

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING DEPARTMENT

PERMIT

Permit Number: 090982

Please Read Application And Notes, If Any, Attached

This is to certify that CITY OF PORTLAND /Peaks Island Group

has permission to Erect a "wind anemometer tower"

AT 250 BRACKETT AVE PEAKS ISLAND

City of Portland - 088-K001001

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

PERMIT ISSUED
SEP 29 2009
CITY OF PORTLAND

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

Notification of inspection must be given and written permission procured before this building or part thereof is lath or other work is set-in. 2 HOUR 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. CAPT. R. Sturtevant

Health Dept. _____

Appeal Board _____

Other _____
Department Name

James Bonke 9/29/09
Director - Building & Inspection Services

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 No: 09-0982	Issue Date:	CBL: 088 K001001
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Location of Construction: 250 BRACKETT AVE PEAKS ISL	Owner Name: CITY OF PORTLAND	Owner Address: 389 CONGRESS ST	Phone:
Business Name:	Contractor Name: Peaks Wind Group	Contractor Address: 21 Elizabeth St Peaks Island	Phone: 2078990922
Lessee/Buyer's Name	Phone:	Permit Type: Wind Tower	Zone: ROS

Past Use: ROS	Proposed Use: ROS - Erect a "wind anemometer tower"	Permit Fee: \$150.00	Cost of Work: \$13,000.00	CEO District: 1
Proposed Project Description: Erect a "wind anemometer tower"		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <i>* See Conditions</i>	INSPECTION: Use Group: <i>N/A</i> Type: <i>Tower</i> <i>IBC-2003</i> Signature: <i>JMB 9/29/09</i>	
		PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: _____ Date: _____		

Permit Taken By: Ldobson	Date Applied For: 09/08/2009	Zoning Approval
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<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building permits do not include plumbing, septic or electrical work.</p> <p>3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..</p>	<p>Special Zone or Reviews</p> <input type="checkbox"/> Shoreland <i>N/A</i> <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan <i>N/A</i> Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: <i>9/9/09</i>	<p>Zoning Appeal</p> <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input checked="" type="checkbox"/> Conditional Use <i>with conditions see attached</i> <input type="checkbox"/> Interpretation <input checked="" type="checkbox"/> Approved <i>6-0</i> <input type="checkbox"/> Denied Date: <i>9/3/09</i>	<p>Historic Preservation</p> <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: _____
	<p>PERMIT ISSUED</p> <p>SEP 29 2009</p> <p>CITY OF PORTLAND</p>		

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

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

to schedule your inspections as agreed upon

Permits expire in 6 months, if the project is not started or ceases for 6 months.

The Owner or their designee is required to notify the inspections office for the following inspections and provide adequate notice. Notice must be called in 48-72 hours in advance in order to schedule an inspection:

By initializing at each inspection time, you are agreeing that you understand the inspection procedure and additional fees from a "Stop Work Order" and "Stop Work Order Release" will be incurred if the procedure is not followed as stated below.

A Pre-construction Meeting will take place upon receipt of your building permit.

 X **Tower location inspection to determine the required 170' distance from buildings, roads and established walkways**

 X **Final inspection required at completion of work, including required pull test report**

 X **Notification to this office when the tower is removed.**

Certificate of Occupancy is not required for certain projects. Your inspector can advise you if your project requires a Certificate of Occupancy. All projects DO require a final inspection.

If any of the inspections do not occur, the project cannot go on to the next phase, REGARDLESS OF THE NOTICE OR CIRCUMSTANCES.

CERIFICATE OF OCCUPANICES MUST BE ISSUED AND PAID FOR, BEFORE THE SPACE MAY BE OCCUPIED.

Samuel S. Sattler
Signature of Applicant/Designee

9/29/09
Date

James B. ...
Signature of Inspections Official

9/29/09
Date

City of Portland, Maine - Building or Use Permit
 389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

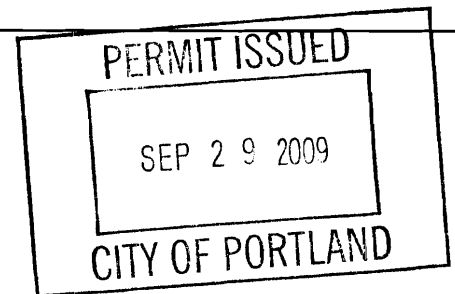
Permit No: 09-0982	Date Applied For: 09/08/2009	CBL: 088 K001001
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Location of Construction: 250 BRACKETT AVE PEAKS ISL	Owner Name: CITY OF PORTLAND	Owner Address: 389 CONGRESS ST	Phone:
Business Name:	Contractor Name: Peaks Wind Group	Contractor Address: 21 Elizabeth St Peaks Island	Phone: (207) 899-0922
Lessee/Buyer's Name	Phone:	Permit Type: Wind Tower	

Proposed Use: ROS - Erect a "wind anemometer tower" in Trott-Littlejohn Park	Proposed Project Description: Erect a "wind anemometer tower"
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Dept: Zoning	Status: Approved with Conditions	Reviewer: Marge Schmuckal	Approval Date: 09/09/2009
Note:			Ok to Issue: <input checked="" type="checkbox"/>
1) All Conditional Use requirements must remain constant during the use of the anemometer tower or the issue must go back to the ZBA 2) This was approved by the ZBA on Sept 3, 2009 with the condition that the applicant will submit proof of insurance and proof of removal agreement with the tower provider. The evidence of such items must be received PRIOR to the erection of the tower. 3) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.			
Dept: Building	Status: Approved with Conditions	Reviewer: Jeanine Bourke	Approval Date: 09/29/2009
Note:			Ok to Issue: <input checked="" type="checkbox"/>
1) Guywires and wire rope clips shall be periodically monitored for adequate pound torque, tension and security. 2) The outermost guy wires shall be marked at a height and color sufficient to identify their location. 3) The report of the pull test on the guy anchors is required to be submitted at final inspection of erected tower 4) This tower shall be installed per the specifications manual, the design specifications of the licensed engineer and Sec. 3108 of the IBC 2003			
Dept: Fire	Status: Approved with Conditions	Reviewer: Capt Keith Gautreau	Approval Date: 09/15/2009
Note:			Ok to Issue: <input checked="" type="checkbox"/>
1) Permit is for tower only. Any other construction will require separate permit. 2) Install shall comply with all manufacture's specifications.			

Comments:
 9/29/2009-jmb: Spoke with Sam S. About the details of the tower installation, pull test and 170' required distance to roads, buildings and walkways. Ok to issue with conditions.





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: <u>250 Brackett Ave., Peaks Island, ME 04108</u>		
Total Square Footage of Proposed Structure/Area <u>3,600</u>	Square Footage of Lot	Number of Stories <u>NA</u>
Tax Assessor's Chart, Block & Lot Chart# <u>88</u> Block# <u>K</u> Lot# <u>1</u> <u>(also 89-E-4)</u>	Applicant * must be owner, Lessee or Buyer* Name <u>Peaks Wind Group of PEAT</u> <u>Sam Saltonstall</u> Address <u>21 Elizabeth St.</u> City, State & Zip <u>Peaks Island, ME 04108</u>	Telephone: <u>207-899-0922</u>
Lessee/DBA (If Applicable)	Owner (if different from Applicant) Name <u>City of Portland</u> Address City, State & Zip	Cost Of Work: \$ <u>13,000 (in kind)</u> C of O Fee: \$ Total Fee: \$ <u>150</u>
Current legal use (i.e. single family) <u>ROS</u> Number of Residential Units <u>-0-</u> If vacant, what was the previous use? <u>sand + gravel area</u> Proposed Specific use: <u>wind anemometer tower</u> Is property part of a subdivision? <u>No</u> If yes, please name Project description: <u>↙</u>		
Contractor's name: Address: City, State & Zip: Telephone: Who should we contact when the permit is ready: <u>Sam Saltonstall</u> Telephone: <u>899-0922</u> Mailing address: <u>21 Elizabeth St., Peaks Island, ME 04108</u>		

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

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 or to download copies of this form and other applications visit the Inspections Division on-line at www.portlandmaine.gov, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

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: Samuel S. Saltonstall Date: 9-6-09

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

CITY OF PORTLAND, MAINE
ZONING BOARD OF APPEALS

Conditional Use Appeal – Wind Anemometer

DECISION

Date of public hearing: September 3, 2009

Name and address of applicant: Sam Saltonstall
Peaks Environmental Action Team
21 Elizabeth St.
Peaks Island, Maine 04108

Location of property under appeal: Trott-Littlejohn Park, 250 Brackett St., Peaks Island

For the Record:

Names and addresses of witnesses (proponents, opponents and others):

Sam Saltonstall

Peaks Island Council chairman (Michael Langella)

Exhibits admitted (e.g. renderings, reports, etc.):

NO lighting determination by FAA

Findings of Fact and Conclusions of Law:

Applicant is proposing to erect a wind anemometer tower in Trott-Littlejohn Park on Peaks Island, which is in the ROS zone.

A. Conditional Use Standards pursuant to Portland City Code §14-155(d):

1. Towers may be installed for the purpose of wind data collection for no more than two (2) years after the issuance of a Certificate of Occupancy for the tower. At the conclusion of the aforementioned two (2) years, the tower must be dismantled and removed from the site within sixty (60) days.

Satisfied Not Satisfied

Reason and supporting facts:

MET Tower data can be obtained w/in two years + Agreement w/ tower provider will provide for removal w/in specified time.

2. Towers shall be constructed according to plans and specifications stamped by a licensed professional engineer, which shall be provided to the Board of Appeals with the application.

Satisfied Not Satisfied

Reason and supporting facts:

Per testimony of zoning Administrator stamped plans are provided.

3. Towers shall be set back from habitable buildings by a distance equal to 1.1 times the tower height; and

Satisfied Not Satisfied

Reason and supporting facts:

Tower set back 500' from nearest bldg. Tower is 125' tall, per plans

4. The applicant shall provide a safety report prepared and stamped by a licensed professional engineer to the Board of Appeals with their application for conditional use, which demonstrates how the proposed temporary wind anemometer tower is safe in terms of strength, stability, security, grounding, icing impacts and maintenance; and

Satisfied Not Satisfied

Reason and supporting facts:

See #2

5. The applicant shall provide evidence of commercial general liability insurance, such insurance to be satisfactory to Corporation Counsel and cover damage or injury resulting from construction, operation or dismantling of any part of the temporary wind anemometer tower; and

Satisfied Not Satisfied

Reason and supporting facts:

Applicant has provided ~~the~~ insurance quote & city will not sign off on lease until insurance has been obtained.

6. Towers and associated guy wires shall be sited to minimize their prominence from and impacts on public ways (including pedestrian ways); and

Satisfied Not Satisfied

Reason and supporting facts:

No liability required by FAA; wires will be flagged

7. Towers shall be used for installing anemometers and similar devices at a range of heights from the ground to measure wind characteristics (speed, direction, frequency) and related meteorological data, but shall not be used for any other purpose; and

Satisfied Not Satisfied

Reason and supporting facts:

Per testimony, no other purpose for towers

8. A performance guarantee shall be required for the cost of removal of the tower, guy wires and anchors. This requirement may be satisfied by surety bond, letter of credit, escrow account or by evidence, acceptable to the City, of the financial and technical ability and commitment of the applicant or its agents to remove the facility at the end of the use period.

Satisfied Not Satisfied

Reason and supporting facts:

conditioned on entering agreement w/ tower owner

B. Conditional Use Standards pursuant to Portland City Code §14-474(c)(2):

1. There are unique or distinctive characteristics or effects associated with the proposed conditional use.

Yes No

Reason and supporting facts:

~~no~~ This MET TOWER no different from other MET TOWERS

2. There will be an adverse impact upon the health, safety, or welfare of the public or the surrounding area.

Yes ___ No

Reason and supporting facts:

NO ~~oppose~~ testimony in opposition of tower; tower has support of Island ~~and~~ Council.

3. Such impact differs substantially from the impact which would normally occur from such a use in that zone.

Yes ___ No

Reason and supporting facts:

See # 1

Conclusion: (check one)

___ Option 1: The Board finds that all of the standards (1 through 8) described in section A above have been satisfied and that not all of the conditions (1 through 3) described in section B above are present, and therefore GRANTS the application.

___ Option 2: The Board finds that all of the standards (1 through 8) described in section A above have been satisfied, and that while not all of the conditions (1 through 3) described in section B above are present, certain additional conditions must be imposed to minimize adverse effects on other property in the neighborhood, and therefore GRANTS the application SUBJECT TO THE FOLLOWING CONDITIONS:

✓ Option 3: The Board finds that not all of the conditions (1 through 3) described in section B above are present and that all of the standards (1-8) described in Section A either are satisfied or will be satisfied upon further submissions by the applicant, and therefore GRANTS the application SUBJECT TO THE FOLLOWING CONDITIONS:

Applicant will submit proof of insurance and proof of removal agreement with tower provider.

___ Option 4: The Board finds that the standard described in section A above have NOT all been satisfied and/or that all of the conditions (1 through 3) described in section B above are present, and therefore DENIES the application.

Dated: 9.3.09



Board Chair



PEAKS WIND GROUP

Peaks Environmental Action Team

21 Elizabeth St., Peaks Island, ME 04108

Tel: (207) 899-0922 Email: saltonstallsam@yahoo.com

September 6, 2009

Planning and Development Department
City of Portland

Enclosed find our building permit application and associated materials regarding the erection of a "wind anemometer tower" on City owned Recreational Open Space land commonly referred to as Trott-Littlejohn Park on Peaks Island.

To receive one of 6 towers being funded by Efficiency Maine, we must compete with other communities in the state by submitting a proposal to the University of Maine / Orono. All permits must be in place prior to submitting an application, hence our hope that you can ~~can~~ assist us in this matter with deliberate speed.

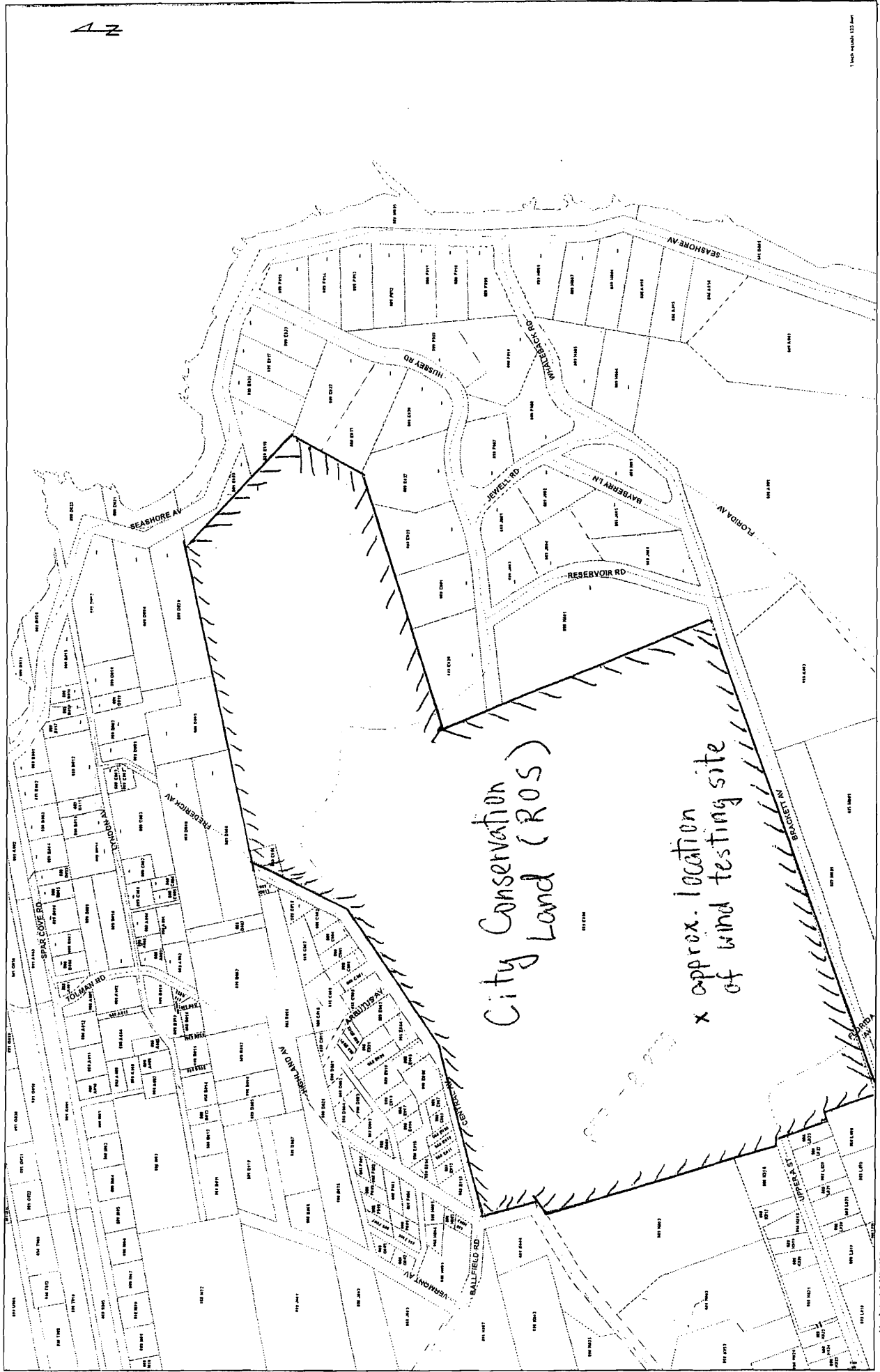
We expect the RFP to be posted any day now and an application deadline possibly as early as later this month.

We have included the following materials at Ann Machado's request:

- check for \$150 based on an estimated cost of \$13,000 (it is our understanding that the cost of the tower and the labor to set it up and remove it will be born by the loan program through Efficiency Maine)
- a city map showing the entire ROS city-owned lot with the approximate location of the tower marked upon it
- an insurance quote from Turner Barker for the required liability insurance required by the conditional use permit (please note: we are investigating other sources of insurance which may prove to be less expensive - insurance will be acquired prior to the erection of the tower)
- a draft contractual agreement for tower removal which meets the City's requirement for a performance guarantee (please note: Corporation Counsel plans to revise the agreement if we are loaned one of the wind anemometer towers from the University of Maine / Orono, as Unity College would no longer be the entity which sets up and removes the tower)
- an installation manual for the anticipated "NRG 34 m TallTower" equipment

Thank you for your assistance!

Sam Saltonstall
Core Group Leader, Peaks Wind Group



Mary Jane Burnette Fax: (207) 773-6647
TURNER BARKER INSURANCE
ONE INDIA STREET
PORTLAND, ME 04101

Risk #: Input#: 9268996

RE: PEAKS ENVIRONMENTAL ACTION TEA

Dear Mary:

We are pleased to provide you with the following premium quotation. Please review this carefully as it may vary from what you had requested. Not all of the terms and conditions of the policy are listed. **In order to bind coverage we must receive a written confirmation prior to the effective date.**

COMPANY: NORTHFIELD INSURANCE COMPANY

COMMERCIAL GENERAL LIABILITY COVERAGE

\$2,000,000 General Aggregate
\$2,000,000 Product / Completed Operations Aggregate
\$1,000,000 Personal / Advertising Injury
\$1,000,000 Each Occurrence
\$50,000 Damage to Premises Rented to You (any one fire)
\$5,000 Medical Expenses (Any One Person)
Deductible:
\$500 BI & PD Liability Combined Per Claim
Including Costs & Expenses

Forms and Conditions:

S3D-CG Commercial General Liability Coverage Part Declarations
CG0001 Commercial General Liability Coverage
N-3335 General Terrorism Risk Insurance Act Disclosure
S2618-IL Terrorism Risk Insurance Act of 2002 Disclosure
S2621-CG Cap on Losses from Certified Acts of Terrorism
N-3383 Important Notice Regarding Independent Insurance Representative Compensation Northland Insurance
CG2136 Exclusion - New Entities
S42-CG Total Pollution Exclusion with a Building Heating Equipment Exception and a Hostile Fire Exception
S43-CG Exclusion - Punitive or Exemplary Damages
S56-CG Amendment - Deposit Premium & Minimum Premium
S311-CG Exclusion - Professional Services
S2582-CG Exclusion - Aircraft, Auto or Watercraft
S2623-CG Combination Endorsement - Personal and Advertising
CG2139 Contractual Liability Contract Liab Limitation
S21-CG Endorsement - Deductible Liab Ins: CGL Only
S345-IL Exclusion - Cancer
S2612-CG Amendment Non-Renewal

CG2139 Contractual Liability Limitation Endorsement
S94-CG Exclusion - Injury to Employees, Workers or Contracted Persons of Insureds or Contracted Organizations
S2114-CG Exclusion - Exterior Insulation and Finish System Work
S523-CG Exclusion - Subsidence of Land
S267-CG Combination Endorsement A:
Exclusion - Data
Exclusion - Unsolicited Communication
Exclusion - Aircraft Products and Grounding
Exclusion - Asbestos, Silica
Exclusion - Discrimination
Exclusion - Employment Related Practices
Exclusion - Fungi or Bacteria
Exclusion - Lead
Amendment of Limits of Insurance - Noncumulation of Limits
Amendment of Conditions - Other Insurance
Amendment of Definitions - Coverage Territory
Amendment of Definitions - Leased Worker
Amendment of Definitions - Loading or Unloading
Amendment of Definitions - Property Damage
Amendment of Definitions - Temporary Worker
Premium Subject To Audit

REQUIREMENTS PRIOR TO BINDING: (The following items must be received and accepted by the underwriter(s) PRIOR TO BINDING. Underwriters reserve the right to amend/rescind terms until such time the required documents have been received, reviewed and deemed satisfactory and acceptable.)

Signed Application
Signed Affidavit

REQUIREMENTS AFTER BINDING: (The items listed below are due to Company within 10 days of effective date, unless otherwise noted.)

Satisfactory Inspection

NOTES:

Quote valid until: 08/09/2009
Commission to your office: .
Subject to Satisfactory Inspection.
Any Terrorism coverage bound with an effective date after 12/31/2006 will be "conditional" coverage i.e. subject to the renewal of the Federal Insurance Terrorism Risk Insurance Act.
TRIA is included in the premium quoted.

STANDARD POLICY CONDITIONS:

* Policy Min Earned Premium: 25% * Premium Minimum & Deposit * Service of Suit

Premium:	\$750.00
Inspection Fee:	\$75.00
Surplus Line Tax:	\$22.50
Total:	\$847.50

Non-admitted Insurers. Premium is subject to ME surplus lines tax. S. H. Smith & Company, Inc. is licensed to handle filings in this state. Unless you notify us that your firm will handle the tax filings we will automatically invoice you for the tax for this state. This quote is contingent upon proper compliance with State statutes regarding affidavits.

WIND ANEMOMETER TOWER REMOVAL AGREEMENT

WHEREAS, Unity College Community Wind Assessment (hereinafter **Tower Installer**) intends to erect a wind anemometer tower located at Trott-Littlejohn Park, Peaks Island, City of Portland; and

WHEREAS, said tower may be installed for no more than two (2) years; and

WHEREAS, said tower must be removed within sixty (60) days of the conclusion of the two (2) year period; and

WHEREAS, the City Code requires **Tower Installer** to provide a guarantee to the City that the tower will be removed at the end of the two (2) year period;

NOW, THEREFORE, Tower Installer agrees as follows:

1. The wind anemometer tower to be erected at Trott-Littlejohn Park shall be removed no later than sixty (60) days after the conclusion of the two (2) year installation period.
2. **Tower Installer** agrees that the wind anemometer tower will be installed to support devices designed to measure temperature, wind velocity and direction along with attendant data logging equipment. The tower shall be used for no other purpose.
3. **Tower Installer** agrees that it has the financial and technical ability to remove the tower.
4. **Tower Installer** agrees that should it fail to remove the tower in a timely manner according to this Agreement, the City of Portland may remove the tower and **Tower Installer** shall reimburse the City for the cost of the removal.

Date: _____

WITNESS:

TOWER INSTALLER

By: _____
Its: _____

PROPOSED FLOOR AMENDMENT

Amendment to Zoning Code: Wind Anemometers

CITY COUNCIL AUGUST 3, 2009:
UNFINISHED BUSINESS, 5TH ITEM, ORDER 29-09/10

Proposed Amendment to Order 29-09/10:

This amendment intends to add the following language in every section where the initial language appears in the Order.

A performance guarantee shall be required for the cost of removal of the tower, guy wires and anchors. This requirement may be satisfied by surety bond, letter of credit, escrow account or by evidence, acceptable to the City, of the financial and technical ability and commitment of the applicant or its agents to remove the facility at the end of the use period.

**LEASE AGREEMENT BY AND BETWEEN
CITY OF PORTLAND
AND
PEAKS ENVIRONMENTAL ACTION TEAM**

THIS INDENTURE made this ____ day of _____, 2009, by and between the **CITY OF PORTLAND**, a municipal corporation located in Cumberland County, State of Maine (hereinafter the "**CITY**") and **PEAKS ENVIRONMENTAL ACTION TEAM**, a Maine corporation, having a mailing address of 25 Crescent Avenue, Peaks Island, Maine 04108 (hereinafter "**TENANT**").

WITNESSETH:

That **CITY**, for and in consideration of the rent hereinafter to be paid by **TENANT**, and other consideration, and the covenants and agreements hereinafter contained, to be kept and performed by **TENANT**, does hereby demise, lease and let unto **TENANT**, the property located in the vicinity of Trott-Littlejohn Park, Peaks Island, Maine as shown on Exhibit A, attached hereto and incorporated herein by reference ("**PREMISES**").

To have and to hold unto said **TENANT** on the following terms and conditions:

1. TERM

This Agreement shall be in effect for two (2) years from the date of execution, unless sooner terminated as provided herein.

2. RENT

TENANT agrees to pay to **CITY** as rent for use and occupancy of the **PREMISES** rental in the amount of One Dollar (\$1.00) per year.

3. PURPOSES

TENANT shall use the **PREMISES** solely for the purpose of installing and maintaining a wind anemometer tower with the associated guy wires, anchors and other necessary safety equipment.

4. INSTALLATION, REPAIRS AND MAINTENANCE

TENANT is permitted to install a wind anemometer tower on the Premises to support devices designed to measure temperature, wind velocity and

direction, and to log data, along with the associated guy wires, anchors and other necessary safety equipment.

TENANT shall install additional security measures, such as fencing, as reasonably required by **CITY**.

TENANT will be responsible for procuring all approvals and permits necessary to install and maintain the tower and shall comply with the conditions set forth in the City Code for temporary wind anemometer towers.

TENANT shall maintain the tower to insure its safety, stability and security.

5. ASSIGNMENT

This Lease may not be assigned.

6. LIABILITY INSURANCE

TENANT shall provide at its own expense and keep in force during the Term, or any renewal thereof, commercial general liability insurance in a good and solvent insurance company or companies licensed to do business in the State of Maine, selected by **TENANT**, in the amount of at least \$400,000.00 for bodily injury, death or property damage, naming the **CITY** as an additional insured thereon. **TENANT** agrees to deliver copies of the certificates of such insurance to **CITY** prior to the execution by **CITY** of this Agreement; and, thereafter, not less than thirty (30) days prior to the expiration of any such policy.

7. INDEMNIFICATION

To the fullest extent permitted by law, **TENANT** shall at its own expense defend, indemnify, and hold harmless **CITY**, its officers, agents, and employees from and against any and all liability, claims, damages, penalties, losses, expenses, or judgments, just or unjust, arising from injury or death to any person, property, or environmental damage sustained by anyone in and about the **PREMISES** or as a result of activities at the **PREMISES**, including, but not limited to, farming operations conducted by the **TENANT** on the **PREMISES**, resulting from any act or omission of **TENANT**, its officers, agents, servants, employees, or persons in privity with **TENANT**, except to the extent that such injury, death, or property damage results from any negligent act or omission of **CITY**, its officers, agents, employees, or servants. **TENANT** shall, at its own cost and expense, defend any and all suits or actions, just or unjust, which may be brought against **CITY** or in which **CITY** may be impleaded with others upon any such above-mentioned matter, claim or claims, including claims of contractors, employees, laborers, materialmen, and suppliers. Such obligation of indemnity and defense shall not be construed to negate nor abridge any other right of indemnification or contribution running to **CITY** which would otherwise exist.

The foregoing provision (Indemnification) will survive either expiration or termination of this lease.

8. TERMINATION

Either party may terminate this Lease for cause at any time upon thirty (30) days' prior written notice to the other party; and, thereafter, the **TENANT** shall have no further right to use or occupancy of the **PREMISES**. Either party may terminate this lease for convenience upon a ninety (90) day written notice to the other party. All personal property shall be removed therefrom by the **TENANT** upon termination of this Lease.

9. DEFAULT

In the event that **TENANT** shall be in default in the performance of any of the terms or conditions herein agreed to be kept and performed by **TENANT**, then, in that event, **CITY** may terminate and end this Lease upon a thirty (30) day prior written notice; and, thereafter, **CITY** may enter upon said **PREMISES** and remove all persons and property therefrom if **TENANT** has failed to cure said default within said notice period. **TENANT** shall be liable to **CITY** for all costs incurred by it as a result of the **TENANT's** default and **TENANT** shall pay all costs of collection and cure incurred by **CITY**, including reasonable attorney's fees.

10. HOLD OVER

In the event that **TENANT** shall hold over and remain in possession of the **PREMISES** with the consent of the **CITY**, such holding over shall be deemed to be from month to month only, and upon all the same rents, terms, covenants and conditions as contained herein.

11. NOTICE

Notices required under this Lease shall be deemed sufficient if mailed to the parties at the following addresses:

TENANT: Peaks Environmental Action Team
c/o Lavinia Demos
25 Crescent Avenue
Peaks Island, ME 04108

CITY: Joseph E. Gray, Jr., City Manager
Portland City Hall
389 Congress Street
Portland, Maine 04101

cc: Corporation Counsel

12. WAIVER

Waiver by either party of any default in performance by the other of any of the terms, covenants, or conditions contained herein, shall not be deemed a continuing waiver of the same or any subsequent default herein.

13. COMPLIANCE WITH LAWS

Each party agrees to comply with all laws, ordinances, rules and regulations which may pertain or apply to the **PREMISES** and the use thereof.

14. SUCCESSORS AND INTEREST

All of the terms, covenants and conditions contained herein shall continue, and bind all successors in interest of **TENANT** and **CITY** respectively.

IN WITNESS WHEREOF, the said **CITY OF PORTLAND** has caused this Lease Agreement to be signed in its corporate name and sealed with its corporate seal by Joseph E. Gray, Jr., its City Manager, thereunto duly authorized, and **PEAKS ENVIRONMENTAL ACTION TEAM** has caused this Lease Agreement to be signed by _____, its _____, thereunto duly authorized, as of the day and date first set forth above.

WITNESS:

CITY OF PORTLAND

By: _____
Joseph E. Gray, Jr.
Its: City Manager

WITNESS: PEAKS ENVIRONMENTAL ACTION TEAM

By: _____
Its: _____

STATE OF MAINE
CUMBERLAND, ss.

July __, 2009

Personally appeared the above named Joseph E. Gray, Jr., City Manager of the **CITY OF PORTLAND** and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of the City of Portland.

Before me,

Notary Public/Attorney-At-Law

STATE OF MAINE
CUMBERLAND, ss.

July __, 2009

Personally appeared the above named _____, as _____ for **PEAKS ENVIRONMENTAL ACTION TEAM**, and made oath that the foregoing is his or her free act and the free act and deed of Riverton Community Association.

Before me,

Notary Public/Attorney-At-Law

Submittal Package Index Sheet

NRG "Met Tower", 34 meter, 113' (+/-) Tall Tower With 50' & 60' Footprints in Peak Island, Cumberland County, ME

Drawing/Document & Brief Descriptions

Remarks

Structural Certification Letter (2 pages)

PE Stamped on page 2

Tower Calculation Sheets (16 pages)

PE Stamped on pages 1 & 16

Drawing E-1: Summary of Analysis Results
(ANSI/TIA/EIA-222-F Analysis)

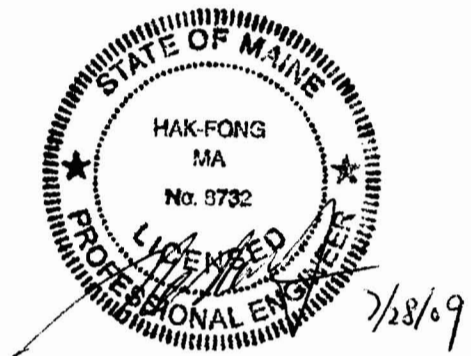
PE Stamped

Chance No-Wrench Screw Anchor "Cut-Sheet"

(Reference Only)

NRG 34 meter Tall Tower
Installation Manual & Specifications

From Tower Manufacturer
(Reference Only)



To: Mr. Sam Saltonstall
21 Elizabeth Street
Peak Island, ME, 04108

Date: 07-28-2009

Subject: Certification Letter for NRG "Met Tower", 34 meter; 113' (+/-) Tall Tower With 50' & 60' Footprints in Peak Island, Cumberland County, ME

Dear Mr. Saltonstall,

Per your request, I have performed a structural analysis on the above referenced tower. The analysis is performed based on the information contained in the "NRG 34 m Tall Tower Installation Manual and Specifications" and other data provided by your group.

The proposed Met tower is analyzed using ANSI/TIA/EIA-222-F-1996 standard per Maine Building Code. The design (fastest mile) wind speed is 85 mph without ice (equivalent to 105 mph 3-sec gust wind) and 74 mph (fastest mile) wind simultaneously with 1/2" ice. The results of the analysis are summarized in Drawing No. E-1 (attached). The tower structure is found to meet ANSI/TIA-222-F-1996 criteria provided the outermost guy wires are 5/16" diameters and the other guy wires are of 1/4" diameters. The 2 inner sets of guy wires are anchored at 50' from the tower center whereas the outer 2 sets are at 60' from the tower center. The weakest component is the outermost guy wires being at 76.6 % of rating.

Because the proposed tower is a temporary tower (1 to 2 years of duration) located in a **remote** area, it represents a low hazard to human life in the event of structure failure. Earthquake effects on structure may be ignored since the proposed Met tower is located in a relatively low earthquake activity zone. (See later version of ANSI/TIA-222 standard -G for further guidance.)

Since no formal soil is available, the lowest presumptive allowable soil bearing pressure for shallow foundation of 1500 psf (or 1.5 ksf) is considered. For a 1.33 increase factor allowed for wind load, the allowable soil pressure is therefore 2 ksf. Based on the TIA-222-F analysis results (using allowable stress method), the maximum tower axial load is 19.5 kips. The tower base plate has a gross area of $A_1 = 11.1$ square feet. The maximum pressure on soil = $19.5/11.1 = 1.76$ ksf, which is much less than 2 ksf.

Based on NRG manual and the anticipated soil type of clay or silt, it appears that 6" or 8" inches diameter screw-in anchors are worthy candidates. However, since the actual soil type is not confirmed by a professional engineer prepared soil report, the criterion for an anchor to be accepted is to pass the pull test performed after the installation of the anchor. For the inner anchors, the minimum pull is $1.3 \times 2375 = 3088$, say 3100 lbs at 38 degrees to the horizontal. For outer anchors, the minimum pull is $1.3 \times 5946 = 7730$, say 7800 lbs at 55 degrees to the horizontal. It is your installation contractor's responsibility to perform pull test (with calibrated measuring device) and document that each and every anchor had successfully passed the pull test with the minimum pull value listed above.

Your company must inform WPCS International Inc. to perform further evaluation if the actual installed anchors do not meet the above-mentioned criteria or if there is deviation from the installation practice's

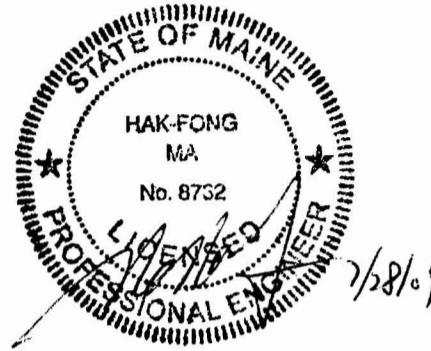
procedure as prescribed in the NRG manual. Failure to do so will automatically invalidate this certification letter.

The proposed NRG Met tower had been successfully installed and performed in ME and other states in the US for the last few years. There is no reason to believe that it will be a concern to public safety if the tower is properly installed according to the Manual and anchors being pull tested to the values specified in this letter.

Should you have any questions or comments regarding this matter, please do not hesitate to contact me at the telephone number, or through e-mail as shown on the letterhead.

Sincerely Yours,

Hak-Fong Ma, ME PE #8732



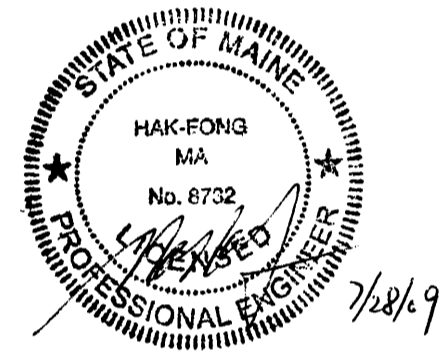
RISATower WPCS, Houston Operations 9000 SW Freeway, Suite #410 Houston, TX 77074 Phone: (713) 773-2525 FAX: (713) 773-2558	Job 113.5 ft (34.6 m) Guyed Pole @ peaks Island	Page 1 of 16
	Project MET Tower @ Cumberland County, ME	Date 17:40:49 07/27/09
	Client Sam Saltonstall	Designed by VD

Tower Input Data

There is a pole section.
 This tower is designed using the TIA/EIA-222-F standard.
 The following design criteria apply:
 Tower is located in Cumberland County, Maine.
 Basic wind speed of 85 mph.
 Nominal ice thickness of 0.500 in.
 Ice density of 56 pcf.
 A wind speed of 74 mph is used in combination with ice.
 Pressures are calculated between guys.
 Stress ratio used in pole design is 1.333.
 Safety factor used in guy design is 2.
 Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	113'5-1/32"-106'8-31/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L2	106'8-31/32"-100'29/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L3	100'29/32"-93'4-27/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L4	93'4-27/32"-86'8-25/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L5	86'8-25/32"-80'23/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L6	80'23/32"-73'4-21/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L7	73'4-21/32"-66'8-19/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L8	66'8-19/32"-60'17/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L9	60'17/32"-53'4-15/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L10	53'4-15/32"-46'8-13/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L11	46'8-13/32"-40'11/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L12	40'11/32"-33'4-9/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L13	33'4-9/32"-26'8-7/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L14	26'8-7/32"-20'5/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L15	20'5/32"-13'4-3/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L16	13'4-3/32"-6'8-1/32"	6'8-1/16"	Guy Pole 6" OD	A36M-50 (50 ksi)	
L17	6'8-1/32"-0'	6'8-1/32"	Guy Pole 6" OD	A36M-50 (50 ksi)	



RISATower WPCS, Houston Operations 9000 SW Freeway, Suite #410 Houston, TX 77074 Phone: (713) 773-2525 FAX: (713) 773-2558	Job	113.5 ft (34.6 m) Guyed Pole @ peaks Island	Page	3 of 16
	Project	MET Tower @ Cumberland County, ME	Date	17:40:49 07/27/09
	Client	Sam Saltonstall	Designed by	VD

106.747	EHS	A	5/16	224.000	2%	21000.000	0.205	122'3-7/8"	60'	0.000	0'	90%
		B	5/16	224.000	2%	21000.000	0.205	122'3-7/8"	60'	0.000	0'	90%
		C	5/16	224.000	2%	21000.000	0.205	122'3-7/8"	60'	0.000	0'	90%
		D	5/16	224.000	2%	21000.000	0.205	122'3-7/8"	60'	0.000	0'	90%
80.0599	EHS	A	Aircraft	140.000	2%	21000.000	0.121	99'10-21/32"	60'	0.000	0'	90%
		B	0.25"	140.000	2%	21000.000	0.121	99'10-21/32"	60'	0.000	0'	90%
		C	Aircraft	140.000	2%	21000.000	0.121	99'10-21/32"	60'	0.000	0'	90%
		D	0.25"	140.000	2%	21000.000	0.121	99'10-21/32"	60'	0.000	0'	90%
			Aircraft									
			0.25"									
			Aircraft									
			0.25"									
53.3724	EHS	A	Aircraft	140.000	2%	21000.000	0.121	72'11-15/32"	50'	0.000	0'	90%
		B	0.25"	140.000	2%	21000.000	0.121	72'11-15/32"	50'	0.000	0'	90%
		C	Aircraft	140.000	2%	21000.000	0.121	72'11-15/32"	50'	0.000	0'	90%
		D	0.25"	140.000	2%	21000.000	0.121	72'11-15/32"	50'	0.000	0'	90%
			Aircraft									
			0.25"									
			Aircraft									
			0.25"									
27.7969	EHS	A	Aircraft	140.000	2%	21000.000	0.121	56'11-25/32"	50'	0.000	0'	90%
		B	0.25"	140.000	2%	21000.000	0.121	56'11-25/32"	50'	0.000	0'	90%
		C	Aircraft	140.000	2%	21000.000	0.121	56'11-25/32"	50'	0.000	0'	90%
		D	0.25"	140.000	2%	21000.000	0.121	56'11-25/32"	50'	0.000	0'	90%
			Aircraft									
			0.25"									
			Aircraft									
			0.25"									

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
106.747	Corner						
80.0599	Corner						
53.3724	Corner						
27.7969	Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
106'8-31/32"	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
80'23/32"	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
53'4-15/32"	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
27'9-9/16"	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	

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Guy Data (cont'd)

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept		Tower Intercept	
					A ft	B ft	C ft	D ft
106.747	25.076	25.076	25.076	25.076	6'6-3/8"	6'6-3/8"	6'6-3/8"	6'6-3/8"
80.0599	12.087	12.087	12.087	12.087	4.4 sec/pulse 4'2-1/32"	4.4 sec/pulse 4'2-1/32"	4.4 sec/pulse 4'2-1/32"	4.4 sec/pulse 4'2-1/32"
53.3724	8.828	8.828	8.828	8.828	3.5 sec/pulse 2'3"	3.5 sec/pulse 2'3"	3.5 sec/pulse 2'3"	3.5 sec/pulse 2'3"
27.7969	6.895	6.895	6.895	6.895	2.6 sec/pulse 1'4-21/32"	2.6 sec/pulse 1'4-21/32"	2.6 sec/pulse 1'4-21/32"	2.6 sec/pulse 1'4-21/32"
					2.0 sec/pulse	2.0 sec/pulse	2.0 sec/pulse	2.0 sec/pulse

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
106.747	No	No			1	1	1	1
80.0599	No	No			1	1	1	1
53.3724	No	No			1	1	1	1
27.7969	No	No			1	1	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
106.747	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75
80.0599	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75
53.3724	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75
27.7969	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z ksf	q _z Ice ksf	Ice Thickness in
106.747	A	53'4-1/2"	0.021	0.016	0.500
	B	53'4-1/2"	0.021	0.016	0.500

RISATower WPCS, Houston Operations 9000 SW Freeway, Suite #410 Houston, TX 77074 Phone: (713) 773-2525 FAX: (713) 773-2558	Job 113.5 ft (34.6 m) Guyed Pole @ peaks Island	Page 5 of 16
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	Client Sam Saltonstall	Designed by VD

Guy Elevation ft	Guy Location	z ft	q _z ksf	q _z Ice ksf	Ice Thickness in
80.0599	C	53'4-1/2"	0.021	0.016	0.500
	D	53'4-1/2"	0.021	0.016	0.500
	A	40'3/8"	0.020	0.015	0.500
	B	40'3/8"	0.020	0.015	0.500
53.3724	C	40'3/8"	0.020	0.015	0.500
	D	40'3/8"	0.020	0.015	0.500
	A	26'8-7/32"	0.018	0.014	0.500
	B	26'8-7/32"	0.018	0.014	0.500
27.7969	C	26'8-7/32"	0.018	0.014	0.500
	D	26'8-7/32"	0.018	0.014	0.500
	A	13'10-25/32"	0.018	0.014	0.500
	B	13'10-25/32"	0.018	0.014	0.500
	C	13'10-25/32"	0.018	0.014	0.500
	D	13'10-25/32"	0.018	0.014	0.500

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A ₁ ft ² /ft	Weight plf
* Anemometer Cables*							
0.14" cable	A	No	Inside Pole	112' - 0'	1	No Ice 1/2" Ice	1.400 1.400
0.14" cable	C	No	Inside Pole	112' - 0'	1	No Ice 1/2" Ice	1.400 1.400
0.14" cable	A	No	Inside Pole	86' - 0'	1	No Ice 1/2" Ice	1.400 1.400
* Vane Cables *							
0.14" cable	A	No	Inside Pole	110' - 0'	1	No Ice 1/2" Ice	1.400 1.400

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A ₁ In Face ft ²	C _A A ₁ Out Face ft ²	Weight lb
L1	113'5-1/32"-106'8-31/32"	A	0.000	0.000	0.000	0.000	11.907
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	7.354
		D	0.000	0.000	0.000	0.000	0.000
L2	106'8-31/32"-100'29/32"	A	0.000	0.000	0.000	0.000	18.681
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
		D	0.000	0.000	0.000	0.000	0.000
L3	100'29/32"-93'4-27/32"	A	0.000	0.000	0.000	0.000	18.681
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
		D	0.000	0.000	0.000	0.000	0.000
L4	93'4-27/32"-86'8-25/32"	A	0.000	0.000	0.000	0.000	18.681
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
		D	0.000	0.000	0.000	0.000	0.000
L5	86'8-25/32"-80'23/32"	A	0.000	0.000	0.000	0.000	26.997
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341

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Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight lb
L6	80'23/32"-73'4-21/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L7	73'4-21/32"-66'8-19/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L8	66'8-19/32"-60'17/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L9	60'17/32"-53'4-15/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L10	53'4-15/32"-46'8-13/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L11	46'8-13/32"-40'11/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L12	40'11/32"-33'4-9/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L13	33'4-9/32"-26'8-7/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L14	26'8-7/32"-20'5/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L15	20'5/32"-13'4-3/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L16	13'4-3/32"-6'8-1/32"	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.022
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.341
L17	6'8-1/32"-0'	D	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	28.011
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	9.337
		D	0.000	0.000	0.000	0.000	0.000

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight lb
L1	113'5-1/32"-106'8-31/32"	A	0.500	0.000	0.000	0.000	0.000	11.907
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	7.354

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{A_1} In Face ft ²	C_{A_1} Out Face ft ²	Weight lb
L2	106'8-31/32"-100'29/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	18.681
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L3	100'29/32"-93'4-27/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	18.681
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L4	93'4-27/32"-86'8-25/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	18.681
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L5	86'8-25/32"-80'23/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	26.997
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L6	80'23/32"-73'4-21/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L7	73'4-21/32"-66'8-19/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L8	66'8-19/32"-60'17/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L9	60'17/32"-53'4-15/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L10	53'4-15/32"-46'8-13/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L11	46'8-13/32"-40'11/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L12	40'11/32"-33'4-9/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L13	33'4-9/32"-26'8-7/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L14	26'8-7/32"-20'5/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L15	20'5/32"-13'4-3/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
L16	13'4-3/32"-6'8-1/32"	D	0.500	0.000	0.000	0.000	0.000	0.000
		A		0.000	0.000	0.000	0.000	28.022
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.341
		D		0.000	0.000	0.000	0.000	0.000

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L17	6'8-1/32"-0'	A	0.500	0.000	0.000	0.000	0.000	28.011
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	9.337
		D		0.000	0.000	0.000	0.000	0.000

Antenna Pole Forces Lightning Rod

Length of Pole ft	I _x in ⁴	I _y in ⁴	Modulus E ksi	Antenna Pole C _A A _A ft ² /ft	Antenna Pole Weight plf	Length of Beacon ft	Beacon C _A A _A ft ²	Beacon Weight lb
1'	1000.000	1000.000	29000.000	No Ice With Ice	0.010 0.020	0.100 0.200	0' 0.000	0.000 0.000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz: Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb	
* Wind Anemometers *									
NRG 61" Side Mount Boom	A	From Leg	0.000 0' 0'	0.000	112'	No Ice 1/2" Ice	0.667 2.013	0.667 2.013	30.000 38.202
NRG 61" Side Mount Boom	C	From Leg	0.000 0' 0'	45.000	112'	No Ice 1/2" Ice	0.667 2.013	0.667 2.013	30.000 38.202
NRG #40C Anemometer	A	From Leg	5.000 0' 1'	0.000	112'	No Ice 1/2" Ice	0.599 0.723	0.599 0.723	0.300 10.993
NRG #40C Anemometer	C	From Leg	5.000 0' 1'	45.000	112'	No Ice 1/2" Ice	0.599 0.723	0.599 0.723	0.300 10.993
NRG 61" Side Mount Boom	A	From Leg	0.000 0' 0'	0.000	56'	No Ice 1/2" Ice	0.667 2.013	0.667 2.013	30.000 38.202
NRG #40C Anemometer	A	From Leg	5.000 0' 1'	0.000	56'	No Ice 1/2" Ice	0.599 0.723	0.599 0.723	0.300 10.993
* Wind Vanes *									
NRG 61" Side Mount Boom	C	From Leg	0.000 0' 0'	0.000	110'	No Ice 1/2" Ice	0.667 2.013	0.667 2.013	30.000 38.202
NRG #200P Wind Direction Vane	C	From Leg	5.000 0' 0'	0.000	110'	No Ice 1/2" Ice	0.599 0.723	0.599 0.723	0.300 10.993

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Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 45 deg - No Ice+Guy
4	Dead+Wind 90 deg - No Ice+Guy
5	Dead+Wind 135 deg - No Ice+Guy
6	Dead+Wind 180 deg - No Ice+Guy
7	Dead+Wind 225 deg - No Ice+Guy
8	Dead+Wind 270 deg - No Ice+Guy
9	Dead+Wind 315 deg - No Ice+Guy
10	Dead+Ice+Guy
11	Dead+Wind 0 deg+Ice+Guy
12	Dead+Wind 45 deg+Ice+Guy
13	Dead+Wind 90 deg+Ice+Guy
14	Dead+Wind 135 deg+Ice+Guy
15	Dead+Wind 180 deg+Ice+Guy
16	Dead+Wind 225 deg+Ice+Guy
17	Dead+Wind 270 deg+Ice+Guy
18	Dead+Wind 315 deg+Ice+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb	
Mast	Max. Vert	17	19460.742	205.303	0.932	
	Max. H _x	8	9938.954	215.004	0.057	
	Max. H _z	2	9938.954	0.057	215.004	
	Max. M _x	11	1497.410	0.932	205.303	
	Max. M _z	13	1477.493	-203.223	0.918	
	Max. Torsion	7	20.031	151.860	-151.740	
	Min. Vert	1	3573.268	0.031	0.031	
	Min. H _x	4	9939.000	-214.893	0.057	
	Min. H _z	6	9939.000	0.057	-214.893	
	Min. M _x	15	-1477.493	0.918	-203.223	
	Min. M _z	17	-1497.410	205.303	0.932	
	Min. Torsion	3	-20.041	-151.740	151.860	
	Guy D @ 60 ft Elev 0 ft Azimuth 225 deg	Max. Vert	1	-302.468	-142.275	142.275
		Max. H _x	1	-302.468	-142.275	142.275
Max. H _z		12	-4860.573	-2418.322	2418.255	
Min. Vert		12	-4860.573	-2418.322	2418.255	
Min. H _x		12	-4860.573	-2418.322	2418.255	
Min. H _z		1	-302.468	-142.275	142.275	
Guy C @ 60 ft Elev 0 ft Azimuth 135 deg	Max. Vert	1	-302.541	142.356	142.356	
	Max. H _x	18	-4862.229	2420.059	2420.060	
	Max. H _z	18	-4862.229	2420.059	2420.060	
	Min. Vert	18	-4862.229	2420.059	2420.060	
	Min. H _x	1	-302.541	142.356	142.356	
	Min. H _z	1	-302.541	142.356	142.356	
Guy B @ 60 ft	Max. Vert	1	-302.468	142.275	-142.275	

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Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Elev 0 ft					
Azimuth 45 deg	Max. H _x	16	-4860.573	2418.255	-2418.322
	Max. H _z	1	-302.468	142.275	-142.275
	Min. Vert	16	-4860.573	2418.255	-2418.322
	Min. H _x	1	-302.468	142.275	-142.275
	Min. H _z	16	-4860.573	2418.255	-2418.322
Guy A @ 60 ft	Max. Vert	1	-302.398	-142.195	-142.195
Elev 0 ft					
Azimuth -45 deg	Max. H _x	1	-302.398	-142.195	-142.195
	Max. H _z	1	-302.398	-142.195	-142.195
	Min. Vert	14	-4856.818	-2415.449	-2415.449
	Min. H _x	14	-4856.818	-2415.449	-2415.449
	Min. H _z	14	-4856.818	-2415.449	-2415.449
Guy D @ 50 ft	Max. Vert	7	-128.309	-81.704	81.704
Elev 0 ft					
Azimuth 225 deg	Max. H _x	7	-128.309	-81.704	81.704
	Max. H _z	11	-1443.038	-1248.212	1411.957
	Min. Vert	13	-1443.272	-1412.229	1248.429
	Min. H _x	13	-1443.272	-1412.229	1248.429
	Min. H _z	7	-128.309	-81.704	81.704
Guy C @ 50 ft	Max. Vert	5	-128.297	81.691	81.691
Elev 0 ft					
Azimuth 135 deg	Max. H _x	17	-1440.755	1409.638	1245.869
	Max. H _z	11	-1440.755	1245.869	1409.638
	Min. Vert	11	-1440.755	1245.869	1409.638
	Min. H _x	5	-128.297	81.691	81.691
	Min. H _z	5	-128.297	81.691	81.691
Guy B @ 50 ft	Max. Vert	3	-128.309	81.704	-81.704
Elev 0 ft					
Azimuth 45 deg	Max. H _x	17	-1443.038	1411.958	-1248.212
	Max. H _z	3	-128.309	81.704	-81.704
	Min. Vert	15	-1443.272	1248.429	-1412.229
	Min. H _x	3	-128.309	81.704	-81.704
	Min. H _z	15	-1443.272	1248.429	-1412.229
Guy A @ 50 ft	Max. Vert	9	-128.322	-81.717	-81.717
Elev 0 ft					
Azimuth -45 deg	Max. H _x	9	-128.322	-81.717	-81.717
	Max. H _z	9	-128.322	-81.717	-81.717
	Min. Vert	13	-1445.527	-1414.524	-1250.747
	Min. H _x	13	-1445.527	-1414.524	-1250.747
	Min. H _z	15	-1445.527	-1250.747	-1414.523

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	3573.268	-0.031	-0.031	-0.216	0.216	-0.000
Dead+Wind 0 deg - No Ice+Guy	9938.954	-0.057	-215.004	-1384.904	0.450	14.099
Dead+Wind 45 deg - No	9747.061	151.740	-151.860	-936.738	-935.858	20.041

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Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Ice+Guy						
Dead+Wind 90 deg - No Ice+Guy	9939.000	214.893	-0.057	-0.449	-1384.018	14.099
Dead+Wind 135 deg - No Ice+Guy	9747.082	151.745	151.745	935.849	-935.849	-0.005
Dead+Wind 180 deg - No Ice+Guy	9939.000	-0.057	214.893	1384.018	0.449	-14.099
Dead+Wind 225 deg - No Ice+Guy	9747.061	-151.860	151.740	935.858	936.738	-20.031
Dead+Wind 270 deg - No Ice+Guy	9938.954	-215.004	-0.057	-0.450	1384.904	-14.099
Dead+Wind 315 deg - No Ice+Guy	9746.985	-151.856	-151.856	-936.749	936.748	-0.005
Dead+Ice+Guy	6783.171	-0.235	-0.235	-1.351	1.351	-0.000
Dead+Wind 0 deg+Ice+Guy	19460.742	-0.932	-205.303	-1497.410	8.863	11.242
Dead+Wind 45 deg+Ice+Guy	19149.975	146.686	-148.523	-954.328	-937.486	16.062
Dead+Wind 90 deg+Ice+Guy	19459.755	203.223	-0.918	-8.717	-1477.493	11.233
Dead+Wind 135 deg+Ice+Guy	19149.324	146.635	146.635	937.033	-937.032	-0.052
Dead+Wind 180 deg+Ice+Guy	19459.755	-0.918	203.223	1477.493	8.717	-11.237
Dead+Wind 225 deg+Ice+Guy	19149.976	-148.523	146.687	937.488	954.327	-15.962
Dead+Wind 270 deg+Ice+Guy	19460.742	-205.303	-0.932	-8.863	1497.410	-11.238
Dead+Wind 315 deg+Ice+Guy	19148.838	-148.533	-148.533	-954.249	954.247	-0.048

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.000	-1699.383	0.000	0.005	1699.383	0.005	0.000%
2	0.000	-1699.383	-3011.695	-0.047	1699.312	3008.257	0.099%
3	2147.597	-1699.383	-2147.597	-2150.004	1699.446	2149.924	0.096%
4	3011.695	-1699.383	0.000	-3008.279	1699.313	-0.047	0.099%
5	2147.597	-1699.383	2147.597	-2149.968	1699.446	-2149.968	0.096%
6	0.000	-1699.383	3011.695	-0.047	1699.313	-3008.279	0.099%
7	-2147.597	-1699.383	2147.597	2149.924	1699.446	-2150.004	0.096%
8	-3011.695	-1699.383	0.000	3008.257	1699.312	-0.047	0.099%
9	-2147.597	-1699.383	-2147.597	2149.959	1699.446	2149.959	0.096%
10	0.000	-2889.417	0.000	-0.100	2889.416	-0.100	0.005%
11	0.000	-2889.417	-5556.509	-0.076	2889.344	5553.693	0.045%
12	3995.248	-2889.417	-3995.248	-3993.161	2889.329	3992.560	0.054%
13	5556.509	-2889.417	0.000	-5552.269	2889.311	-0.111	0.068%
14	3995.248	-2889.417	3995.248	-3991.989	2889.302	-3991.989	0.073%
15	0.000	-2889.417	5556.509	-0.111	2889.311	-5552.269	0.068%
16	-3995.248	-2889.417	3995.248	3992.560	2889.329	-3993.161	0.054%
17	-5556.509	-2889.417	0.000	5553.693	2889.344	-0.076	0.045%
18	-3995.248	-2889.417	-3995.248	3992.718	2889.320	3992.718	0.056%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	13	0.00000001	0.00000001
2	Yes	13	0.00076663	0.00023047

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3	Yes	15	0.00091522	0.00081826
4	Yes	13	0.00076003	0.00022660
5	Yes	15	0.00091657	0.00029100
6	Yes	13	0.00076003	0.00022660
7	Yes	15	0.00091522	0.00081820
8	Yes	13	0.00076663	0.00023047
9	Yes	15	0.00091276	0.00029026
10	Yes	13	0.00000001	0.00000001
11	Yes	19	0.00072545	0.00055848
12	Yes	16	0.00082230	0.00061788
13	Yes	18	0.00095910	0.00032265
14	Yes	15	0.00094804	0.00014054
15	Yes	18	0.00095910	0.00032266
16	Yes	16	0.00082231	0.00061734
17	Yes	19	0.00072545	0.00055844
18	Yes	16	0.00087844	0.00012005

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T _a lb	Required S.F.	Actual S.F.
L2	106'8-31/32" (A) (22)	5/16 EHS	224.000	10080.014	3858.520	5040.000	2.000	2.612 ✓
	106'8-31/32" (B) (21)	5/16 EHS	224.000	10080.014	3851.370	5040.000	2.000	2.617 ✓
	106'8-31/32" (C) (20)	5/16 EHS	224.000	10080.014	3843.680	5040.000	2.000	2.622 ✓
	106'8-31/32" (D) (19)	5/16 EHS	224.000	10080.014	3851.370	5040.000	2.000	2.617 ✓
L6	80'23/32" (A) (26)	Aircraft 0.25" EHS	140.000	6299.990	2210.190	3150.000	2.000	2.850 ✓
	80'23/32" (B) (25)	Aircraft 0.25" EHS	140.000	6299.990	2222.690	3150.000	2.000	2.834 ✓
	80'23/32" (C) (24)	Aircraft 0.25" EHS	140.000	6299.990	2233.150	3150.000	2.000	2.821 ✓
	80'23/32" (D) (23)	Aircraft 0.25" EHS	140.000	6299.990	2222.690	3150.000	2.000	2.834 ✓
L10	53'4-15/32" (A) (30)	Aircraft 0.25" EHS	140.000	6299.990	1548.830	3150.000	2.000	4.068 ✓
	53'4-15/32" (B) (29)	Aircraft 0.25" EHS	140.000	6299.990	1547.480	3150.000	2.000	4.071 ✓
	53'4-15/32" (C) (28)	Aircraft 0.25" EHS	140.000	6299.990	1545.980	3150.000	2.000	4.075 ✓
	53'4-15/32" (D) (27)	Aircraft 0.25" EHS	140.000	6299.990	1547.480	3150.000	2.000	4.071 ✓
L13	27'9-9/16" (A) (34)	Aircraft 0.25" EHS	140.000	6299.990	985.795	3150.000	2.000	6.391 ✓
	27'9-9/16" (B) (33)	Aircraft 0.25" EHS	140.000	6299.990	983.791	3150.000	2.000	6.404 ✓
	27'9-9/16" (C) (32)	Aircraft 0.25" EHS	140.000	6299.990	981.792	3150.000	2.000	6.417 ✓
	27'9-9/16" (D) (31)	Aircraft 0.25" EHS	140.000	6299.990	983.791	3150.000	2.000	6.404 ✓

Compression Checks

RISATower WPCS, Houston Operations 9000 SW Freeway, Suite #410 Houston, TX 77074 Phone: (713) 773-2525 FAX: (713) 773-2558	Job	113.5 ft (34.6 m) Guyed Pole @ peaks Island	Page	13 of 16
	Project	MET Tower @ Cumberland County, ME	Date	17:40:49 07/27/09
	Client	Sam Saltonstall	Designed by	VD

Pole Design Data

Section No.	Elevation <i>ft</i>	Size	L <i>ft</i>	L _u <i>ft</i>	Kl/r	F _a <i>ksi</i>	A <i>in²</i>	Actual P <i>lb</i>	Allow. P _a <i>lb</i>	Ratio $\frac{P}{P_a}$
L1	113.419 - 106.747 (2)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-234.817	60518.301	0.004
L2	106.747 - 100.076 (3)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-8259.490	60518.301	0.136
L3	100.076 - 93.4036 (4)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-8545.450	60518.301	0.141
L4	93.4036 - 86.7318 (5)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-8561.950	60518.301	0.141
L5	86.7318 - 80.0599 (6)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-8760.320	60518.301	0.145
L6	80.0599 - 73.388 (7)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-13427.900	60518.301	0.222
L7	73.388 - 66.7161 (8)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-13483.600	60518.301	0.223
L8	66.7161 - 60.0443 (9)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-13492.700	60518.301	0.223
L9	60.0443 - 53.3724 (10)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-13901.600	60518.301	0.230
L10	53.3724 - 46.7005 (11)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-17069.500	60518.301	0.282
L11	46.7005 - 40.0286 (12)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-17178.000	60518.301	0.284
L12	40.0286 - 33.3568 (13)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-17191.801	60518.301	0.284
L13	33.3568 - 26.6849 (14)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-18702.000	60518.301	0.309
L14	26.6849 - 20.013 (15)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-18720.100	60518.301	0.309
L15	20.013 - 13.3411 (16)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-18920.400	60518.301	0.313
L16	13.3411 - 6.66927 (17)	Guy Pole 6" OD	6'8-1/16"	0'	0.0	30.000	2.017	-18938.699	60518.301	0.313
L17	6.66927 - 0 (18)	Guy Pole 6" OD	6'8-1/32"	0'	0.0	30.000	2.017	-19460.600	60518.301	0.322

Pole Bending Design Data

Section No.	Elevation <i>ft</i>	Size	Actual M _x <i>lb-ft</i>	Actual f _{bx} <i>ksi</i>	Allow. F _{bx} <i>ksi</i>	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M _y <i>lb-ft</i>	Actual f _{by} <i>ksi</i>	Allow. F _{by} <i>ksi</i>	Ratio $\frac{f_{by}}{F_{by}}$
L1	113.419 - 106.747 (2)	Guy Pole 6" OD	1793.54	-7.376	33.000	0.224	0.000	0.000	33.000	0.000
L2	106.747 - 100.076 (3)	Guy Pole 6" OD	1128.64	-4.641	33.000	0.141	0.000	0.000	33.000	0.000
L3	100.076 - 93.4036 (4)	Guy Pole 6" OD	526.456	-2.165	33.000	0.066	0.000	0.000	33.000	0.000
L4	93.4036 - 86.7318 (5)	Guy Pole 6" OD	520.601	-2.141	33.000	0.065	0.000	0.000	33.000	0.000
L5	86.7318 - 80.0599 (6)	Guy Pole 6" OD	1380.01	-5.675	33.000	0.172	0.000	0.000	33.000	0.000
L6	80.0599 - 73.388 (7)	Guy Pole 6" OD	1020.69	-4.198	33.000	0.127	0.000	0.000	33.000	0.000

RISATower WPCS, Houston Operations 9000 SW Freeway, Suite #410 Houston, TX 77074 Phone: (713) 773-2525 FAX: (713) 773-2558	Job	Page
	Project	Date
	Client	Designed by
	113.5 ft (34.6 m) Guyed Pole @ peaks Island	14 of 16
	MET Tower @ Cumberland County, ME	17:40:49 07/27/09
	Sam Saltonstall	VD

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L7	73.388 - 66.7161 (8)	Guy Pole 6" OD	727.945	-2.994	33.000	0.091	0.000	0.000	33.000	0.000
L8	66.7161 - 60.0443 (9)	Guy Pole 6" OD	728.111	-2.994	33.000	0.091	0.000	0.000	33.000	0.000
L9	60.0443 - 53.3724 (10)	Guy Pole 6" OD	1541.91	-6.341	33.000	0.192	0.000	0.000	33.000	0.000
L10	53.3724 - 46.7005 (11)	Guy Pole 6" OD	1304.97	-5.367	33.000	0.163	0.000	0.000	33.000	0.000
L11	46.7005 - 40.0286 (12)	Guy Pole 6" OD	389.383	-1.601	33.000	0.049	0.000	0.000	33.000	0.000
L12	40.0286 - 33.3568 (13)	Guy Pole 6" OD	521.923	-2.146	33.000	0.065	0.000	0.000	33.000	0.000
L13	33.3568 - 26.6849 (14)	Guy Pole 6" OD	1200.57	-4.937	33.000	0.150	0.000	0.000	33.000	0.000
L14	26.6849 - 20.013 (15)	Guy Pole 6" OD	974.250	-4.007	33.000	0.121	0.000	0.000	33.000	0.000
L15	20.013 - 13.3411 (16)	Guy Pole 6" OD	510.158	-2.098	33.000	0.064	0.000	0.000	33.000	0.000
L16	13.3411 - 6.66927 (17)	Guy Pole 6" OD	499.852	-2.056	33.000	0.062	0.000	0.000	33.000	0.000
L17	6.66927 - 0 (18)	Guy Pole 6" OD	1497.43	-6.158	33.000	0.187	0.000	0.000	33.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
			$\frac{P}{P_n}$	$\frac{f_{bx}}{F_{bx}}$	$\frac{f_{by}}{F_{by}}$			
L1	113.419 - 106.747 (2)	Guy Pole 6" OD	0.004	0.224	0.000	0.227 ✓	1.333	H1-3 ✓
L2	106.747 - 100.076 (3)	Guy Pole 6" OD	0.136	0.141	0.000	0.277 ✓	1.333	H1-3 ✓
L3	100.076 - 93.4036 (4)	Guy Pole 6" OD	0.141	0.066	0.000	0.207 ✓	1.333	H1-3 ✓
L4	93.4036 - 86.7318 (5)	Guy Pole 6" OD	0.141	0.065	0.000	0.206 ✓	1.333	H1-3 ✓
L5	86.7318 - 80.0599 (6)	Guy Pole 6" OD	0.145	0.172	0.000	0.317 ✓	1.333	H1-3 ✓
L6	80.0599 - 73.388 (7)	Guy Pole 6" OD	0.222	0.127	0.000	0.349 ✓	1.333	H1-3 ✓
L7	73.388 - 66.7161 (8)	Guy Pole 6" OD	0.223	0.091	0.000	0.314 ✓	1.333	H1-3 ✓
L8	66.7161 - 60.0443 (9)	Guy Pole 6" OD	0.223	0.091	0.000	0.314 ✓	1.333	H1-3 ✓
L9	60.0443 - 53.3724 (10)	Guy Pole 6" OD	0.230	0.192	0.000	0.422 ✓	1.333	H1-3 ✓
L10	53.3724 - 46.7005 (11)	Guy Pole 6" OD	0.282	0.163	0.000	0.445 ✓	1.333	H1-3 ✓
L11	46.7005 - 40.0286 (12)	Guy Pole 6" OD	0.284	0.049	0.000	0.332 ✓	1.333	H1-3 ✓
L12	40.0286 - 33.3568 (13)	Guy Pole 6" OD	0.284	0.065	0.000	0.349 ✓	1.333	H1-3 ✓
L13	33.3568 - 26.6849 (14)	Guy Pole 6" OD	0.309	0.150	0.000	0.459 ✓	1.333	H1-3 ✓
L14	26.6849 - 20.013 (15)	Guy Pole 6" OD	0.309	0.121	0.000	0.431 ✓	1.333	H1-3 ✓

RISATower WPCS, Houston Operations 9000 SW Freeway, Suite #410 Houston, TX 77074 Phone: (713) 773-2525 FAX: (713) 773-2558	Job	113.5 ft (34.6 m) Guyed Pole @ peaks Island	Page	15 of 16
	Project	MET Tower @ Cumberland County, ME	Date	17:40:49 07/27/09
	Client	Sam Saltonstall	Designed by	VD

Section No.	Elevation ft	Size	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
			$\frac{P}{P_a}$	$\frac{f_{bx}}{F_{bx}}$	$\frac{f_{by}}{F_{by}}$			
L15	20.013 - 13.3411 (16)	Guy Pole 6" OD	0.313	0.064	0.000	0.376 ✓	1.333	H1-3 ✓
L16	13.3411 - 6.66927 (17)	Guy Pole 6" OD	0.313	0.062	0.000	0.375 ✓	1.333	H1-3 ✓
L17	6.66927 - 0 (18)	Guy Pole 6" OD	0.322	0.187	0.000	0.508 ✓	1.333	H1-3 ✓

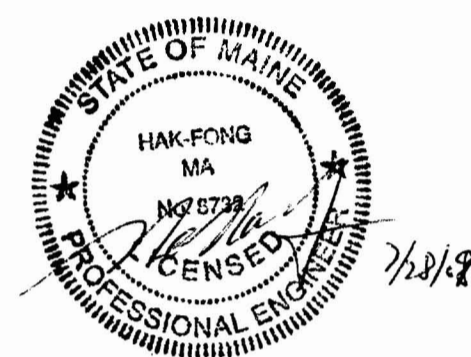
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail
L1	113.419 - 106.747	Pole	Guy Pole 6" OD	2	-234.817	80670.892	17.1	Pass
L2	106.747 - 100.076	Pole	Guy Pole 6" OD	3	-8259.490	80670.892	20.8	Pass
		Guy A@106.747	5/16	22	3858.520	5040.000	76.6	Pass
		Guy B@106.747	5/16	21	3851.370	5040.000	76.4	Pass
		Guy C@106.747	5/16	20	3843.680	5040.000	76.3	Pass
		Guy D@106.747	5/16	19	3851.370	5040.000	76.4	Pass
L3	100.076 - 93.4036	Pole	Guy Pole 6" OD	4	-8545.450	80670.892	15.5	Pass
L4	93.4036 - 86.7318	Pole	Guy Pole 6" OD	5	-8561.950	80670.892	15.5	Pass
L5	86.7318 - 80.0599	Pole	Guy Pole 6" OD	6	-8760.320	80670.892	23.8	Pass
L6	80.0599 - 73.388	Pole	Guy Pole 6" OD	7	-13427.900	80670.892	26.2	Pass
		Guy A@80.0599	Aircraft 0.25"	26	2210.190	3150.000	70.2	Pass
		Guy B@80.0599	Aircraft 0.25"	25	2222.690	3150.000	70.6	Pass
		Guy C@80.0599	Aircraft 0.25"	24	2233.150	3150.000	70.9	Pass
		Guy D@80.0599	Aircraft 0.25"	23	2222.690	3150.000	70.6	Pass
L7	73.388 - 66.7161	Pole	Guy Pole 6" OD	8	-13483.600	80670.892	23.5	Pass
L8	66.7161 - 60.0443	Pole	Guy Pole 6" OD	9	-13492.700	80670.892	23.5	Pass
L9	60.0443 - 53.3724	Pole	Guy Pole 6" OD	10	-13901.600	80670.892	31.6	Pass
L10	53.3724 - 46.7005	Pole	Guy Pole 6" OD	11	-17069.500	80670.892	33.4	Pass
		Guy A@53.3724	Aircraft 0.25"	30	1548.830	3150.000	49.2	Pass
		Guy B@53.3724	Aircraft 0.25"	29	1547.480	3150.000	49.1	Pass
		Guy C@53.3724	Aircraft 0.25"	28	1545.980	3150.000	49.1	Pass
		Guy D@53.3724	Aircraft 0.25"	27	1547.480	3150.000	49.1	Pass
L11	46.7005 - 40.0286	Pole	Guy Pole 6" OD	12	-17178.000	80670.892	24.9	Pass
L12	40.0286 - 33.3568	Pole	Guy Pole 6" OD	13	-17191.801	80670.892	26.2	Pass
L13	33.3568 - 26.6849	Pole	Guy Pole 6" OD	14	-18702.000	80670.892	34.4	Pass
		Guy A@27.7969	Aircraft 0.25"	34	985.795	3150.000	31.3	Pass
		Guy B@27.7969	Aircraft 0.25"	33	983.791	3150.000	31.2	Pass
		Guy C@27.7969	Aircraft 0.25"	32	981.792	3150.000	31.2	Pass
		Guy D@27.7969	Aircraft 0.25"	31	983.791	3150.000	31.2	Pass
L14	26.6849 - 20.013	Pole	Guy Pole 6" OD	15	-18720.100	80670.892	32.3	Pass
L15	20.013 - 13.3411	Pole	Guy Pole 6" OD	16	-18920.400	80670.892	28.2	Pass
L16	13.3411 - 6.66927	Pole	Guy Pole 6" OD	17	-18938.699	80670.892	28.1	Pass
L17	6.66927 - 0	Pole	Guy Pole 6" OD	18	-19460.600	80670.892	38.1	Pass

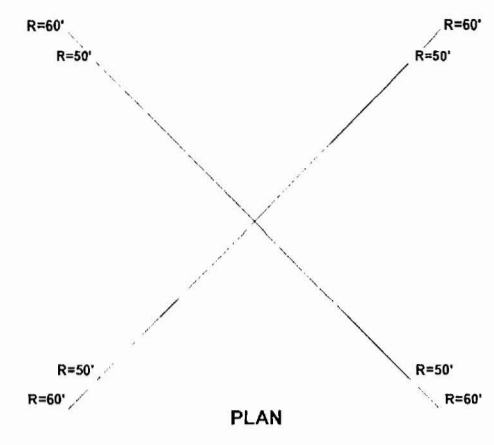
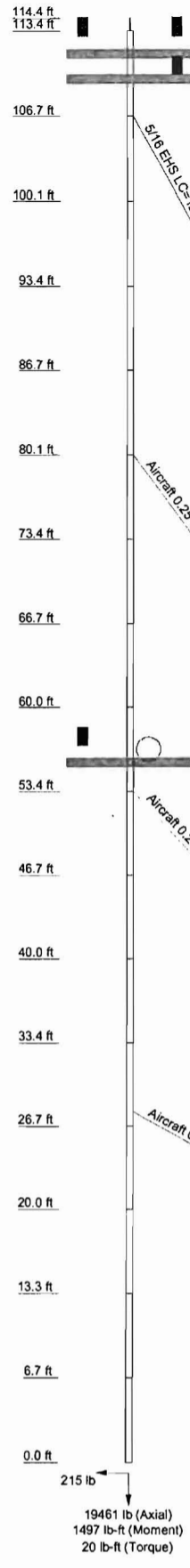
RISATower WPCS, Houston Operations 9000 SW Freeway, Suite #410 Houston, TX 77074 Phone: (713) 773-2525 FAX: (713) 773-2558	Job 113.5 ft (34.6 m) Guyed Pole @ peaks Island	Page 16 of 16
	Project MET Tower @ Cumberland County, ME	Date 17:40:49 07/27/09
	Client Sam Saltonstall	Designed by VD

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail	
							Summary		
							Pole (L17)	38.1	Pass
							Guy A (L2)	76.6	Pass
							Guy B (L2)	76.4	Pass
							Guy C (L2)	76.3	Pass
							Guy D (L2)	76.4	Pass
							RATING =	76.6	Pass

Program Version 5.0.2.0 - 6/13/2007 File:Z:/Shared-3/1-StrAnalysis/2-MET-Towers/Maine/Portland/Portland.eri



Section	Size	Length (ft)	Grade	Weight (lb)
1	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
2	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
3	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
4	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
5	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
6	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
7	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
8	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
9	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
10	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
11	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
12	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
13	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
14	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
15	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
16	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/16"	A36M-50	45.8
17	Guy Pole 6" O.D. Guy Pole 6" O.D. Guy Pole 6" O.D.	6'8-1/32"	A36M-50	45.8



DESIGNED APPURTENANCE LOADING

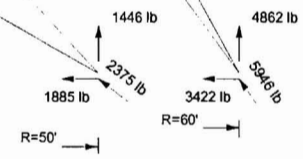
TYPE	ELEVATION	TYPE	ELEVATION
NRG 61" Side Mount Boom	112	NRG 61" Side Mount Boom	110
NRG 61" Side Mount Boom	112	NRG #200P Wind Direction Vane	110
NRG #40C Anemometer	112	NRG 61" Side Mount Boom	56
NRG #40C Anemometer	112	NRG #40C Anemometer	56

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36M-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower is located in Cumberland County, Maine.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. 1' Lightning Rod is included for load transfer only.
5. TOWER RATING: 76.6%



WPCS, Houston Operations 9000 SW Freeway, Suite #410 Houston, TX 77074 Phone: (713) 773-2525 FAX: (713) 773-2558	Job: 113.5 ft (34.6 m) Guyed Pole @ peaks Island
	Project: MET Tower @ Cumberland County, ME
	Client: Sam Saltonstall Drawn by: VD App'd:
	Code: TIA/EIA-222-F Date: 07/27/09 Scale: NTS
	Path: Z:\Shared-511-50\Analysis\2-MET-Towers\Maine\Portland\Portland.dwg Dwg No: E-1

NO-WRENCH SCREW ANCHOR

• For Hand or Machine Installation



Chance No-Wrench Screw Anchors may be installed by hand or machine. The THIMBLEYE® eye or TRIPLEYE® eye on the rod has a large opening to admit a turning bar for screwing the anchor down. The eye will also fit into an adapter available from most hole-boring machine manufacturers so the anchor may be power-installed. The No-Wrench Screw Anchor consists of a drop-forged steel THIMBLEYE® eye or TRIPLEYE® eye rod welded to a steel helix. The entire anchor is hot-dip galvanized for long resistance to rust.

*RUS Accepted.
 Typical working torque:
 3/4" Rod 400 ft.-lbs.
 1" Rod 1000 ft.-lbs.
 1 1/4" Rod 2300 ft.-lbs.

No-Wrench Screw Anchors can be installed to a greater depth to reach a firmer soil by using a 6-ft. extension rod with forged coupling and a forged TRIPLEYE® eye, catalog number 402. Maximum installing torque is 2300 ft.-lbs. for 1-1/4" diameter rod.

Catalog numbers 4345, 6346 and 816 may be ordered with a forged THIMBLEYE® rod rather than the standard TRIPLEYE® rod. To order a THIMBLEYE® rod simply add "-1" to the suffix of the catalog number. Example: Catalog No. 6346-1.

APPLICATION AND ORDERING INFORMATION

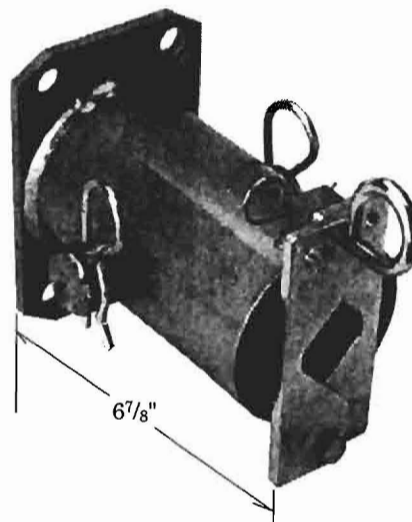
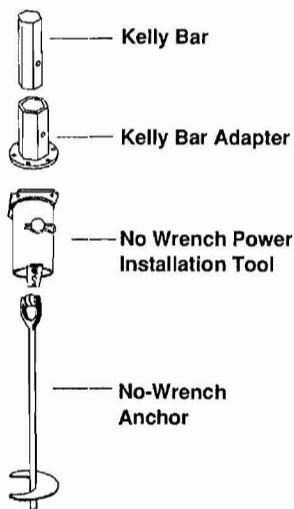
Catalog No. TRIPLEYE®	Anchor Size Dia.	Rod Dia. & Length	Std. Pkg./Pallet	No Wrench Anchor Holding Strengths - (lbs.) vs Chance Soil Class		
				Class 5	Class 6	Class 7
4345	4"	3/4" x 54"	1/100	4500	3000	1500
6346*	6"	3/4" x 66"	1/100	6500	5000	2500
816	8"	1" x 66"	1/60	11000	9000	6000
10146	10"	1 1/4" x 66"	1/20	13000	10000	7000
10148	10"	1 1/4" x 96"	1/20	13000	10000	7000
12537	14"	1 1/4" x 96"	1/20	16000	15000	12000
402	1 1/4" x 6'	TRIPLEYE® extension	1/50	N.A.		



Note: If hand installed, holding strength may be reduced by as much as 10% to 20%. Ultimate strength ratings apply to properly installed anchors only. Failure to install within 10° of alignment with the guy load may significantly lower strength.

NO-WRENCH POWER INSTALLATION TOOL

"NO WRENCH" TYPICAL DRIVE STRING

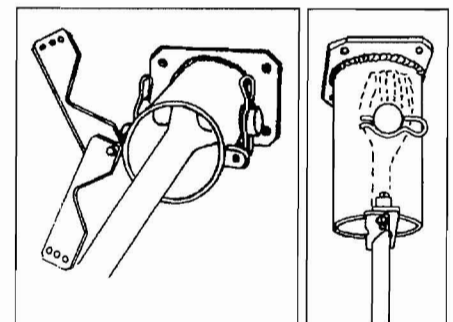


Catalog No.	Weight, lbs.
E303-0255	9

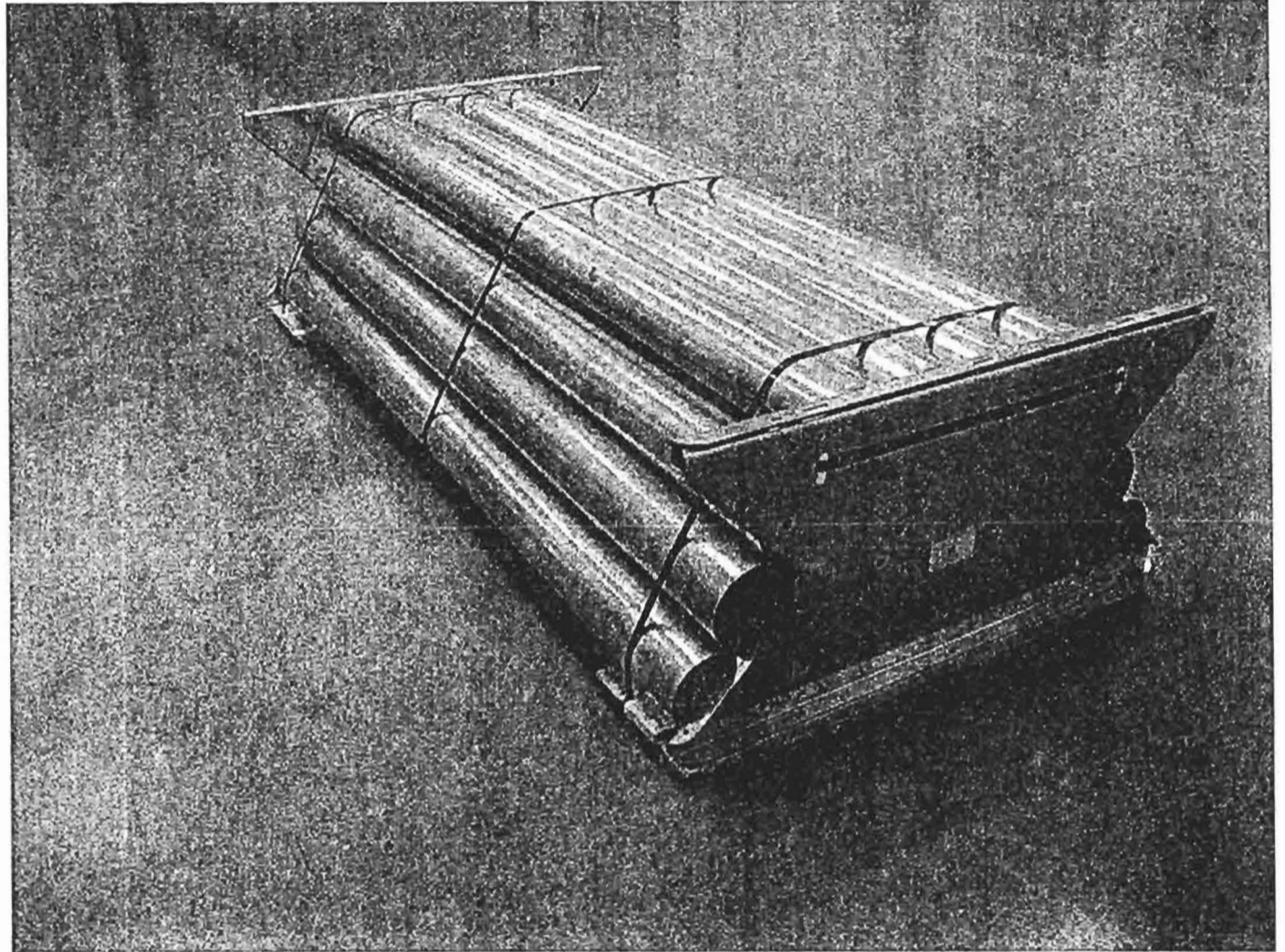
Especially designed for use with the Chance portable anchor installer. This tool bolts directly to the installer's output flange or appropriate Kelly bar adapter. Adjustable pivot plates accept rods from 3/4" to 1 1/4" diameter. Through-pin with retainer clip passes through the eyenut.

Has (four) holes on a 5 1/4" bolt circle for attachment. Includes (four) 1/2" x 1 1/2" bolts, nuts and lockwasher.

Note: Can be attached to any Chance Torque Indicator



NRG 34 m TallTower™ Installation Manual & Specifications



Global leader in wind measurement technology

110 Riggs Road • Hinesburg • VT 05461 USA • TEL (802) 482-2255 • FAX (802) 482-2272 • EMAIL sales@nrgsystems.com

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