENGINEERING & PRESERVATION, INC

132 BRENTWOOD STREET
PORTLAND, ME 04103
V/F(207) 773-4880
ALFREDHODSON@AOL.COM

CLIENT
CITY OF PORTLAND, MAINE
PUBLIC WORKS DEPARTMENT
65 HANOVER STREET, PORTLAND, ME 04101

PROJECT: E/W GABLE PARAPET REHABILITATION

DRAWING TITLE:

CLIENT P.O. NUMBER: NOT APPLICABLE
DATE: .
SCALE: NOTED
DRAWN BY: A. HODSON
CHECKED BY: A. HODSON
PROJECT NUMBER: 03-016
CASTLE NAME:
DRAWING/PAGE NUMBER: P5 OF 5

ttl-architects LLC

www.ttl-architects.com

TRANSMITTAL

Date: 22 February 2006

To: Mr. Robert Leeman
Director, Public Buildings Division
City of Portland
389 Congress Street
Portland, **ME** 04101

From: John Turk, AIA

Regarding: City Hall Clock Tower Restoration

Number of Pages (including transmittal): n/a

Bob,

Enclosed is the completed building permit application with attached seismic calculations for the parapets. Note that the ADA section has been left blank, since it is not applicable.

Thank you.

\\Server\active projects\0321 City Hall Tower\Administrative\22Feb06BuildingPermitApplication.t.doc

92 Exchange Street
Portland, Maine 04101

t: 207-761-9662
f 207-761- 9696
studio@ttl architects com

ADDENDUM #5
CITY OF PORTLAND, MAINE
BID #4306

CITY HALL CLOCK TOWER AND PARAPET RESTORATION

DATE: FEBRUARY 24,2006

The attention of firms submitting proposals for the work named in the above Invitation is called to the following modifications to the documents as were issued.

The items set forth herein, whether of clarification, omission, addition and/or substitution, shall be included and form a part of the Contractor's submitted material and the corresponding Contract when executed. No claim for additional compensation, due to lack of knowledge of the contents of this Addendum will be considered.

****

ALL BIDDERS ARE ADVISED THAT RECEIPT OF THIS NOTICE MUST BE DULY ACKNOWLEDGED ON THE BID PROPOSAL FORM OR BY THE INSERTION OF THIS SHEET, SIGNED, AND SUBMITTED WITH YOUR PROPOSAL.

****

MATTHEW F. FITZGERALD
PURCHASING AGENT

Please be advised that the bid opening date for this project has been changed to Wednesday, March 15,2006 at3:00 pm.

Receipt of Addendum No. 5 to the City of Portland's BID #4306 for City Hall Clock Tower and Parapet Restoration is hereby acltnowledged.

COMPANY NAME: _____

SIGNED BY: _____ DATE: _____

PRINT NAME & TITLE: _____

ADDKESS: _____

_____
Zip Code

ADDENDUM #4
CITY OF PORTLAND, MAINE
BID #4306

CITY HALL CLOCK TOWER AND PARAPET RESTORATION

DATE: FEBRUARY **24,2006**

The attention of firms submitting proposals for the work named in the above Invitation is called to the following modifications to the documents as were issued.

The items set forth herein, whether of clarification, omission, addition and/or substitution, shall be included and form a part of the Contractor's submitted material and the corresponding Contract when executed. No claim for additional compensation, due to lack of ltnowledge of the contents of this Addendum will be considered.

****_**_*

ALL BIDDERS ARE ADVISED THAT RECEIPT OF THIS NOTICE MUST BE DULY ACKNOWLEDGED ON THE BID PROPOSAL FORM OR BY THE INSERTION OF THIS SHEET, SIGNED, AND SUBMITTED WITH YOUR PROPOSAL.

****

MATTHEW F. FITZGERALD
PURCHASING AGENT

Please be advised that a second site visit will be conducted on March **2,2006** at **10:00** am, bidders wishing to attend this site visit should meet in City Hall, Room **209.** This site visit is NOT mandatory**.**

Receipt of Addendum No. 4 to the City of Portland's BID #4306 for City Hall Clock Tower and Parapet Restoration is hereby acknowledged.

COMPANY NAME: _____

SIGNED BY: _____ DATE: _____

PRINT NAME & TITLE: _____

ADDRESS: _____

_____
Zip Code

ADDENDUM #3
CITY OF PORTLAND, MAINE
BID #4306

CITY HALL CLOCK TOWER AND PARAPET RESTORATION

DATE: FEBRUARY 22,2006

The attention of firms submitting proposals for the work named in the above Invitation is called to the following modifications to the documents as were issued.

The items set forth herein, whether of clarification, omission, addition and/or substitution, shall be included and form a part of the Contractor's submitted material and the corresponding Contract when executed. No claim for additional compensation, due to lack of knowledge of the contents of this Addendum will be considered.

****

ALL BIDDERS ARE ADVISED THAT RECEIPT OF THIS NOTICE MUST BE DULY ACKNOWLEDGED ON THE BID PROPOSAL FORM OR BY THE INSERTION OF THIS SHEET, SIGNED, AND SUBMITTED WITH YOUR PROPOSAL.

****

MATTHEW F. FITZGERALD
PURCHASING AGENT

Please see attached for pre-bid attendees list.

Receipt of Addendum No. 3 to the City of Portland's BID #4306 for City Hall Clock Tower and Parapet Restoration is hereby acknowledged.

COMPANY NAME: _____

SIGNED BY: _____ DATE: _____

PRINT NAME & TITLE: _____

ADDRESS: _____

_____
Zip Code

City Hall Clock Tower Restoration

PRE-BID MEETING ATTENDEES

BID #~~4306~~ 4306

Name: ANDRZEJ DAJNOWSKI

Company Name: CONSERVATION OF SCULPTURE & OBJECTS STUDIO, INC

Phone: 773-480-0483 Fax: 773-594-0583

E-mail Address: ADAJNOWSKI@CSOSINC.COM

****

Name: Henry Gillert

Company Name: Lumus Construction

Phone: 207 780-8300 Fax: 207 780-8301

E-mail Address: hgillert@lumusinc.com

****

Name: Andy LAWSON

Company Name: KNOWLES INDUSTRIAL

Phone: 854-1900 Fax: 854-4996

E-mail Address: alawson@knowlesindustrial.com

****

Name: MARK McPHETERS

Company Name: T. BUCK CONST

Phone: 207-783-6223 Fax: 207-783-3970

E-mail Address: MARKTBUCKCON@ADELPHIA.NET

****

Name: MICHAEL DUNN

Company Name: HORNE CONSTRUCTION

Phone: 603-335-0142 Fax: 603-335-0877

E-mail Address: MDunn@hornecnst.com.

****

City Hall Clock Tower Restoration

PRE-BID MEETING ATTENDEES

BID #~~4606~~ 4346

Name: Kevin Smith

Company Name: Kevin W. Smith & Son, Inc.

Phone: 207-429-9638 Fax: Same

E-mail Address: Ditto 207-551-8334

****

Name: VICTOR WRIGHT

Company Name: THE HERITAGE CO.

Phone: 247-5372 Fax: 247-4256

E-mail Address: HERITAGE COLLC@HOTMAIL.COM

****

Name: Peter Chadwick

Company Name: Masonry Preservation Associates

Phone: 892-9722 Fax: 892-7377

E-mail Address: pbchav@hotmail.com

****

Name: Bill Darling

Company Name: Maine Roofing Inc.

Phone: 835-4243 Fax: 835-4124

E-mail Address: meroof@gwi.net

****

Name: MARC PAULSEN

Company Name: WOODWARD THOMSEN

Phone (207) 774-9290 Fax: (207) 774-0031

E-mail Address: MPaulsen@woodwardthomsen.com

****

City Hall Clock Tower Restoration

PRE-BID MEETING ATTENDEES

BID ~~#4606~~ 4306

Name: Richard Hawkes

Company Name: Woodward Thomsen Co.

Phone: (207) 774-9298 Fax: (207) 774-0031

E-mail Address: rhawkes@woodwardthomsen.com

****

Name: Nathan Croteau

- Company Name: Wright-Ryan Construction, Inc.

Phone: 773-3625 Fax: 773-5173

E-mail Address: ncroteau@wright-ryan.com

****

Name: CAMPBELL Const. Group

- Company Name: Marty Nally - Campbell Const. Group

Phone: 978-922-1945 Fax: 978 927 1986

E-mail Address: ——

.....

Name: Lincoln Fuller + Bob Covert

Company Name: Seacoast Scaffold + Equip

Phone: 799-9800 Fax: 799-9855

E-mail Address: lincoln@seacoastscaffold.com

****

Name: GARY GNAZZO

- Company Name: JOSEPH GNAZZO CO. INC

Phone: 860.871.5424 Fax: 860.875.4491

E-mail Address: GARY@GNAZZO.COM

****

City Hall Clock Tower Restoration

PRE-BID MEETING ATTENDEES

BID #~~4606~~ 4306

Name: MATTHEW TONELLO CONSIGLI CONSTRUCTION CO. INC.

Company Name: _____

Phone: 207-773-2000 Fax: 207-773-2800

E-mail Address: Mtonello@consigli.com

****

Name: _____

Company Name: _____

Phone: _____ Fax: _____

E-mail Address: _____

****

Name: _____

Company Name: _____

Phone: _____ Fax: _____

E-mail Address: _____

****

Name: _____

Company Name: _____

Phone: _____ Fax: _____

E-mail Address: _____

****

Name: _____

Company Name: _____

Phone: _____ Fax: _____

E-mail Address: _____

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