

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK CITY OF PORTLAND

BUILDING PERMITS SECTION

PERMIT

Please Read Application And Notes, If Any, Attached

Permit No. 1002001
PERMIT ISSUED
AUG 25 2005
CITY OF PORTLAND

This is to certify that KIMBALL BUILDING LLC / WELLS RYAN CONSTRUCTION
has permission to Renovations / Change of use of 3 Residential Condo Units and Commercial Condo
AT 490 CONGRESS ST Portland, OR 97201 Permit No. 1002001

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.

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 altered or closed-in. **HEAR 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. Greg Cass 7-5-05
Health Dept. _____
Appeal Board _____
Other _____
Department Name _____

[Signature]
8/19/05
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 ISSUED

Permit No: 05-0679	Issue Date: AUG 25 2005	CBL: 087 1002001
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Location of Construction: 490 CONGRESS ST	Owner Name: KIMBALL BUILDING LLC THE	Owner Address: 490 CONGRESS ST	Phone:
Business Name:	Contractor Name: WRIGHT RYAN CONSTRUCTIO	Contractor Address: 10 DANFORTH STREET Portland	Phone: 2077733625
Lessee/Buyer's Name	Phone:	Permit Type: Change of Use - Commercial	Zone: B-3

Past Use: Vacant Building	Proposed Use: 23 Residential units and 4 Commercial - Renovations /Change of use to 23 Residential Condo units and 4 Commercial Condo	Permit Fee: \$42,321.00	Cost of Work: \$4,700,000.00	CEO District: 1
		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied	INSPECTION: Use Group: R2 Type: 3B 8/19/05	

Proposed Project Description:
Renovations /Change of use to 23 Residential Condo units and 4 Commercial Condo

Signature: *Craig Lewis* Signature: *[Handwritten]*

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)

Action: Approved Approved w/Conditions Denied

Signature: _____ Date: _____

Permit Taken By: Idobson	Date Applied For: 06/02/2005	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> <p><input type="checkbox"/> Shoreland <i>NA</i></p> <p><input type="checkbox"/> Wetland</p> <p><input type="checkbox"/> Flood Zone <i>Panel B Zoned</i></p> <p><input checked="" type="checkbox"/> Subdivision</p> <p><input checked="" type="checkbox"/> Site Plan <i># 2004-01AG</i></p> <p>Maj <input checked="" type="checkbox"/> Mjnor <input type="checkbox"/> MM <input type="checkbox"/></p> <p>Date: <i>6/30/05</i></p>	<p>Zoning Appeal</p> <p><input type="checkbox"/> Variance</p> <p><input type="checkbox"/> Miscellaneous</p> <p><input type="checkbox"/> Conditional Use</p> <p><input type="checkbox"/> Interpretation</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Denied</p> <p>Date: _____</p>	<p>Historic Preservation</p> <p><input checked="" type="checkbox"/> Not in District or Landmark</p> <p><input type="checkbox"/> Does Not Require Review</p> <p><input type="checkbox"/> Requires Review</p> <p><input type="checkbox"/> Approved</p> <p><input type="checkbox"/> Approved w/Conditions</p> <p><input type="checkbox"/> Denied</p> <p>Date: _____</p>
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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

10/24/05 12:30 - OBSERVED INSTALLATION OF ^{WELLS} 18+1
BOTH WERE INSTALLED TO A DEPTH OF 14' -
THE INSTALLER TERMINATED THE INSTALLATION
@ 4' (KPS. Old) ~~OF~~ FOOTINGS NOT PLACED

11/2/05 Rebar OK MR

11/4/05 Rebar OK MR

11/10/05 Rebar OK MR

11/15/05 Rebar OK MR

02/17/06 Check column strainers

6 1/2" RISE, NEED AMENDMENT
TO ORIGINAL APPROVAL

Fire Stopping NOT DONE

4TH FLR

02/23/06

~~10/23/06~~ Request - Rq to submit amendment for
stone walls

Fire Stopping 4th Flr. DONE

Plumbing test along 3rd Floor

10/23/06

27 CO UNITS IN
FLR. SUIT



Certificate of Occupancy

LOCATION 490 CONGRESS ST CBL 037 1002001

Issued to KIMBALL BUILDING LLC THE /WRIGHT RYAN CONST Date of Issue 09/11/2006

This is to certify that the building, premises, or part thereof, at the above location, built — altered — changed as to use under Building Permit No. 05-0679, has had final inspection, has been found to conform substantially to requirements of Zoning Ordinance and Building Code of the City, and is hereby approved for occupancy or use, limited or otherwise, as indicated below.

PORTION OF BUILDING OR PREMISES

Change of Use

APPROVED OCCUPANCY

Residential Condominium
UNIT #203
Use Group R2
Type 3B
IRC/IBC 2003

Limiting Conditions:

none

This certificate supersedes certificate issued

Approved:

(Date) Inspector

Inspector of Buildings

Notice: This certificate identifies lawful use of building or premises, and ought to be transferred from owner to owner when property changes hands. Copy will be furnished to owner or lessee for one dollar.



Certificate of Occupancy

LOCATION 490 CONGRESS ST CBL 037 1002001

Issued to KIMBALL BUILDING LLC THE /WRIGHT RYAN CONST Date of Issue 09/11/2006

This is to certify that the building, premises, or part thereof, at the above location, built — altered — changed as to use under Building Permit No. 05-0679, has had final inspection, has been found to conform substantially to requirements of Zoning Ordinance and Building Code of the City, and is hereby approved for occupancy or use, limited or otherwise, as indicated below.

PORTION OF BUILDING OR PREMISES

Change of Use

APPROVED OCCUPANCY

Residential Condominium
UNIT #202
Use Group R2
Type 3B
IRC/IBC 2003

Limiting Conditions:

none

This certificate supersedes certificate issued

Approved:

(Date) Inspector

Inspector of Buildings

Notice: This certificate identifies lawful use of building or premises, and ought to be transferred from owner to owner when property changes hands. Copy will be furnished to owner or lessee for one dollar.



CITY OF PORTLAND, MAINE
Department of Building Inspection

Certificate of Occupancy

LOCATION 490 CONGRESS ST CBL 037 I002001

Issued to KIMBALL BUILDING LLC THE /WRIGHT RYAN CONST Date of Issue 09/11/2006

This is to certify that the building, premises, or part thereof, at the above location, built — altered — changed as to use under Building Permit No. 05-0679, has had final inspection, has been found to conform substantially to requirements of Zoning Ordinance and Building Code of the City, and is hereby approved for occupancy or use, limited or otherwise, as indicated below.

PORTION OF BUILDING OR PREMISES
Change of Use

APPROVED OCCUPANCY
Residential Condominium
UNIT #204
Use Group R2
Type 3B
IRC/IBC 2003

Limiting Conditions:

none

This certificate supersedes certificate issued

Approved:

(Date) Inspector

Inspector of Buildings

Notice: This certificate identifies lawful use of building or premises, and ought to be transferred from owner to owner when property changes hands. Copy will be furnished to owner or lessee for one dollar.



CITY OF PORTLAND, MAINE
Department of Building Inspection

Certificate of Occupancy

LOCATION 490 CONGRESS ST CBL 037 I002001

Issued to KIMBALL BUILDING LLC THE /WRIGHT RYAN CONST Date of Issue 09/11/2006

This is to certify that the building, premises, or part thereof, at the above location, built — altered — changed as to use under Building Permit No. 05-0679, has had final inspection, has been found to conform substantially to requirements of Zoning Ordinance and Building Code of the City, and is hereby approved for occupancy or use, limited or otherwise, as indicated below.

PORTION OF BUILDING OR PREMISES
Change of Use

APPROVED OCCUPANCY
Residential Condominium
UNIT #207
Use Group R2
Type 3B
IRC/IBC 2003

Limiting Conditions:

none

This certificate supersedes certificate issued

Approved:

(Date) Inspector

Inspector of Buildings

Notice: This certificate identifies lawful use of building or premises, and ought to be transferred from owner to owner when property changes hands. Copy will be furnished to owner or lessee for one dollar.



CITY OF PORTLAND, MAINE
Department of Building Inspection

Certificate of Occupancy

LOCATION 490 CONGRESS ST CBL 037 I002001

Issued to KIMBALL BUILDING LLC THE /WRIGHT RYAN CONST Date of Issue 09/11/2006

This is to certify that the building, premises, or part thereof, at the above location, built — altered — changed as to use under Building Permit No. 05-0679, has had final inspection, has been found to conform substantially to requirements of Zoning Ordinance and Building Code of the City, and is hereby approved for occupancy or use, limited or otherwise, as indicated below.

PORTION OF BUILDING OR PREMISES
Change of Use

APPROVED OCCUPANCY
Residential Condominium
UNIT #301
Use Group R2
Type 3B
IRC/IBC 2003

Limiting Conditions:

none

This certificate supersedes
certificate issued

Approved:

(Date) Inspector

Inspector of Buildings

Notice: This certificate identifies lawful use of building or premises, and ought to be transferred from owner to owner when property changes hands. Copy will be furnished to owner or lessee for one dollar.



CITY OF PORTLAND, MAINE
Department of Building Inspection

Certificate of Occupancy

LOCATION 490 CONGRESS ST CBL 037 I002001

Issued to KIMBALL BUILDING LLC THE /WRIGHT RYAN CONST Date of Issue 09/11/2006

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PORTION OF BUILDING OR PREMISES
Change of Use

APPROVED OCCUPANCY
Residential Condominium
UNIT #302
Use Group R2
Type 3B
IRC/IBC 2003

Limiting Conditions:

none

This certificate supersedes
certificate issued

Approved:

(Date) Inspector

Inspector of Buildings

Notice: This certificate identifies lawful use of building or premises, and ought to be transferred from owner to owner when property changes hands. Copy will be furnished to owner or lessee for one dollar.

City of Portland, Maine - Building or Use Permit

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

Permit No: 05-0679	Date Applied For: 06/02/2005	CBL: 037 I002001
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Location of Construction: 490 CONGRESS ST	Owner Name: KIMBALL BUILDING LLC THE	Owner Address: 490 CONGRESS ST	Phone:
Business Name:	Contractor Name: WRIGHT RYAN CONSTRUCTIO	Contractor Address: 10 DANFORTH STREET Portland	Phone (207) 773-3625
Lessee/Buyer's Name	Phone:	Permit Type: Change of Use - Commercial	

Proposed Use: 23 Residential units and 4 Commercial - Renovations /Change of use to 23 Residential Condo units and 4 Commercial Condo	Proposed Project Description: Renovations /Change of use to 23 Residential Condo units and 4 Commercial Condo
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Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Marge Schmuckal **Approval Date:** 06/30/2005

Note: 6/30/05 received the stamped approved site plan

Ok to Issue:

- 1) Please note that the building frontage along Congress Street is located in a Pedestrian Activities District (PAD). The PAD district restricts the first floor uses to be retail-like in nature. These uses will be monitored.
- 2) Separate permits shall be required for any new signage.
- 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:** Mike Nugent **Approval Date:** 08/19/2005

Note:

Ok to Issue:

- 1) The roof access ladder for maintenance Only must never be accessible to the tenants, A physical barricade must be installed. Plans must be submitted and approved prior to commencement of this phase.
- 2) Common area stairs must NOT have the nosing found on the plans. Final plans must be approved prior to commencement of that phase of construction.
- 3) Plans for Mezzanine #402 must be changed to reflect the 1/3 allowance, currently over.
- 4) No new unprotected openings are allowed unless they comply with Table
- 5) Piling plans and other submissions as required in chapter 18 must be submitted and approved prior to commencement of that phase on construction.
- 6) All exterior walls must be constructed of approved noncombustible materials as prescribed in section 602.3 of the 2003 IBC. Final plans must be approved prior to commencement of that phase of construction.
- 7) All penetrations in fire separation assemblies must comply with Chapter 7

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Cptn Greg Cass **Approval Date:** 07/05/2005

Note:

Ok to Issue:

- 1) All building construction to comply with NFPA 101
- 2) Maintain access for fire apparatus
- 3) Sprinkler system to comply with NFPA 13
- 4) Fire alarm system to comply with NFPA 72

Comments:

8/9/2005-dmartin: James Sterling called on Tues 8/9/2005 will call back on Mon when he returns.

City of Portland, Maine - Building or Use Permit

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

Permit No: 05-0679	Date Applied For: 06/02/2005	CBL: 037 I002001
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Lessee/Buyer's Name	Phone:	Permit Type: Change of Use - Commercial	

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Dept: Fire **Status:** Approved with Conditions **Reviewer:** Cptn Greg Cass **Approval Date:** 07/05/2005

Note:

Ok to Issue:

- 1) All building construction to comply with NFPA 101
- 2) Fire alarm system to comply with NFPA 72
- 3) Maintain access for fire apparatus
- 4) Sprinkler system to comply with NFPA 13

Comments:

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City of Portland, Maine - Building or Use Permit

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

Permit No: 05-0679	Date Applied For: 06/02/2005	CBL: 037 I002001
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Lessee/Buyer's Name	Phone:	Permit Type: Change of Use - Commercial	

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Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Marge Schmuckal **Approval Date:** 06/30/2005**Note:** 6/30/05 received the stamped approved site plan**Ok to Issue:**

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- 7) All penetrations in fire separation assemblies must comply with Chapter 7

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Cptn Greg Cass **Approval Date:** 07/05/2005**Note:****Ok to Issue:**

- 1) All building construction to comply with NFPA 101
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City of Portland, Maine - Building or Use Permit

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

Permit No: 05-0679	Date Applied For: 06/02/2005	CBL: 037 I002001
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Lessee/Buyer's Name	Phone:	Permit Type: Change of Use - Commercial	

Proposed Use: 23 Residential units and 4 Commercial - Renovations /Change of use to 23 Residential Condo units and 4 Commercial Condo	Proposed Project Description: Renovations /Change of use to 23 Residential Condo units and 4 Commercial Condo
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Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Marge Schmuckal **Approval Date:** 06/30/2005

Note: 6/30/05 received the stamped approved site plan

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Note:

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- 6) The roof access ladder for maintenance Only must never be accessible to the tenants, A physical barricade must be installed. Plans must be submitted and approved prior to commencement of this phase.

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Cptn Greg Cass **Approval Date:** 07/05/2005

Note:

Ok to Issue:

- 1) All building construction to comply with NFPA 101
- 2) Fire alarm system to comply with NFPA 72
- 3) Maintain access for fire apparatus
- 4) Sprinkler system to comply with NFPA 13

Comments:

8/9/2005-dmartin: James Sterling called on Tues 8/9/2005 will call back on Mon when he returns.

Location of Construction: 490 CONGRESS ST	Owner Name: KIMBALL BUILDING LLC THE	Owner Address: 490 CONGRESS ST	Phone:
Business Name:	Contractor Name: WRIGHT RYAN CONSTRUCTIO	Contractor Address: 10 DANFORTH STREET Portland	Phone (207) 773-3625
Lessee/Buyer's Name	Phone:	Permit Type: Change of Use - Commercial	

Comments:
8/9/2005-dmartin: James Sterling called on Tues 8/9/2005 will call back on Mon when he returns.

City of Portland, Maine - Building or Use Permit

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

Permit No: 05-0679	Date Applied For: 06/02/2005	CBL: 037 I002001
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Location of Construction: 490 CONGRESS ST	Owner Name: KIMBALL BUILDING LLC THE	Owner Address: 490 CONGRESS ST	Phone:
Business Name:	Contractor Name: WRIGHT RYAN CONSTRUCTIO	Contractor Address: 10 DANFORTH STREET Portland	Phone (207) 773-3625
Lessee/Buyer's Name	Phone:	Permit Type: Change of Use - Commercial	

Proposed Use: 23 Residential units and 4 Commercial - Renovations /Change of use to 23 Residential Condo units and 4 Commercial Condo	Proposed Project Description: Renovations /Change of use to 23 Residential Condo units and 4 Commercial Condo
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Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Marge Schmuckal **Approval Date:** 06/30/2005

Note: 6/30/05 received the stamped approved site plan

Ok to Issue:

- 1) Separate permits shall be required for any new signage.
- 2) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.
- 3) Please note that the building frontage along Congress Street is located in a Pedestrian Activities District (PAD). The PAD district restricts the first floor uses to be retail-like in nature. These uses will be monitored.

Dept: Building **Status:** Approved with Conditions **Reviewer:** Mike Nugent **Approval Date:** 08/19/2005

Note: **Ok to Issue:**

- 1) Piling plans and other submissions as required in chapter 18 must be submitted and approved prior to commencement of that phase on construction.
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- 5) All penetrations in fire separation assemblies must comply with Chapter 7
- 6) Common area stairs must NOT have the nosing found on the plans. Final plans must be approved prior to commencement of that phase of construction.
- 7) No new unprotected openings are allowed unless they comply with Table

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Cptn Greg Cass **Approval Date:** 07/05/2005

Note: **Ok to Issue:**

- 1) Sprinkler system to comply with NFPA 13
- 2) All building construction to comply with NFPA 101
- 3) Fire alarm system to comply with NFPA 72
- 4) Maintain access for fire apparatus

Dept: Fire **Status:** Approved **Reviewer:** Lt. MacDougal **Approval Date:** 08/04/2004

Note: **Ok to Issue:**

Dept: Planning **Status:** Approved with Conditions **Reviewer:** Ethan Macomber **Approval Date:** 11/09/2004

Note: All conditions of approval complete **Ok to Issue:**

Location of Construction: 490 CONGRESS ST	Owner Name: KIMBALL BUILDING LLC THE	Owner Address: 490 CONGRESS ST	Phone:
Business Name:	Contractor Name: WRIGHT RYAN CONSTRUCTIO	Contractor Address: 10 DANFORTH STREET Portland	Phone (207) 773-3625
Lessee/Buyer's Name	Phone:	Permit Type: Change of Use - Commercial	

Comments:

8/9/2005-dmartin: James Sterling called on Tues 8/9/2005 will call back on Mon when he returns.

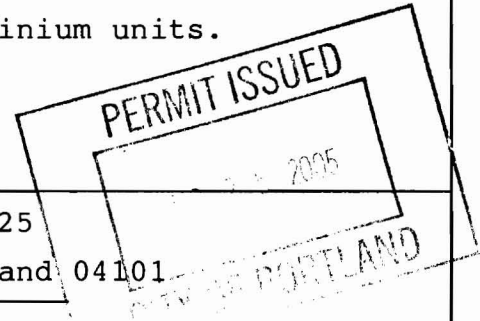
10/3/2005-mjn: Received two sheets of Piling info. Spoke with Peter from Wright Ryan , left messages with Mark Leasure and Jim Sterling that more information is required prior to commencement.



Commercial 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: 490 Congress Street		
Total Square Footage of Proposed Structure 48,544 (including basement, 10,050)	Square Footage of Lot 11,066 sf	
Tax Assessor's Chart, Block & Lot Chart# 37 Block# 1 Lot# 2	Owner: Kimball Building, LLC c/o Davidson Assoc. 2 Portland Fish Pier, Suite 302	Telephone: 773-7122
Lessee/ Buyer's Name (If Applicable) N/A	Applicant name, address & telephone: Wright/Ryan, Inc.	Cost Of Work: \$4,700,000 Fee: \$
Current Specific use: <u>vacant</u>		
Proposed Specific use: <u>Commercial/residential</u>		
Project description: <u>Renovation for 23 residential condominium units and 4 commercial condominium units.</u>		
Contractor's name, address & telephone: Wright/Ryan, Inc. 773-3625 10 Danforth Street Portland 04101		
Who should we contact when the permit is ready: <u>Don Skeffington</u>		
Mailing address: see above		
Phone: 773-3625		



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

At the discretion of the Planning and Development Department, additional information may be required prior to permit approval. For further information stop by the Building Inspections 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.

Building Maine's Great Spaces

fm

Date: 6.2.05

10.00 Construction Cost, \$9.00 per additional \$1000.00 cost

not commence any work until the Permit is issued.



Donald R. Skeffington, Jr.

City of Portland Site Plan Application

If you or the property owner owe real estate taxes, personal property taxes or user charges on any property within the City of Portland, payment arrangements must be made before permit applications can be received by the Inspections Division.

Address of Proposed Development: 490 Congress street		Zone: B3
Total Square Footage of Proposed Structure: New: 14,310 sq.f Existing: 26,884 sq.f		Square Footage of Lot: 11,066 sq.f
Tax Assessor's Chart, Block & Lot: Chart# 37 Block# 1 Lot# 2	Property owner's mailing address: Kinball Building, LLC Box 427 Vinalhaven ME, 04863	Telephone #: (207) 772-0037
Consultant/Agent, mailing address, phone # & contact person: James A. Sterling AIA 142 High street suite 612 P.O. Box 7305 Portland ME, 04112 (207) 772-0037	Applicant's name, mailing address, telephone #/Fax#/Pager#: Matthew Alcorn Kimball Building, LLC Box 427 Vinalhaven ME, 04863 (207) 671-5325	Project name: 490 Congress
<p>Proposed Development (check all that apply)</p> <p> <input type="checkbox"/> New Building <input checked="" type="checkbox"/> Building Addition <input type="checkbox"/> Change of Use <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Office <input type="checkbox"/> Retail <input type="checkbox"/> Manufacturing <input type="checkbox"/> Warehouse/Distribution <input type="checkbox"/> Parking lot <input checked="" type="checkbox"/> Subdivision (\$500.00) + amount of lots <u>26</u> (\$25.00 per lot) \$ <u>650</u> <input type="checkbox"/> Site Location of Development (\$3,000.00) (except for residential projects which shall be \$200.00 per lot _____) <input type="checkbox"/> Traffic Movement (\$1,000.00) <input type="checkbox"/> Stormwater Quality (\$250.00) <input type="checkbox"/> Section 14-403 Review (\$400.00 + \$25.00 per lot) <input type="checkbox"/> Other _____ </p> <p>Major Development (more than 10,000 sq. ft.)</p> <p> <input checked="" type="checkbox"/> Under 50,000 sq. ft. (\$500.00) <input type="checkbox"/> 50,000 - 100,000 sq. ft. (\$1,000.00) <input type="checkbox"/> Parking Lots over 100 spaces (\$1,000.00) <input type="checkbox"/> 100,000 - 200,000 sq. ft. (\$2,000.00) <input type="checkbox"/> 200,000 - 300,000 sq. ft. (\$3,000.00) <input type="checkbox"/> Over 300,000 sq. ft. (\$5,000.00) <input type="checkbox"/> After-the-fact Review (\$1,000.00 + applicable application fee) </p> <p>Minor Site Plan Review</p> <p> <input type="checkbox"/> Less than 10,000 sq. ft. (\$400.00) <input type="checkbox"/> After-the-fact Review (\$1,000.00 + applicable application fee) </p> <p>Plan Amendments</p> <p> <input type="checkbox"/> Planning Staff Review (\$250.00) <input type="checkbox"/> Planning Board Review (\$500.00) </p>		
- Please see next page -		

**CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Zoning Copy**

2004-0146

Application I. D. Number

7/8/2004

Application Date

490 Congress Street

Project Name/Description

Matthew Alcorn, Kimball Building

Applicant

P.O. Box 427, Vinalhaven, ME 04863

Applicant's Mailing Address

Consultant/Agent

Applicant Ph: (207) 671-5325 Agent Fax:

Applicant or Agent Daytime Telephone, Fax

490 - 490 Congress St, Portland, Maine

Address of Proposed Site

037 I002001

Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): New Building Building Addition Change Of Use Residential Office Retail
 Manufacturing Warehouse/Distribution Parking Lot Other (specify) _____

14,310 s.f. B3

Proposed Building square Feet or # of Units Acreage of Site Zoning

Check Review Required:

- | | | | |
|----------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------|
| <input checked="" type="checkbox"/> Site Plan
(major/minor) | <input checked="" type="checkbox"/> Subdivision
of lots <u>26</u> | <input type="checkbox"/> PAD Review | <input type="checkbox"/> 14-403 Streets Review |
| <input type="checkbox"/> Flood Hazard | <input type="checkbox"/> Shoreland | <input type="checkbox"/> Historic Preservation | <input type="checkbox"/> DEP Local Certification |
| <input type="checkbox"/> Zoning Conditional
Use (ZBA/PB) | <input type="checkbox"/> Zoning Variance | | <input type="checkbox"/> Other _____ |

Fees Paid: Site Pla \$500.00 Subdivision _____ Engineer Review _____ Date 7/9/2004

Zoning Approval Status:

Reviewer Marge Schmuckal - Inspections
 Approved Approved w/Conditions See Attached Denied

Approval Date _____ Approval Expiration _____ Extension to _____ Additional Sheets Attached

Condition Compliance _____ signature _____ date _____

Performance Guarantee Required* Not Required

* No building permit may be issued until a performance guarantee has been submitted as indicated below

<input type="checkbox"/> Performance Guarantee Accepted	_____ date _____	_____ amount _____	_____ expiration date _____
<input type="checkbox"/> Inspection Fee Paid	_____ date _____	_____ amount _____	
<input type="checkbox"/> Building Permit Issue	_____ date _____		
<input type="checkbox"/> Performance Guarantee Reduced	_____ date _____	_____ remaining balance _____	_____ signature _____
<input type="checkbox"/> Temporary Certificate of Occupancy	_____ date _____	<input type="checkbox"/> Conditions (See Attached)	_____ expiration date _____
<input type="checkbox"/> Final Inspection	_____ date _____	_____ signature _____	
<input type="checkbox"/> Certificate Of Occupancy	_____ date _____		
<input type="checkbox"/> Performance Guarantee Released	_____ date _____	_____ signature _____	
<input type="checkbox"/> Defect Guarantee Submitted	_____ submitted date _____	_____ amount _____	_____ expiration date _____
<input type="checkbox"/> Defect Guarantee Released	_____ date _____	_____ signature _____	

Applicant: Kimball Bldg LLC

Date: 6/30/05

Address: 490 Congress St

C-B-I: 037-L-002

CHECK-LIST AGAINST ZONING ORDINANCE

Date - Existing Development permit Appl #05-0679

Zone Location - B-3

Interior or corner lot - Renovations & Additions to existing bldg - change of use from retail & offices to retail offices & residential

Proposed Use/Work - Re

Sevage Disposal - City 23 residential D.U (condos) + 4

Lot Street Frontage - 4 commercial condos

Front Yard -

Rear Yard - N/A in B-3

Side Yard -

Projections -

Width of Lot - N/A

Height - 150' along Congress - 75' to highest 250' back from Congress

Lot Area - N/A

Lot Coverage/ Impervious Surface - N/A 100%

Area per Family - N/A

Off-street Parking - None required for ~~units~~ units in existing Bldg - parking

Loading Bays - N/A

Approved by Planning Bd & Council See copy of parking Agreement attached

Site Plan - subdivision major 2004-0146

Shoreland Zoning/ Stream Protection - N/A

Flood Plains - Panel 13 - Zone C

Other Businesses off Congress Street are restricted to PADUSES

Mike Nugent - 490 Congress St.

From: Mike Nugent
To: dskeffington@wright-ryan.com; james sterling
Date: 7/12/2005 3:04 PM
Subject: 490 Congress St.

I have commence the plan review and have the following questions/comments:

- 1) Are there construction easements for work to be done on parts of the building that are not within the property lines (as on sheet A-1.1)
- 2) Need UL listings for all fire separation assemblies, also STC's for any party wall or floor ceiling or system that divides the dwelling units from common area or mixed use area.
- 3) Confirming that this will be a FULL NFPA 13 fire supression system.
- 4) Is the "F1" design structurally suitable for a shear wall, or will there be other construction elements, if so...UL listing, Fire rating and STC...
- 5) A-1.3 and similar are the party walls F1 or S1 or both?
- 6) The proposed courtyard does not appear to continue the required fire separation rating for the means of egress that it interrupts, please provide a code justification.
- 7) What is the Rating, UL listing of the elevator shaft.
- 8) What percent of the perimeter of the basement is 6 feet or more above grade?
- 9) A-3.4 shows open riser on the mezzanine stairs....not allowed.
- 10) Please review section 505 generally, it appears that the Mezzanines exceed the limitations found therein.
- 11) Please provide a glazing plan that shows the percentage of unprotected openings for the new construction or new openings inf existing construction and the distance from the proeprty lines (table 704.8) . Also provide the ratings of the walls that require rating as shown in table 602.
- 12) (A-3.5) Conventional nosings are not allowed for common area stairs.
- 13) (A-3.5) On this page, It appears that you show a 1-hr. wall typ. for the stiarway enclosure..this must be 2 hr.
- 14) Need Geotech Report referenced in the notes on S-0.1
- 15) There is no basis for a compliance assessment for the proposed pilings, see section 1808 and 1809.
- 16) There is no evidence that the existing structure has been evaluated and will withstand the additional loads, also please rewiw Section 1614.1 regarding seismic force increases and the requirements for additional reinforcement.
- 17) Please provide a specific plans thout outlines proposed protections for penetrations in fire separation assemblies, such as fire dampers, recessed lighting wraps etc.

18) Please provide details w/ load specs for all guards.

19) Exterior walls in type 3 construction must be non combustible. Please provide a code justification for the presence of combustibles in the vertical expansion areas.

20) Fire doors including the elevator and corridor doors must be tested in accordance with NFPA 252 or UL 10C, as well as smoke tested (UL 1784) Is this information available?

Mike Nugent - 490 Congress St. Piling installation

From: Mike Nugent
To: phaber@wright-ryan.com
Subject: 490 Congress St. Piling installation

As a part of our permit conditions it was required that submissions establishing compliance with Chapter 18 of the IBC be reviewed and approved prior to piling installation.

On 10/13/05 these plans and specs were submitted.

The Helical steel piles are approved conditionally pursuant to section 1808.2.3 of the IBC. The following conditions must be met.

- 1) The Geotechnical engineer referenced in the 9/6/05 and 9/13/05 must be contracted to perform special inspections and all other inspections and tests pursuant to Chapter 17 and 18 of the IBC.
- 2) Reports of installed bearing capacities of each piling must be provided to the Design professional responsibly in charge of the project and project engineer as well as this office.
- 3) Any structural design changes must be submitted for approval.
- 4) The type of testing used to determine piling capacity has not been documented. This information must be submitted for approval prior to commencement.
- 5) A final statement of compliance must be submitted when the work is completed documenting complete compliance with the applicable provisions of the 2003 IBC.

Your's Truly,
Mike Nugent
Inspections Division Director



L & L STRUCTURAL
ENGINEERING SERVICES, INC.
Six Q Street
South Portland, ME 04106
Phone: (207) 767-4830
Fax: (207) 799-5432

05-0679
037-I-2
PHABER @ WRIGHT-RYAN.COM

September 13, 2005

Mr. James Sterling, AIA
142 High Street
Portland, Maine 04101

Subject: IBC 2003 requirements for the pile foundation permit application for 490 Congress Street.

Dear Mr. Sterling

We have compiled the information required for the special type of pile foundation in accordance with IBC 2003, section 1808, specifically 1808.2.3 "**Special types of piles**". Attached we have included the following:

1. An amendment to the SCHEDULE OF SPECIAL INSPECTIONS to include provisions for the helical pile foundation system. We have contacted S.W. Cole Engineering, Inc. to discuss the pile provisions and they indicated that they will due the pile monitoring and observations.
2. A soils report prepared by S.W. Cole Engineering, Inc. dated April 8, 2005.
3. Pile foundation design calculations including two letters prepared by SW&C Engineering, P.A. stating the pile design is acceptable.
4. Pile material properties.
5. A.B. Chance brochures, as well as, material and tooling specifications.
6. Preliminary design calculations prepared by Hubbell Power Systems, Inc./ A.B. Chance.
7. Structural drawing which reflect the pile design information on the general notes sheet, as well as, the foundation modifications to the orignal drawings submitted.

Our office has also reviewed the design calculations and has determined them to be acceptable.

490 Congress Street – Permit Application Information.

October 13, 2005

Page 2

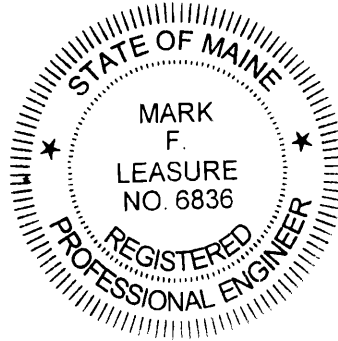
If you have any questions or require additional information, please do not hesitate to call.

Sincerely,

L&L Structural Engineering Services, Inc.



Mark F. Leasure, P.E.
Principal



Cc: Mike Nugent (City of Portland)
Peter Haber (Wright-Ryan Construction)
Jim Sterling (James Sterling Architect, AIA)



Chance Civil Construction
210 North Allen Street
Centralia, MO 65240-1395
Tel: 573-682-8273
Fax: 573-682-8660
www.abchance.com

To: Mr. Richard Porter -- Solid Earth Technologies, Inc.

Fax No. : (603) 682-7822

Date: October 6, 2005

From: Gary L. Selder

Page 1 of 4 (including cover)

Subject: Preliminary Design - Helical Screw Piles for Shear Walls - Kimball Building in Portland, ME

This fax is to recommend helical screw piles for the subject project using the load data and soil data provided.

Assumptions-

Subsurface data in the form of soil borings (B-2) dated 3/9/2005 by S.W.O.L.E. Engineering, Inc. The subsurface profile consists of about 7.5'-0 of loose to medium dense granular material and medium silty clay fill over sand till that trends from loose to medium dense with depth; eventually becoming very dense prior to the bottom of the boring at 25.9'-0 below grade. The water table is reported to be located 6' +/- below grade. For purposes of this recommendation, the water table is assumed to be at grade.

Per the information supplied, the application is restoration of an old historic building. As such, approximately 60'-0 of shear wall is being added in the basement to provide additional structural supports. Helical piles are being considered to support the shear wall.

Working loads per helical pile is 20 kip compression and 1.8 kip lateral; with the lateral loads being parallel with the wall. These loads are based on a 6'-0 spacing along the wall. A factor of safety of 2 is assumed to determine the required ultimate capacity per helical pile; therefore the required ultimate compression capacity is 40 kip and ultimate lateral capacity is 3.6 kip.

Application-

The lateral load is the limiting factor for this design. There are two options to consider. The first is to enlarge the shaft of the helical pile with a steel pipe casing so that the lateral load can be resisted via passive earth pressure against the shaft's side projected area. The relatively loose and saturated soils near the surface will require a 7'-0 to 10'-0 long case depth of 8" or 10" diameter. Therefore, this option is not considered economically feasible.

The second option is to batter the helical piles in-line with the wall such that the horizontal component of the pile capacity will resist the lateral load. A 10° batter from vertical should provide sufficient horizontal capacity - the horizontal component being equal to about 17% of

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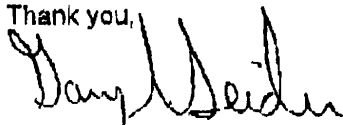
the axial capacity of the helical pile. It is suggested the helical piles be battered away from the center point of the wall – as we discussed on the phone earlier this week.

A twin helix (8"-10") or triple-helix (8"-10"-12") configuration with an overall length between 20'-0 and 25'-0 should provide an ultimate capacity above 40 kip. See the attached HelicAP® Engineering Software Summary reports for verification of theoretical capacity. A helical pile with 41 kip of ultimate capacity installed 10° from vertical will have over 7 kip lateral resistance and 40 kip vertical resistance. Install to a minimum installation torque of 4,500 ft-lb to ensure the helix plates have penetrated into the dense sand. Use either A.B. Chance Type SS150 1-1/2" or Type SS175 1-3/4" square shaft material.

If using 1-1/2" square shaft material, I recommend using a small diameter grout column to resist buckling. The grout column can be formed without displacement plates. Note the high water table may require the use of a PVC case at the top during installation to ensure adequate hydrostatic head for proper grout column formation. If using 1-3/4" material, a grout column is not needed because the required capacities are not high compared to the mechanical strength of Type SS175 material.

Please advise, if questions.

Thank you,



Gary L. Seider
Hubbell Power Systems, Inc./A.B. Chance

Attachments

* The information contained in this document is the intellectual property of Hubbell/A.B. Chance and is disclosed solely for use in developing and costing a final design using A.B. Chance products. Copying or distributing this information for any other purpose, without written consent of Hubbell/A.B. Chance, is expressly forbidden.

The conceptual design(s) contained in this document may be based on information provided by other parties; Hubbell/A.B. Chance cannot be responsible for the accuracy, completeness or applicability of any such information, nor do we warrant the fitness of any conceptual design based on such information for the intended purpose. The reliability of geotechnical analysis, and conceptual designs based on such analysis, may be improved by conducting field load tests to establish working and ultimate load capacities.

Project and geotechnical conditions may vary considerably within a site location and/or with time. Should any of the assumptions used to develop this conceptual design be incorrect, or should project and/or geotechnical conditions be found to vary from those assumed, Hubbell/A.B. Chance should be notified immediately so that appropriate modifications can be made in the product selection and cost estimate.

Construction projects are often governed by rules, regulations, codes and/or requirements established by National, State, County and/or City authorities and/or other controlling agencies. Approval by a Professional Engineer who is licensed to practice in the state where the project is constructed is often required. Hubbell/A.B. Chance cannot maintain knowledge of all such requirements throughout the country. In all cases a qualified engineer who is familiar with actual site conditions and all applicable rules, regulations, etc. must develop the final design in order to ensure that the owners needs (which include compliance with all applicable rules, etc.) are met.

HelICAP SUMMARY REPORT

Job Name: Kimball Bldg. - Portland, ME

C:\Documents and Settings\jseider\My Documents\H
10/6/2005 12:18:58 PM
Water Table Depth: 0 ft

Job Number: SET

Boring No: B-2

Anchor Use: Compression

Capacity Summary

Anchor Number	Anchor Family	Helix Depth (ft)	Helix Capacity (kips)	Total Anchor Capacity (kips)	Recommended Ultimate Capacity (kips)	Torque (ft-lbs)
Anchor 1		Angle: 90 Datum Depth: 0 Length: 22				
10" helix	SS 175	19.5	15.2t 17.6c	26.9t	26.9t	2878
8" helix	SS 175	21.5	11.7t 91.2c	108.9c	57.6c	
Anchor 2		Angle: 90 Datum Depth: 0 Length: 21				
12" helix	SS 175	16	5.5t 15c			3241
10" helix	SS 175	18.5	11t 16.1c	27.4t	27.4t	
8" helix	SS 175	20.5	10.8t 12c	43.3c	43.3c	

Soil Profile

Top of Layer Depth (ft)	Soil Type	Cohesion (lb/ft ²)	N	Angle of Internal Friction (Degrees)	Unit Weight (lb/ft ³)
0	Sand	0	5	28.8	85
1	Clay	750	6	0	92
3.5	Sand	0	11	30.4	101
7.5	Sand	0	17	32.1	107
10	Sand	0	5	28.8	85
12	Sand	0	11	30.4	101
17	Sand	0	40	38.6	130
22	Sand	0	100	55.4	140



From: Marge Schmuckal
To: Ethan Boxer-Macomber
Date: Tue, Nov 9, 2004 1:20 PM
Subject: 490 Congress St -

Ethan,

This project is located within a B-3 Business Zone. There are no setback requirements. The maximum height is 150' plus 40' for a cap. The maximum building height is being met with this proposal.

In the B-3 Zone there are no parking requirements for any change of use within existing buildings. Any new construction must meet division 20 of the zoning ordinance, or the parking regulations. It is my understanding that there will be 7 new units in the newly constructed area, with 14 units having a majority of their area in the existing structure. For the seven new units within the new structure, 2 parking spaces for each unit plus one extra for each 6 units are required. Therefore 15 off street parking spaces would be required for this project. It is my understanding that 23 parking spaces are under lease at the parking garage. The parking requirements are being met.

Marge Schmuckal
Zoning Administrator
11/9/04

JAMES A. STERLING
Architect A I A
142 High Street
P.O. Box 7305
Portland, Maine 04112
207 772.0037
FAX 773.8545
chehaak@gwi.net

08 September 2004

Ethan Boxer-Macomber
Planning Department

Re: 490 Congress Street

Dear Ethan:

The following is an outline of existing (renovated) square footage and new square footage as it relates to parking requirements.

Basement Level: 10,169 s.f. existing minor renovation for storage.

First Level: 10,169 s.f. existing retail, renovation.

Second Level (for 7 residential units and courtyard): 10,169 s.f. existing, renovation.

Third Level (7 residential units): 3,101 s.f. existing renovation, 7,068 s.f. new construction.

Fourth Level and Mezzanine (for 7 residential units): 1,849 s.f. existing renovation, 7,603 new construction.

The basement, first and second levels are renovations as noted. On the third floor three units are new construction, with the Brown Street unit is a renovation and the three Free Street units are renovations with additions (each addition is less than half of the existing square footage). The fourth level has four units of new construction and three units of existing renovated space with new construction of less than half of the existing space. There are essentially 7 units of new construction of the total 21 project units.

I am assuming, however, the developers intend to provide at least one parking space for each unit, which would exceed the City's requirements.

Sincerely,

James Sterling, AIA
Architect

Handwritten notes:
4th level 2 units 4 DU -> NEW } 7 total
3rd floor 3 units 3 DU -> NEW } 7 total
2nd floor 4 units 7 DU } 7 total

Handwritten notes:
7
14 + 15

Handwritten signature:
JAS

PARKING SPACE LEASE AGREEMENT

APPROVED
BY CITY COUNCIL
11/01/2004

THIS LEASE is made this _____ day of _____, 2004, is by and between the CITY OF PORTLAND, a municipal corporation organized and existing under the laws of the State of Maine (“Landlord”) and THE KIMBALL BUILDING, LLC, a Maine limited liability company with an address at 490 Congress Street, Portland, Maine 04101, or its assigns (“Tenant”).

W I T N E S S E T H:

ARTICLE I. Parking Spaces. Landlord hereby leases, demises and lets to Tenant, and Tenant hereby takes and hires from Landlord, for the term and upon and subject to ~~the terms~~ and conditions set forth in this Lease, the property, described as twenty-three (23) parking spaces in the parking garage known as the Spring Street Parking Garage located between Spring and Free Streets, Portland, Maine as such spaces are shown on the plan attached hereto as Exhibit A, as same may be relocated from time to time pursuant to this Lease (collectively, the “Parking Spaces”), together with the right to use in common with others, for purposes of ingress and egress only, the entrance and access ways from Spring and Free Streets to the Parking Spaces.

ARTICLE II. Initial Term; Renewals. The initial term of this Lease shall be for a period of three (3) years from the “Commencement Date”, which is defined as the earlier of:

- (1) The date on which the first Certificate of Occupancy is issued for a completed residential unit in the Condominium (as such term is defined below) by Tenant; or
- (2) The date on which the City of Portland receives an offer from another prospective tenant to lease parking spaces, such that, were the City to accept such offer, the number of remaining available parking spaces in the Spring Street Parking Garage would be reduced to less than twenty-three (23).

Thereafter, Tenant shall have the option to extend the term of this Lease in perpetuity for consecutive periods of one (1) month each. This Lease shall automatically be extended for each such consecutive extension option, unless Tenant gives written notice to Landlord no later than fifteen (15) days prior to the expiration of the then current term of this Lease that Tenant elects not to extend the term of this Lease. Tenant may elect not to

extend the term of this Lease for one, some or all of the Parking Spaces. In the event the term shall automatically be extended as provided herein (with respect to all or less than all of the Parking Spaces), then all references herein to the "Term" shall be deemed to include the term of this Lease as extended and this Lease shall be extended upon all of the same terms and conditions for the extended term, except for further options to extend as to which there shall be one less after each succeeding option period, and with respect to the annual rent provisions set forth herein.

Notwithstanding the above language either the number of spaces or the term of the lease or both may be renegotiated at the initiation of either the tenant or the landlord at any time so long as the result of such renegotiation is consistent with the parking required by the City's zoning ordinances and site plan requirements as amended.

ARTICLE III. Monthly Rent. Tenant agrees to pay to Landlord at the address set forth in the first paragraph above or at such other place as Landlord may direct by notice in writing to Tenant, Monthly Rent for the Parking Spaces as set forth below. Rent for the first month shall be due and payable on the date of this Lease, with monthly payments due on the first day of each month thereafter date of this Lease during the Term.

Landlord shall lease the Parking Spaces to Tenant at market rates as set by Landlord from time to time, presently Ninety (\$90.00) Dollars per month per space.

If payment to the Landlord is more than five (5) days late, Landlord has the right to deny access to the Parking Space in question.

ARTICLE IV. Use of Parking Spaces. Tenant agrees that the Parking Spaces during the term of this Lease shall be used and occupied only for vehicle parking for then-current residents of the condominium at 490 Congress Street, Portland, Maine (the "Condominium"). For purposes of this Lease, the following are specifically excluded from the meaning of "vehicle": motorcycles, boats, trailers and recreational vehicles (RVs and campers). Tenant shall restrict the use of the Parking Spaces to such purposes, and shall not use or permit the use of the Parking Spaces for any other purpose without the written consent of the Landlord. The Parking Spaces shall be subject to and used in accordance with Rules and Regulations promulgated by Landlord (attached here to as Exhibit B), as same may be amended from time to time.

Tenant or each of its assignees shall notify the Spring Street Parking Garage booth attendant if his or her vehicle will remain in the same location for more than 48 hours, in order to facilitate cleaning, maintenance and security of the parking garage.

Tenant and its assigns acknowledge that the Spring Street Parking Garage is closed from midnight to 6:00 a.m. daily, and on major holidays. If Tenant or any of its assigns needs access to his or her vehicle during those times, Tenant or its assigns must pay the

\$25 “after hours” fee for each occasion. The current major holidays observed by the Spring Street Parking Garage are Memorial Day, July 4th, Labor Day, Thanksgiving, Christmas Eve from 6:00 p.m. to midnight and Christmas Day.

Tenant will not make or suffer any strip or waste of the Parking Spaces, and shall comply with all laws, orders, ordinances and regulations of Federal, State, County and Municipal authorities, and with any direction of any public officer or officials, pursuant to law, which shall impose any duty, obligation, or limitation upon Landlord or Tenant with respect to the Parking Spaces or the use thereof. Tenant shall do or keep nothing, nor allow anything to be done or kept, on or about the Parking Spaces which may be denominated extra hazardous as to insurance by fire insurance companies or which may increase the fire insurance rates for the Parking Spaces or which may cause any of Landlord’s insurance to be adversely affected.

ARTICLE V. Repairs, Maintenance, Alterations, and Improvements.

During the term of this Lease, the Landlord shall maintain the Parking Spaces and repair any damage thereto. Such maintenance and repair shall include, without limitation, snow plowing, sanding, ice removal, repaving and restriping. Notwithstanding the foregoing, if any repair or maintenance is necessitated by acts of Tenant or its assignees, subtenants, invitees, agents or guests, then Tenant shall be solely responsible for the cost and expense of such repair or maintenance. Tenant may not erect or maintain signs relating to the Parking Spaces without the prior written consent of Landlord.

ARTICLE VI. Location of Parking Spaces.

The Parking Spaces are not reserved parking spaces to be located in any particular area within the Spring Street Parking Garage, and the Parking Spaces shall be in such location or locations as may be available on a first come, first served basis. Landlord makes no guaranty as to whether the Parking Spaces shall always be available in a covered location within the Spring Street Parking Garage.

ARTICLE VII. Sublease and Assignment. Tenant may assign its rights pursuant to this Lease, in whole or in part (e.g., with respect to one or more of the Parking Spaces), to owners of residential units in the Condominium. Further, any residential unit owner may thereafter assign its rights pursuant to this Lease to another owner of a residential unit in the Condominium. Tenant may not otherwise assign or encumber this Lease or sublet the Parking Spaces or any part thereof at any time without the consent of Landlord. Daily rental of the Parking Spaces is prohibited. From and after the expiration of the initial three (3) year term of this Lease, to the extent The Kimball Building, LLC has assigned or thereafter assigns its rights to a particular Parking Space or Parking Spaces to an owner of a residential unit in the Condominium, The Kimball Building, LLC shall be discharged and released from all liability and obligations under this Lease with respect to

said Parking Space(s), and the assignee and their successors and assigns shall thereafter assume any and all obligations with respect to such Parking Space(s) under this Lease. Landlord agrees to treat each of Tenant's assignees as a separate, independent assignee of this Lease, so that a default or violation by one assignee shall not affect another assignee's rights and obligations under this Lease.

ARTICLE VIII. RESERVED

ARTICLE IX. Unlawful or Dangerous Activity. Tenant shall neither use nor occupy the Parking Spaces or any part thereof for any unlawful or hazardous business purpose nor operate or conduct its business in a manner constituting a nuisance of any kind. Tenant shall immediately upon discovery of all unlawful or hazardous use take action to halt such activity.

ARTICLE X. Surrender of Parking Space. Upon the expiration of the term or other termination of this Lease, whether by reason of lapse of time or Tenant's default or otherwise, Tenant shall quit and surrender the Parking Space to Landlord and remove the Tenant's vehicle from the garage. Such surrender or termination shall not affect any other assignee's rights under this Lease.

ARTICLE XI. No Waiver. Failure of either party to complain of any act or omission on the part of the other party, no matter how long the same may continue, shall not be deemed to be a waiver by said party of any of its rights hereunder. No waiver by either party at any time, express or implied, of any breach of any provision of this Lease shall be deemed a waiver of such provision or of a subsequent breach of the same or any other provision. If any action by either party shall require the consent or approval of the other party, the other party's consent to or approval of said action on any one occasion shall not be deemed a consent to or approval of said action on any subsequent occasion. Any and all rights and remedies which either party may have under this Lease or by operation of law, either at law or in equity, upon any breach shall be distinct, cumulative and shall not be deemed inconsistent with each other; and no one of them, whether exercised by a party or not, shall be deemed to be in exclusion of any other; and any two or more or all of such rights and remedies may be exercised at the same time.

ARTICLE XII. Notices. Any notice from one party to the other party hereunder shall be in writing and shall be deemed to be duly given and delivered when mailed by registered or certified mail, postpaid, addressed to the address of such party below set forth;

LANDLORD: CITY OF PORTLAND
389 Congress Street
Portland, Maine 04101
Attn: Parking Commissioner, City of Portland

TENANT: THE KIMBALL BUILDING, LLC
490 Congress Street
Portland, Maine 04102

Either party may change its above address by giving notice of the change to the other party, such change of address to become effective for all purposes hereunder ten (10) days after such notice is given.

ARTICLE XIII. Rights of Landlord Upon Default or Breach by Tenant. In the event of any failure of the Tenant to pay any rental or other charges due hereunder within ten (10) days of the date when due, or any failure to perform any other of the terms, conditions, or covenants of this Lease to be observed or performed by Tenant for more than ten (10) days after written notice of such default shall have been given to Tenant, or if Tenant shall become bankrupt or insolvent, or file any debtor proceeding or have taken against Tenant in any court pursuant to any statute, either of the United States or any State, a petition in bankruptcy or insolvency or for the reorganization or for the appointment of a receiver or trustee of all or a portion of Tenant's property or if Tenant makes an assignment for the benefit of creditors, or petitions for or enters into an arrangement, or if Tenant shall abandon the Parking Spaces or suffer this Lease to be taken under any writ of execution, then Landlord in addition to any other rights or remedies Landlord may have, shall have the immediate right of reentry by Landlord, and Landlord may enter the Parking Spaces and expel Tenant and those claiming under Tenant, and remove Tenant's vehicle and their effects, and/or notify Tenant that the term of this Lease has terminated, and in either case the term hereof shall terminate upon such entry or the giving of such notice, whichever shall first occur and Tenant shall thereupon quit and surrender the Parking Spaces to Landlord. In addition, without limiting the foregoing rights, Landlord may deny Tenant or its assigns access to the garage if payment of monthly rent is more than five (5) days late. Landlord covenants and agrees to treat Tenant's assignees and their assignees separately with respect to the default provisions set forth in this Lease, so that the default of one assignee shall not affect another assignee's rights and obligations under this Lease, and this Lease shall continue with respect to such other assignees pursuant to the terms and conditions hereof. In case of termination of the term of this Lease for any such cause, and in either manner above provided, Landlord shall be deemed to have waived no rights or other remedies hereunder, and shall be entitled to recover Landlord's reasonable attorneys and paralegal fees and any other expenses of Landlord incurred in connection with the retaking of possession of the Parking Spaces.

ARTICLE XIV. Landlord's Covenants of Quiet Enjoyment and Access by Landlord. Upon payment by Tenant of the rents herein provided and upon the observance

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and performance of all the covenants, terms and conditions on Tenant's part be observed and performed, Tenant shall peaceably and quietly hold and enjoy the Parking Spaces for the term hereof without hindrance or interruption by Landlord or any person or persons lawfully or equitably claiming by, through or under the Landlord, subject, nevertheless, to the terms and conditions of this Lease. If Tenant is required to bring any action to enforce its rights under this Lease (whether or not litigation is commenced), Tenant shall be entitled to recover Tenant's reasonable attorneys and paralegal fees incurred in connection with any such action.

ARTICLE XV. Total Agreement, Applicable to Successors. This Lease contains the entire agreement between the parties and cannot be changed or terminated except by a written instrument subsequently executed by the parties hereto. This Lease and the terms and conditions hereof apply to and are binding on the heirs, successors and assigns of the parties hereto.

ARTICLE XVI. Severability. If any term or provision of this Lease or the application thereof to any person or circumstances shall, to any extent be invalid or unenforceable, the remainder of this Lease, or the application of such term or provision to persons or circumstances other than those as to which it is invalid or unenforceable, shall not be affected thereby, and each term and provision of this Lease shall be valid and be enforced to the fullest extent permitted by law.

It is agreed that this Lease shall not be recorded. The parties will execute a memorandum of lease for recording purposes.

ARTICLE XVII. General. This Lease shall inure to and be binding upon the respective heirs, executors, administrators, successors and permitted assigns of the parties. This Lease is made in and shall be governed by and construed in accordance with the laws of the State of MAINE. Whenever the singular number is used, the same shall include the plural as well as the singular, as the context shall require. The neuter shall include the masculine and feminine, and vice versa, when the context so requires or permits. The caption and headings contained in this Lease are for convenience only and shall not be taken into account in construing the meaning of this Lease or any part thereof. As to the obligations of each party hereunder to perform its undertakings, promises, covenants, and obligations hereunder, time is of the essence.

IN WITNESS WHEREOF, the parties have hereunder set their hands and seals all on the day and year first above written.

SIGNED, SEALED AND DELIVERED **LANDLORD**
IN THE PRESENCE OF

CITY OF PORTLAND

_____ By: _____
Its: _____

TENANT

THE KIMBALL BUILDING, LLC

_____ By: _____
Matthew W. Alcorn, Member

STATE OF MAINE
CUMBERLAND, SS.

_____, 2004

Personally appeared the above-named, _____, authorized representative of the City of Portland, and acknowledged the execution of the foregoing instrument to be his/her free act and deed and the free act and deed of said City of Portland.

Before me,

Notary Public/Attorney at Law

Printed Name

STATE OF MAINE
CUMBERLAND, SS.

_____, 2002

Personally appeared the above-named, Matthew W. Alcorn, Member of The Kimball Building, LLC, and acknowledged the execution of the foregoing instrument to be his free act and deed and the free act and deed of said The Kimball Building, LLC.

Before me,

Notary Public/Attorney at Law

Printed Name

**L & L STRUCTURAL
ENGINEERING SERVICES, INC.**

Six Q Street
South Portland, ME 04106
Phone: (207) 767-4830
Fax: (207) 799-5432

August 16, 2005

Mr. James Sterling
James Sterling Architect
P.O. Box 7305
Portland, Maine 04112

Subject: 490 Congress Street, Portland, Maine

Dear Mr. Sterling,

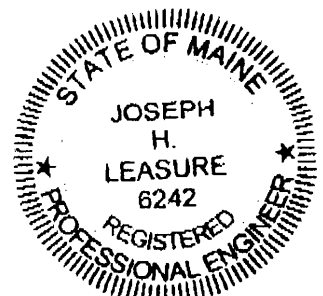
As per the request of Mike Nugent the Code Enforcement Officer in Portland, Maine we are describing our general design parameters for the additions to the building located at 490 Congress Street in Portland, Maine. Specifically regarding the imposition of the required gravity and lateral loads on the building due to the proposed additions. Our design utilized the 2003 International Building Code (IBC) adopted by the City of Portland. The existing building is a two story combined timber and steel frame superstructure supported on a combined pile foundation and granite spread footing foundation system. The proposed addition includes the construction of two stories plus a penthouse on top of the existing two stories (i.e. four stories total plus a penthouse above). The existing interior columns shall be reinforced and existing beams above the first floor shall be reinforced as shown on the contract documents to support the code stipulated gravity loads imposed upon the entire building (existing plus new). Furthermore, we have designed a timber bearing wall adjacent to the common brick walls between the neighboring buildings for the full height of the building. The purpose of the new timber wall is to support the gravity loads in the building independently so as not to impose additional loads on the existing common brick wall. In addition, we have designed a lateral system to resist the code stipulated lateral wind and seismic loads imposed upon the building independently from the adjacent buildings utilizing timber shear walls and structural steel moment frames.

If you have any further questions or require any additional information and/or technical assistance, please do not hesitate to call.

Sincerely,

L&L Structural Engineering Services, Inc.


Joseph H. Leasure, P.E.
Principal





S.W. COLE
ENGINEERING, INC.

• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

FACSIMILE MESSAGE

COMPANY L & L
ATTENTION JOE LEASURE
SWC JOB NUMBER 05-0044
FAX NUMBER 799-5432
DATE 8/15/05
SENDER P. KELLER
SUBJECT: 490 CONGRESS ST
NO. OF PAGES INCLUDING COVER 2
HARD COPY TO FOLLOW IN MAIL YES

JOE

DETAIL FOR THE 4 PROPOSED FILES AT
490 CONGRESS ST CDL A-2,
TO KIP AXIAL DOWNLOAD WORKING CAPACITY

CALL IF YOU HAVE QUESTIONS

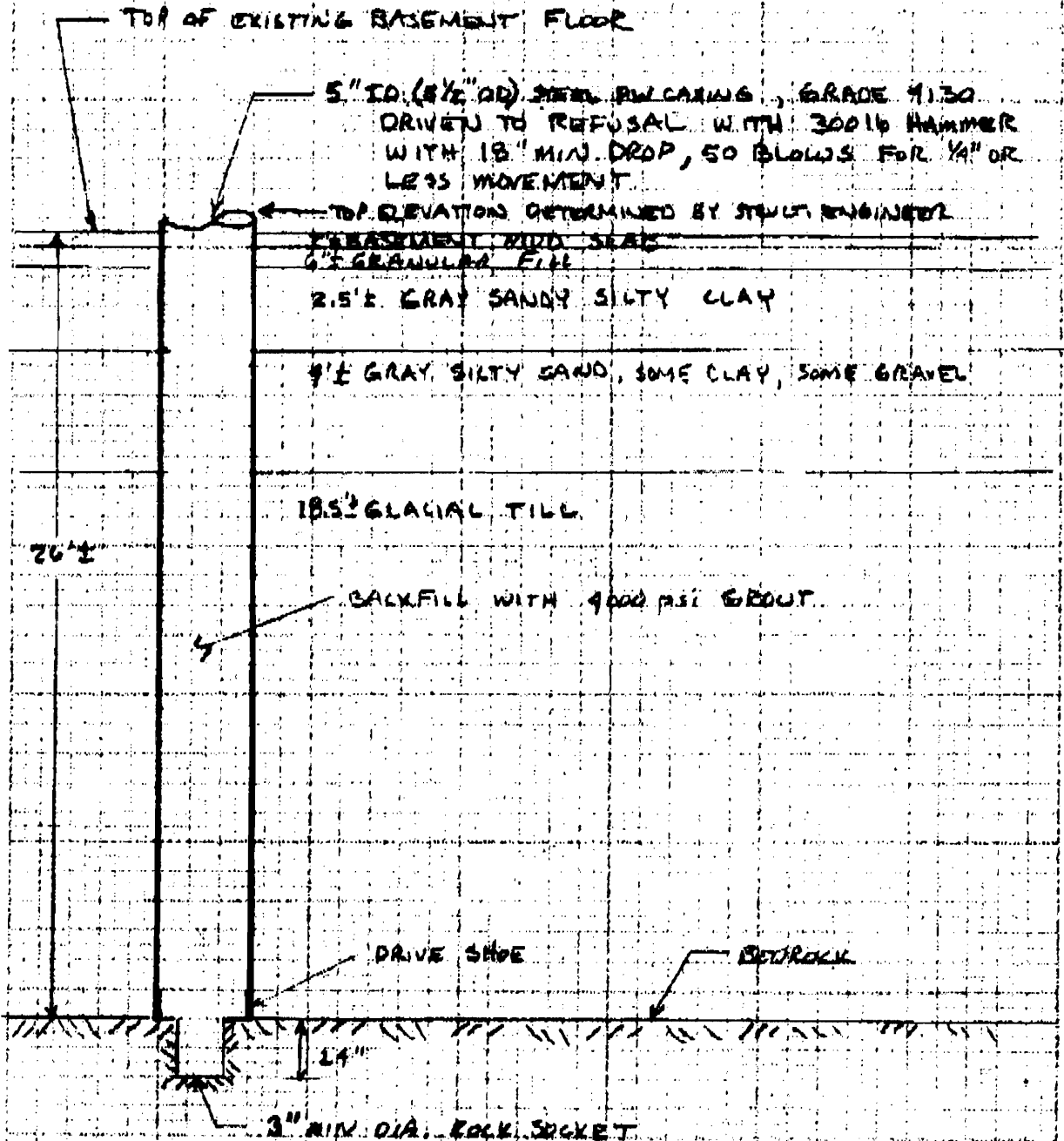
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GRAY, ME OFFICE
 288 Portland Road, Gray, ME 04039, Tel (207) 657-2866, Fax (207) 657-2840, (E) info@swceng.com, (W) www.swceng.com

Other offices in Augusta, Bangor and Caribou, Maine & in Somersworth, New Hampshire

PROJECT 490 CONGRESS ST PORTLAND, ME PROPOSED 9 PILES AT COL A-2	COMP BY PFK	JOB NO. 05-0094
	CHK BY JTB	DATE 8/16/05

40 KIP DOWNWARD AXIAL WORKING CAPACITY PER PILE



NOTES:

- 1) STRUCTURAL ENGINEER TO CHECK CUCKLING FACTOR OF SAFETY FOR PILES
- 2) SOIL CONDITIONS BASED ON BORING B-2 (SEE SWCE REPORT)
- 3) STRUCTURAL ENGINEER TO LOCATE PILING AND DESIGN PILE CAP

L & L STRUCTURAL
ENGINEERING SERVICES, INC.
Six Q Street
South Portland, ME-04106
Phone: (207) 767-4830
Fax: (207) 799-5432

STATEMENT OF SPECIAL INSPECTIONS

PROJECT: 490 Congress Street/ Kimball Building
LOCATION: 490 Congress Street
PERMIT APPLICANT: Kimball Building, LLC
APPLICANTS ADDRESS: c/o James Sterling Architect AIA: 142 High Street– Portland, Maine 04101

STRUCTURAL ENGINEER OF RECORD: Mark F. Leasure, P.E. L&L Structural Engineering Services, Inc.
Name Firm

ARCHITECT OF RECORD: James Sterling P.A James Sterling Architect, AIA
Name Firm

This Statement of Special Inspections is submitted in accordance with **CHAPTER 17** of the 2003 International Building Code (IBC 2003). It includes a listing of special inspections applicable to this project, as well as, the name of the Special Inspector, and the names of other agencies intended to be retained for conducting these inspections.

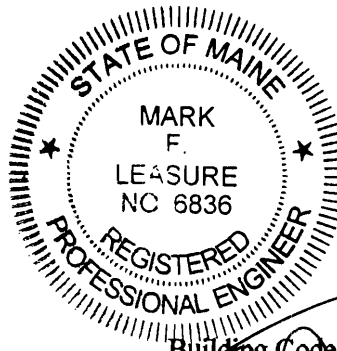
The special inspector shall keep records of all inspections listed herein, and shall furnish inspection reports to the Code Official and to the Registered Design Professional of Record. All discrepancies shall be brought to the immediate attention of the Contractor for correction. If the discrepancies are not corrected the discrepancies shall be brought to the attention of the Code Official and the Registered Design Professional of Record. Interim reports shall be submitted to the Code Official and Registered Design Professional of Record monthly, unless more frequent submissions are requested by the Code Official.

Job site safety is solely the responsibility of the Contractor. Materials and activities to be inspected are not to include the Contractor's equipment and methods used to erect or install the materials listed. The special inspections on this project shall be provided by: S.W. Cole Engineering (Agent #1).

Prepared BY:

Mark F. Leasure, P.E.
NAME

Mark F Leasure 5-18-05
SIGNATURE DATE



Applicant's Authorization:

SIGNATURE DATE

Building Code Official:
[Signature]
SIGNATURE DATE

Schedule of Inspection and Testing Agencies

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- | | |
|------------------------------------------------------------|----------------------------------------------------------------|
| <input checked="" type="checkbox"/> Soils and Foundations | <input type="checkbox"/> Spray Fire Resistant Material |
| <input checked="" type="checkbox"/> Cast-in-Place Concrete | <input checked="" type="checkbox"/> Wood Construction |
| <input type="checkbox"/> Precast Concrete | <input type="checkbox"/> Exterior Insulation and Finish System |
| <input checked="" type="checkbox"/> Masonry | <input type="checkbox"/> Mechanical & Electrical Systems |
| <input checked="" type="checkbox"/> Structural Steel | <input type="checkbox"/> Architectural Systems |
| <input type="checkbox"/> Cold-Formed Steel Framing | <input type="checkbox"/> Special Cases |

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. Special Inspection Coordinator	<i>L&L Structural Engineering Services, Inc.</i>	<i>Six Q Street South Portland, Maine 04106 Tel: (207) 767-4830 Fax: (207) 799-5432</i>
2. Inspector #1	<i>S.W. Cole Engineering</i>	<i>286 Portland Road Gray, Maine 04039-9586 Tel: (207) 657-2886 Fax (207) 657-2840</i>
3. Inspector #2		<i>TBA</i>
4. Testing Agency #1	<i>S.W. Cole Engineering</i>	<i>286 Portland Road Gray, Maine 04039-9586 Tel: (207) 657-2886 Fax (207) 657-2840</i>
5. Testing Agency		
6. Other		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Quality Assurance for Seismic Resistance

Seismic Design Category *C / Site Class 'D'*
 Quality Assurance Plan Required (Y/N) *Y*

Description of seismic force resisting system and designated seismic systems:

The Seismic resisting system consists of light framed shear walls (exterior sheathing). The system used transfers lateral loads around windows utilizing the strength of the plywood panels or gypsum sheathing. The remainder of the walls in the North/ East direction below the elevated level utilizes plywood shearwalls transferring lateral loads to the foundation system.

Quality Assurance for Wind Requirements

Basic Wind Speed (3 second gust) *100 mph*
 Wind Exposure Category *B*
 Quality Assurance Plan Required (Y/N) *N*

Description of wind force resisting system and designated wind resisting components:

The wind resisting system consists of light framed shear walls (exterior sheathing). The system used transfers lateral loads around windows utilizing the strength of the plywood panels or gypsum sheathing. The remainder of the walls in the North/ East direction below the elevated level utilizes plywood shearwalls transferring lateral loads to the foundation system.

The Quality assurance plan is not required per IBC 2003, 1706.1.1. paragraph 1.

Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated above must submit a Statement of Responsibility.

SECTION 14240

HYDRAULIC ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes hydraulic passenger elevators.

1.2 DEFINITIONS

- A. **Defective Elevator Work:** Operation or control system failures; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; the need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.

1.3 SUBMITTALS

- A. **Product Data:** Include capacities, sizes, performances, operations, safety features, finishes, and similar information.
- B. **Shop Drawings:** Show plans, elevations, sections, and large-scale details indicating service at each landing, machine room layout, coordination with building structure, relationships with other construction, and locations of equipment and signals. Indicate variations from specified requirements, maximum dynamic and static loads imposed on building structure at points of support, and maximum and average power demands.
- C. **Samples:** For exposed finishes of cars, hoistway doors and frames, and signal equipment; 3-inch- (75-mm-) square samples of sheet materials; and 4-inch (100-mm) lengths of running trim members.
- D. **Manufacturer Certificates:** Signed by elevator manufacturer certifying that hoistway, pit, and machine room layout and dimensions, as shown on Drawings, and electrical service, as shown and specified, are adequate for elevator system being provided.
- E. **Maintenance Manuals:** Include operation and maintenance instructions, parts listing with sources indicated, recommended parts inventory listing, emergency instructions, and similar information. Include diagnostic and repair information available to manufacturer's and Installer's maintenance personnel. Submit for Owner's information at Project closeout as specified in Division 1.
- F. **Inspection and Acceptance Certificates and Operating Permits:** As required by authorities having jurisdiction for normal, unrestricted elevator use.

1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** Elevator manufacturer or an experienced installer approved by elevator manufacturer who has completed elevator installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. **Regulatory Requirements:** In addition to local governing regulations, comply with applicable provisions in ASME A17.1, "Safety Code for Elevators and Escalators."
 - 1. **Seismic Risk Zone:** Project is located in Zone 2.
- C. The elevator installation shall be a design that can be maintainable by any licensed elevator maintenance company employing journeymen mechanics, without the need to purchase or lease additional diagnostic devices, special tools, or instructions from the original equipment manufacturer.
- D. **Fire-Rated Hoistway Entrance Assemblies:** Door and frame assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252 or UL 10B.
- E. Provide door and frame assembly to also comply with UL 1784 for smoke passage.

1.5 COORDINATION

- A. Coordinate installation of sleeves, block outs, and items that are embedded in concrete or masonry for elevator equipment. Furnish templates and installation instructions and deliver to Project site in time for installation.
- B. Coordinate locations and dimensions of other work relating to hydraulic elevators including pit ladders, sumps, and floor drains in pits; entrance subsills; and electrical service, electrical outlets, lights, and switches in pits and machine rooms.
- C. Coordinate size of elevator pit with manufacturer selected. Provide any necessary revisions to pit or shaft size at no additional cost to the Owner.

1.6 WARRANTY

- A. **Special Manufacturer's Warranty:** Written warranty, signed by manufacturer agreeing to repair, restore, or replace defective elevator work within specified warranty period.
 - 1. **Warranty Period:** 12 months from date of Substantial Completion.

1.7 MAINTENANCE SERVICE

- A. **Initial Maintenance Service:** Beginning at Substantial Completion, provide 12 months' full maintenance service by skilled employees of the elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Provide parts and supplies as used in the manufacture and installation of original equipment.
 - 1. Perform maintenance, including emergency callback service, during normal working hours.

2. Include 24-hour-per-day, 7-day-per-week emergency callback service.
 - a. Response Time: Two hours or less.
- B. Continuing Maintenance Proposal: Provide a continuing maintenance proposal from Installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering hydraulic elevators that may be incorporated into the Work include, but are not limited to, the following:
 1. Canton Elevator Co.
 2. Otis Elevator Co.
 3. ThyssenKrupp Elevator.

2.2 MATERIALS AND COMPONENTS

- A. General: Provide manufacturer's standard elevator systems. Where components are not otherwise indicated, provide standard components, published by manufacturer as included in standard preengineered elevator systems and as required for a complete system.
- B. Pump Units: Positive-displacement type with a maximum of 10 percent variation between no load and full load and with minimum pulsations. Provide either of the following:
 1. Submersible pump, with submersible squirrel-cage induction motor, suspended inside tank from vibration isolation mounts.
 2. Provide motor with solid-state starting.
 3. Provide motor with circuit requirements to match indicated power circuits provided or include cost for revisions to electrical design.
 4. Provide variable-voltage variable-frequency motor control.
- C. Hydraulic Silencers: Provide hydraulic silencer containing pulsation-absorbing material in a blowout-proof housing at pump unit.
- D. Piping: Provide size, type, and weight piping recommended by manufacturer, and provide flexible connectors to minimize sound and vibration transmissions from power unit.
 1. Provide dielectric couplings at plunger/cylinder units.
 2. Casing for Underground Piping: PVC pipe complying with ASTM D 1785 joined with PVC fittings complying with ASTM D 2466 and solvent cement complying with ASTM D 2564.
- E. Inserts: Furnish required concrete and masonry inserts and similar anchorage devices for installing guide rails, machinery, and other components of elevator work where installation of devices is specified in another Specification Section.

- F. **Guide Rails:** Manufacturer's standard, selected for loads and for full height span between support locations indicated by building structural design.
- G. **Car Frame and Platform:** Welded steel units.
- H. **Finish Materials:** Provide the following materials and finishes for exposed parts of elevator car enclosures, car doors, hoistway entrance doors and frames, and signal equipment as indicated:
 1. **Satin Stainless Steel:** ASTM A 666, Type 304, with No. 4, directional satin finish.
 2. **Plastic Laminate:** High-pressure type complying with NEMA LD 3, Type HGS for flat applications; color, texture, and pattern as selected by Architect from plastic-laminate manufacturer's full range of products.

2.3 OPERATION SYSTEMS

- A. **Passenger Elevators:** Provide manufacturer's standard microprocessor operation system for each elevator or group of elevators as required to provide type of operation system indicated.
 1. **Single Elevator:** Provide "selective collective automatic operation" as defined in ASME A17.1.
- B. **Auxiliary Operations:** In addition to primary operation system features, provide the following operational features for elevators where indicated.
 1. **Independent Service:** Keyswitch in car control station removes car from group operation and allows it to respond only to car calls. Key cannot be removed from keyswitch when car is in independent service. When in independent service, doors close only in response to the door close button.

2.4 SIGNAL EQUIPMENT

- A. **General:** Provide signal equipment for each elevator or group of elevators with hall-call and car-call buttons that light when activated and remain lit until call has been fulfilled. Fabricate lighted elements of acrylic or other permanent, nonyellowing translucent plastic.
- B. **Car Control Stations:** Provide manufacturer's standard semirecessed car control stations. Mount in return panel adjacent to car door, if not otherwise indicated.
 1. Include call buttons for each landing served and other buttons, switches, and controls required for specified car operation.
 2. Mark buttons and switches with manufacturer's standard identification for required use or function that complies with ASME A17.1.
 3. Mount controls at heights complying with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG)."
- C. **Emergency Communication System:** Provide system that complies with ASME A17.1 and the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG)." On activation, system dials preprogrammed number of monitoring station and identifies elevator location to monitoring station. System provides two-way voice communication without using a handset and provides visible signals that indicate when system has been activated and when monitoring station has responded. System is contained in flush-mounted cabinet, with identification, instructions for use, and battery backup power supply.

- D. Car Position Indicator: For passenger elevator cars, provide illuminated-signal type, digital-display type, or segmented type, located above car door or above car control station. Also provide audible signal to indicate to passengers that car is either stopping at or passing each of the floors served.
 - 1. Include travel direction arrows if not provided in car control station.
- E. Hall Push-Button Stations: Provide one hall push-button station at each landing for each elevator or group of elevators, but not less than one station for each four elevators in a group. For each group of passenger elevators, locate between two elevators at center of group or at location most convenient for approaching passengers.
 - 1. Provide units with flat faceplate for mounting with body of unit recessed in wall.
- F. Hall Lanterns: Provide units with illuminated arrows, but provide single arrow at terminal landings.
 - 1. Place lanterns either above or beside each hoistway entrance, unless otherwise indicated. Mount at a minimum of 72 inches (1829 mm) above finished floor.
 - 2. With each lantern, provide audible signals indicating car arrival and direction of travel. Signals sound once for up and twice for down.
 - a. At manufacturer's option, audible signals may be placed on each car.
- G. Hall Position Indicators: Provide illuminated-signal type or digital-display type, located above each hoistway entrance at ground floor. Provide units with flat faceplate for mounting with body of unit recessed in wall.
 - 1. Integrate ground-floor hall lanterns with hall position indicators.
- H. Corridor Call Station Pictograph Signs: Provide signs matching hall push-button stations with text and graphics according to ASME A17.1, Appendix H.

2.5 DOOR REOPENING DEVICES

- A. Infrared Array: Provide door reopening devices with a uniform array of 36 or more microprocessor-controlled, infrared light beams projecting across car entrance. Interruption of one or more of the light beams shall cause doors to stop and reopen.

2.6 PASSENGER ELEVATOR CAR ENCLOSURES

- A. General: Provide manufacturer's standard steel-framed car enclosures with nonremovable wall panels, suspended ceiling, trim, accessories, access doors, doors, power door operators, sills (thresholds), lighting, and ventilation.
 - 1. Floor finish is specified in another Section.
 - 2. Plastic-Laminate Wall Panels: Plastic laminate adhesively applied to 1/2-inch (13-mm) fire-retardant-treated particleboard with manufacturer's standard protective edge trim. Panels have a flame-spread rating of 25 or less, when tested according to ASTM E 84.
 - 3. Fabricate car with recesses and cutouts for signal equipment.
 - 4. Fabricate car door frame integrally with front wall of car.
 - 5. Stainless-Steel Doors: Flush, hollow-metal construction, fabricated from stainless steel.
 - 6. Sills: Extruded metal, with grooved surface, 1/4 inch (6.4 mm) thick. Provide polished finish.

7. Luminous Ceiling: Fluorescent light fixtures and ceiling panels of translucent acrylic or other permanent rigid plastic complying with flammability requirements.
8. Handrails: Manufacturer's standard handrails, of metal indicated.

2.7 PASSENGER HOISTWAY ENTRANCES

- A. General: Provide manufacturer's standard horizontal-sliding, door-and-frame hoistway entrances complete with track systems, hardware, sills, and accessories. Provide frame size and profile to coordinate with hoistway wall construction.
- B. Materials and Fabrication: Provide manufacturer's standards but not less than the following:
 1. Stainless-Steel Frames: Formed stainless-steel sheet.
 2. Stainless-Steel Doors: Flush, hollow-metal construction, fabricated from stainless steel.
 3. Sills: Extruded metal, with grooved surface, 1/4 inch (6.4 mm) thick. Provide polished finish.
 4. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107.
- C. Smoke Guard System: Provide Model 200 by Smoke Guard (800-574-0330), or approved substitute, to provide smoke protection at each hoistway entrance to comply with UL 1784.

2.8 PASSENGER ELEVATORS

- A. Elevator:
 1. Type: Holeless, roped hydraulic, dual cylinder.
 2. Rated Load: 2500 lb (1135 kg).
 3. Rated Speed: 125 fpm (0.64 m/s)
 4. Number of Stops: 5
 5. Front Openings: 5
 6. Rear Openings: 0
 7. Operation System: Selective collective automatic operation.
 8. Auxiliary Operations:
 - a. Independent service.
 9. Car Enclosures: As follows:
 - a. Inside Width: Manufacturers standard.
 - b. Inside Depth: Manufacturers standard.
 - c. Inside Height: Manufacturers standard.
 - d. Front Walls: Satin stainless steel with integral car door frames.
 - e. Car Fixtures: Satin stainless steel.
 - f. Side and Rear Wall Panels: Plastic laminate.
 - g. Reveals: Enameled steel.
 - h. Door Faces (Interior): Satin stainless steel.
 - i. Door Sills: Aluminum.
 - j. Ceiling: Luminous ceiling.
 - k. Handrails: Satin stainless steel, at side and rear walls.
 - l. Floor prepared to receive paver tile (specified in Division 9 Section "Ceramic Tile").
 10. Hoistway Entrances: As follows:
 - a. Width: 36 inches (914 mm).
 - b. Height: 84 inches (2134 mm).

- c. Type: Single-speed side sliding.
 - d. Frames: Satin stainless steel.
 - e. Doors: Satin stainless steel.
 - f. Sills: Aluminum.
11. Hall Fixtures: Satin stainless steel.
12. Additional Requirements: As follows:
- a. Provide inspection certificate in each car, mounted under acrylic cover with satin stainless-steel frame.
 - b. Provide protective blanket hooks in car and one complete set of full-height blankets.
13. Electrical Requirements:
- a. 30 hp.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine elevator areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Verify critical dimensions, and examine supporting structure and other conditions under which elevator work is to be installed. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install cylinders plumb and accurately centered for elevator car position and travel. Anchor securely in place, supported at pit floor. Seal between protective casing and pit floor with 4 inches (100 mm) of nonshrink, nonmetallic grout.
- B. Welded Construction: Provide welded connections for installing elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn parts. Comply with AWS standards for workmanship and for qualifications of welding operators.
- C. Sound Isolation: Mount rotating and vibrating equipment on vibration-isolating mounts designed to effectively prevent transmission of vibrations to structure and thereby eliminate sources of structure-borne noise from elevator system.
- D. Install piping above the floor, where possible. Where not possible, install underground piping in Schedule 40 PVC pipe casing assembled with solvent-cement fittings.
- E. Lubricate operating parts of systems as recommended by manufacturers.
- F. Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with cars. Where possible, delay installation of sills and frames until car is operable in shaft. Reduce clearances to minimum, safe, workable dimension at each landing.
- G. Leveling Tolerance: 1/4 inch (6 mm), up or down, regardless of load and direction of travel.

- H. Set sills flush with finished floor surface at landing. Fill space under sill solidly with nonshrink, nonmetallic grout.

3.3 FIELD QUALITY CONTROL

- A. Acceptance Testing: On completion of elevator installation and before permitting use (either temporary or permanent) of elevators, perform acceptance tests as required and recommended by ASME A17.1 and by governing regulations and agencies.
- B. Advise Owner, Architect, and authorities having jurisdiction in advance of dates and times tests are to be performed on elevators.

3.4 DEMONSTRATION

- A. Instruct Owner's personnel in proper use, operations, and daily maintenance of elevators. Review emergency provisions, including emergency access and procedures to be followed at time of operational failure and other building emergencies. Train Owner's personnel in procedures to follow in identifying sources of operational failures or malfunctions. Confer with Owner on requirements for a complete elevator maintenance program.
- B. Make a final check of each elevator operation with Owner's personnel present and before date of Substantial Completion. Determine that operation systems and devices are functioning properly.

3.5 PROTECTION

- A. Temporary Use: Do not use elevators for construction purposes unless cars are provided with temporary enclosures, either within finished cars or in place of finished cars, to protect finishes from damage.
 - 1. Provide full maintenance service by skilled, competent employees of elevator Installer for elevators used for construction purposes. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Use same parts and supplies as used in the manufacture and installation of original equipment.
 - 2. Provide protective coverings, barriers, devices, signs, and other procedures to protect elevators. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop, make required repairs and refinish entire unit, or provide new units as required.

END OF SECTION



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

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

FROM: James Sterling, AIA, Archt.

RE: Certificate of Design

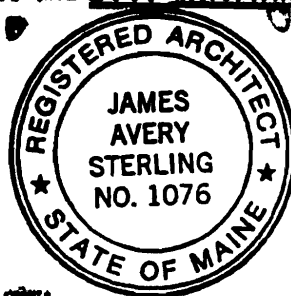
DATE: 24 May 2005

These plans and / or specifications covering construction work on:

Renovations: 490 Congress Street

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

(SEAL)



Signature: 

Title: Architect

Firm: James Sterling Architect

Address: 142 High Street, Suite 612
Portland, Maine 04101

As per Maine State Law:

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

SW&C

ENGINEERING, P.A.

faxed and mailed
6 October 2005

Mr. Matt Stacy
Solid Earth Technologies, Inc.
3 Howe Drive, Unit 3
Amherst, New Hampshire 03031

Re: Kimball Building @ 490 Congress Street, Portland, Maine
Helical Pier Capacities

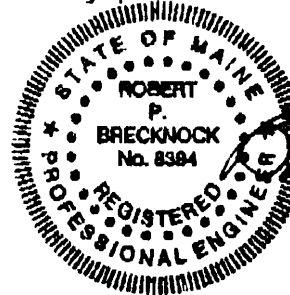
Dear Matt:

Piles proposed for installation at the referenced project were determined by L & L Structural Engineering Services, Inc. to require a minimum ultimate capacity of 40,000 pounds base on a maximum spacing of 6'-0".

Helical piers manufactured by Hubbell Power Systems consist of structural shafts with single or multiple steel plate helices that are drilled into soil to a depth and resistance as required to satisfy load requirements. The 40 kip required ultimate capacity noted above is significantly less than the ultimate bearing capacity of helical piers with a 1-3/4" square shaft and up to three helices at a maximum depth of 30'± feet in soil similar to that described in boring log B-2 from S. W. Cole Engineering, Inc. Calculations for helix soil bearing capacities are based on bearing plate theory and incorporate modified Meyerhoff factors for deep foundations. This analytical process results in ultimate pier capacities consistent with rated values for piers and individual components provided by Hubbell Power Systems. Tests and experience indicates that pier installation torques directly correspond to ultimate bearing capacities. Each pier's load carrying capability will consequently be field verified.

Criteria for design and installation of helical piers are covered in Section 1808.2.3 (Special types of piles) in the International Building Code 2003. In addition to load bearing capacity, all other relevant general requirements listed in Section 1807 concerning pile caps, stability, structural integrity, spacing, safety factors, lateral support and seismic details apply and will be satisfied.

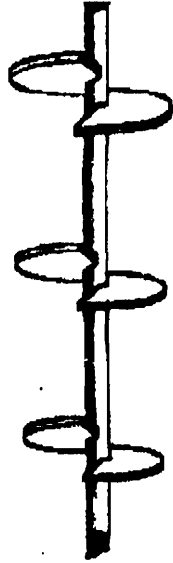
As you are aware, SW&C has used helical piers for deep foundations on multiple projects for Solid Earth and other clients. In all instances helical piers have functioned as designed and performed satisfactorily. Please call if you have any questions or need additional information.



Very truly yours,

Robert P. Brecknock, P.E.

• STRUCTURAL DESIGN •



FAX COVER SHEET

SOLID EARTH TECHNOLOGIES, INC

3 Howe Drive, Unit 3

Amherst, NH 03031

Toll Free Phone: 1-877-389-7822

Fax: 1-603-882-7822

From: Vera Pera

TO: Mark Leisner DATE: 10-10-05

Company: _____

FAX NUMBER: 207 799 5432 # PAGES (incl. cover): 9

RE:

S W & C Engineering, P.A.

FAX Cover Sheet

Please deliver the following transmission to:

Name: Rich Porter
Company: Solid Earth Technologies, Inc.
Location: Amherst
FAX #: 882-7822

Transmitted from:

Name: Bob Brecknock
Company: S W & C Engineering
Location: Manchester, NH
Office #: (603) 645-1392
FAX #: (603) 645-6586

Total Number of pages, including cover sheet: 1

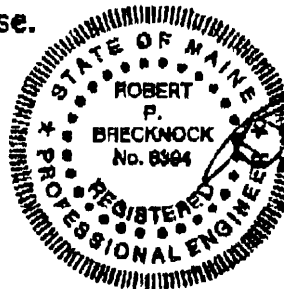
Time: 12:55 p.m.

Date: 10/10/05

Re: Kimball Building, 490 Congress St., Portland, ME

As you requested SW&C reviewed calculations for helical piers and shafts proposed for use at the referenced project (refer to the 8 sheets that you faxed to this office earlier today). All information is accurate and SW&C takes no exceptions to any items.

Please call if you need anything else.



Bob Brecknock

Project: Kimball BuildingDate: 7 Oct 05Location: Portland MECalculated By: TJPChecked By: RB

SS175 8-10-12 Helical Pier

40-kip Ultimate Vertical Capacity

3.6-kip Lateral Capacity Required

- Try a 41 kip pier installed @ 5° batter -



$$\text{vertical capacity} = 41 \cos 5$$

$$= \underline{40.8 \text{ kips}} \quad \checkmark \quad \text{ok}$$

$$\text{horiz. capacity} = 41 \sin 5$$

$$= \underline{3.6 \text{ kips}} \quad \checkmark \quad \text{ok}$$

★ Skin Friction ignored in capacity calcs.

Each pier will be grouted + capacity from
grout will not be calculated.

Because of v. dense strata providing load
capacity, a 10:1 torque - capacity ratio
will be used.

22-11 20 SHEETS
 22-12 20 SHEETS
 22-13 20 SHEETS
 22-14 20 SHEETS

22-15 20 SHEETS
 22-16 20 SHEETS
 22-17 20 SHEETS

Project: Kimball Building

Date: 7 Oct 05

Location: Portland ME

Calculated By: TJP

Checked By: RB

Installation Torque Required for 41-kip pier:

$$41 \text{ kips} \div \frac{10 \text{ ft-lb}}{1 \text{ kip}} = \underline{4100 \text{ ft-lb}} \text{ torque req'd.}$$

HELICAP CAPACITY CHECK:

Boring B-2 used to check capacity.

SS175 8-10-12 Pier used

20' Length used in verifying capacity

Piers installed w/ 8° batter

THE HELICAP CAPACITY SUMMARY sheet lists the ultimate pier capacity at

125.2 kips @ 11,540 ft-lb torque

Check ratio:

$$125.2 \text{ kips} / 11,540 \text{ ft-lb} = 10.8 \text{ ratio} > 10.0 \text{ used}$$

✓ good

11/10/2005 13:20 60388.7522 SOLID EARTH TECH PAGE 04

Project: Kimball BuildingDate: 7 Oct 05Location: Portland MECalculated By: TGPChecked By: RBCHECK CRITICAL Buckling LOAD:

Davisson Method will be used to check
critical buckling LOAD

$$P_{cr} = U_{cr} E_p I_p / L^2 \quad \text{where}$$

$$L = \sqrt[4]{\frac{60 I_p}{k_n d}}$$

$$= \sqrt[4]{\frac{(30 \times 10^6)(.746)}{(20)(1.75)}}$$

$$= \sqrt[4]{639,429} = 28.3$$

$$I_p = .746 \text{ in}^4$$

$$E_p = 30 \times 10^6 \text{ psi}$$

$$k_n = 20 \text{ pci}$$

$$d = 1.75 \text{ in.}$$

$$L_{max} = L / R = 15 \text{ feet} \times 12 / 28.3 = 6.36$$

From Fig 6.1 $\Rightarrow U_{cr} \approx 2$ [assumed pin-pin condition]

$$P_{cr} = (2)(30 \times 10^6 \text{ psi})(.746 \text{ in}^4) / 28.3^2$$

$$= 55,887 \text{ lb}$$

$$= 55.9 \text{ kips} < 41 \text{ kips} \checkmark \text{ good.}$$

- Assumed is soft material in calculation

\Rightarrow very conservative

HelicAP SUMMARY REPORT

Job Name: Congress Street

\\SERVERPDC\Users\RichP\My Documents\ANCH

Job Number:

10/10/2005 10:26:14 AM

Water Table Depth: 0 ft

Boring No: B-2

Anchor Use: Compression

Capacity Summary

Anchor Number	Anchor Family	Helix Depth (ft)	Helix Capacity (kips)	Total Anchor Capacity (kips)	Recommended Ultimate Capacity (kips)	Torque (ft-lbs)
Anchor 1	Angle: 85 Datum Depth: 0 Length: 20					
12" helix	SS5	14.9	5.1t 5.9c			
10" helix	SS5	17.4	23.1t 67.3c	73.8t	61.2t	11540
8" helix	SS5	19.4	45.5t 51.9c	125.2c	85.9c	

Soil Profile

Top of Layer Depth (ft)	Soil Type	Cohesion (lb/ft ²)	N	Angle of Internal Friction (Degrees)	Unit Weight (lb/ft ³)
0	Sand	0	5	28.8	85
1	Clay	750	6	0	92
3.5	Sand	0	11	30.4	101
7.5	Sand	0	17	32.1	107
10	Sand	0	5	28.8	85
12	Sand	0	11	30.4	101
17	Sand	0	80	49.8	140
22	Sand	0	100	55.4	140

HelicAP Summary Graphs

Job Name: Congress Street

Job Number:

Boring No: B-2

Water Table Depth: 0 ft

Anchor Use: Compression

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Anchor # 1

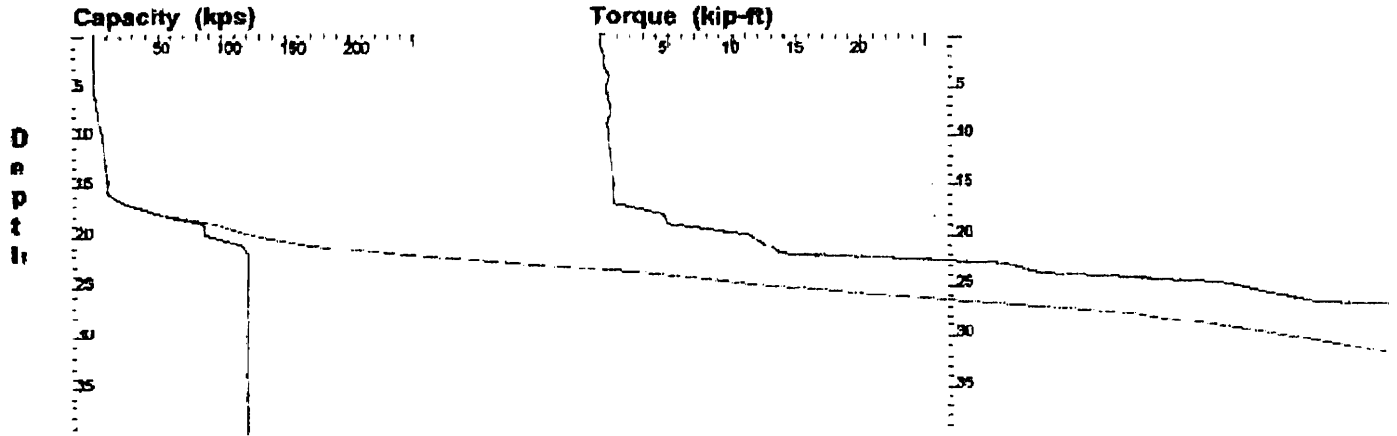
Family:SS 175

Helices: 3 Config: ---+++8,10,12

Angle: 85

Datum Depth: 0

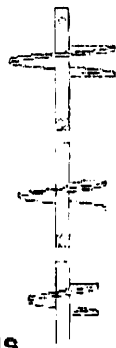
Length: 20



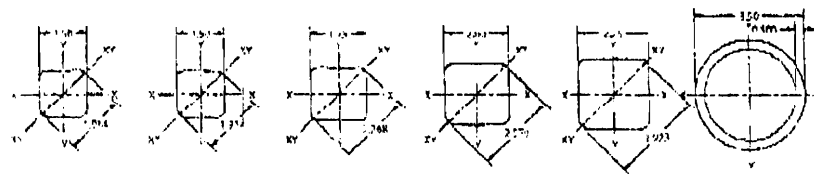
Helix Capacity 
 Theoretical UH Capacity 



**Product Selection
Table 8.5**



SS5 Square Shaft	SS150 Square Shaft	SS175 Square Shaft	SS200 Square Shaft	SS225 Square Shaft	HS Pipe Shaft
------------------------	--------------------------	--------------------------	--------------------------	--------------------------	------------------



Mechanical Ratings

Torsional Strength Rating	ft-lb (N-m)	5500 (7,500)	7000 (9,500)	10000 (13,600)	15000 (20,300)	20000 (27,100)	11000 (14,900)
Ultimate Compression Capacity (shaft)	Kip (kN)	154 (685)	198 (880)	271 (1210)	351 (1560)	448 (1990)	151 (672)
Allowable Compression Load (shaft)	Kip (kN)	62 (276)	79 (352)	108 (481)	140 (623)	179 (797)	60 (267)
Ultimate Capacity* (per standard helix)	Kip (kN)	40 (178)	40 (178)	50 (223)	60 (267)	60 (267)	50 (223)
Ultimate Capacity (per high-strength helix)	Kip (kN)	50 (223)		60 (267)			
Allowable Load† (per standard helix)	Kip (kN)	20 (89)	20 (89)	25 (111)	30 (134)	30 (134)	25 (111)
Allowable Load‡ (per high-strength helix)	Kip (kN)	25 (111)		30 (134)			
Tension Rating (based on bolt strength)	Kip (kN)	70 (312)	70 (312)	100 (445)	150 (668)	200 (890)	120 (534)
Allowable Tension Load† (based on bolt strength)	Kip (kN)	35 (156)	35 (156)	50 (223)	75 (334)	100 (445)	60 (267)
Yield Strength (shaft)	ksi (Mpa)	70 (483)	90 (621)	90 (621)	90 (621)	90 (621)	50 (345)
Yield Strength (standard helix material)	ksi (Mpa)	50 (345)	80 (552)	80 (552)	80 (552)	80 (552)	36 (248)
Yield Strength (high-strength helix material)	ksi (MPa)	80 (552)		80 (552)			

Shaft Section Properties

Area	in ² (cm ²)	2.196 (14.17)	2.196 (14.17)	3.009 (19.41)	3.916 (25.26)	4.979 (32.12)	3.016 (19.46)
Perimeter	in (cm)	5.571 (14.15)	5.571 (14.15)	6.571 (16.69)	7.484 (18.96)	8.464 (21.50)	10.996 (27.930)

Moment of Inertia

Ix-x	in ⁴ (cm ⁴)	0.396 (16.5)	0.396 (16.5)	0.746 (31.1)	1.26 (52.4)	2.04 (84.9)	3.89 (162)
Iy-y	in ⁴ (cm ⁴)	0.396 (16.5)	0.396 (16.5)	0.746 (31.1)	1.26 (52.4)	2.041 (84.9)	3.89 (162)
Ix-y	in ⁴ (cm ⁴)	0.396 (16.5)	0.396 (16.5)	0.746 (31.1)	1.26 (52.4)	2.04 (84.9)	3.89 (162)

Section Modulus

Sx-x	in ³ (cm ³)	0.528 (22.0)	0.528 (22.0)	0.852 (35.5)	1.26 (52.4)	1.814 (75.5)	2.225 (92.61)
Sy-y	in ³ (cm ³)	0.528 (22.0)	0.528 (22.0)	0.852 (35.5)	1.26 (52.4)	1.814 (75.5)	2.225 (92.61)
Sx-y	in ³ (cm ³)	0.414 (17.2)	0.414 (17.2)	0.657 (27.3)	0.981 (40.8)	1.396 (58.1)	2.225 (92.61)

*Ultimate Capacity (per standard helix) is for 12-inch (304.8 mm) diameter helices and smaller.

Reduce value by 20% for 14-inch helix.

†Based on a Factor of Safety of two (2).

profile. If you need engineering assistance, please contact the Hubbell/Chance Civil Construction Distributor in your area. Contact information for Hubbell/Chance Civil Construction Distributors can be found at www.abchance.com. These professionals will help you to collect the data required to perform buckling analysis.

Buckling Analysis by Davisson Method

A number of solutions have been developed for various combinations of pile head and tip boundary conditions and for the cases of constant modulus of subgrade reaction (k_h) with depth. One of these solutions is the Davisson (1963) method as described below. Solutions for various boundary conditions are presented by Davisson in Figure 6.1. The axial load is assumed to be constant in the pile – that is no load transfer due to skin friction occurs and the pile initially is perfectly straight. The solutions shown in Figure 6.1 are in dimensionless form, as a plot of U_{cr} versus I_{max} .

$$U_{cr} = P_{cr}R^2/E_pI_p \quad \text{Or} \quad P_{cr} = U_{cr}E_pI_p/R^2 \quad \text{(Equation 6.2)}$$

$$R = \sqrt[4]{E_pI_p/k_hd} \quad \text{(Equation 6.3)}$$

$$I_{max} = L/R \quad \text{(Equation 6.4)}$$

- where:
- P_{cr} = Critical Buckling Load
 - E_p = Modulus of Elasticity of Foundation Shaft
 - I_p = Moment of Inertia of Foundation Shaft
 - k_h = Modulus of Subgrade Reaction
 - d = Foundation Shaft Diameter
 - L = Foundation Shaft Length over which k_h is taken as Constant
 - U_{cr} = Dimensionless ratio

By assuming a constant modulus of subgrade reaction (k_h) for a given soil profile to determine R , and using Figure 6.1 to determine U_{cr} , Equation 6.2 can be solved for the critical buckling load. Typical values for k_h are shown in Table 6.1.

Figure 6.1 Poulos and Davis (1980)

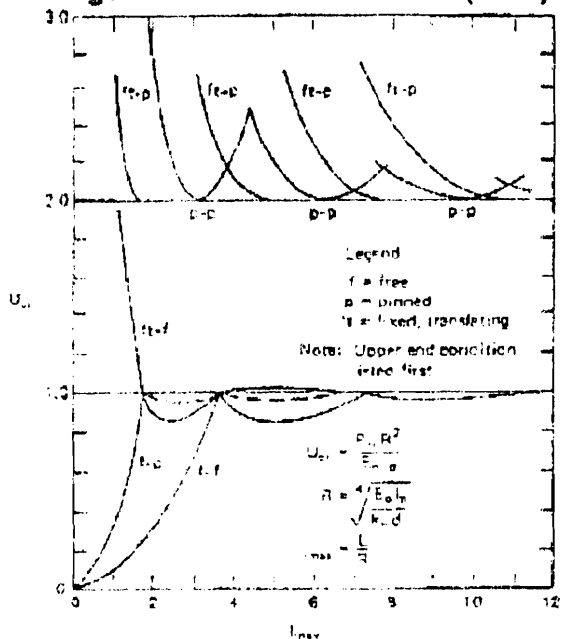


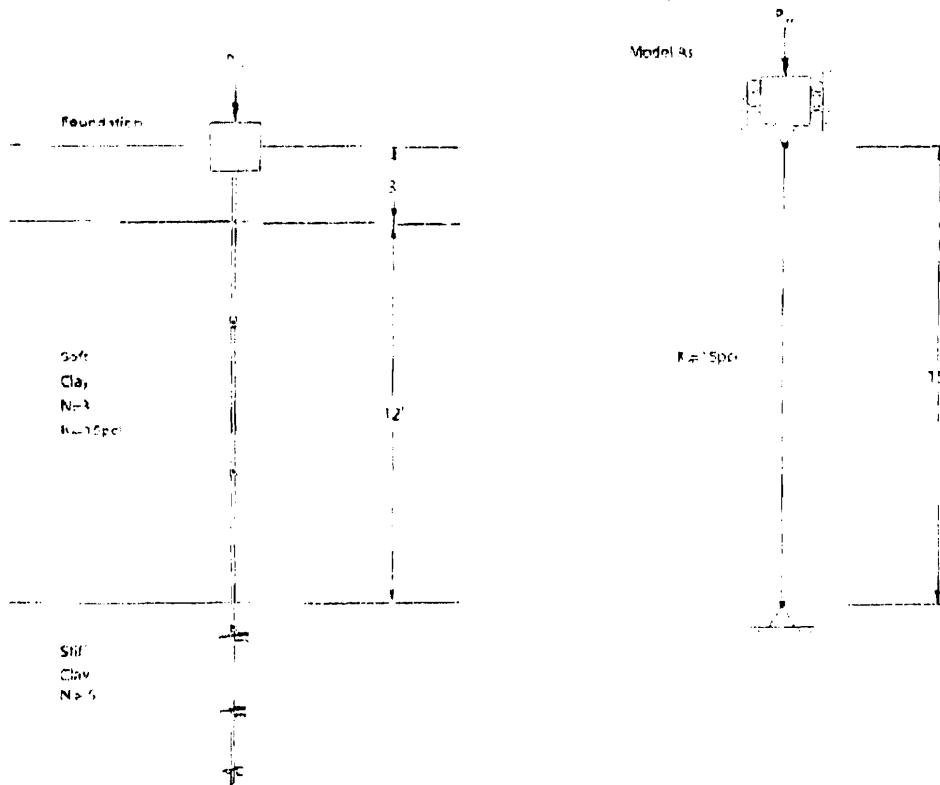
Table 6.1 Modulus of Subgrade Reaction – Typical Values

Soil Description	Modulus of Subgrade Reaction (k_h) (pci)
Very soft clay	15 - 20
Soft clay	30 - 75
Loose sand	20

Figure 6.1 shows that the boundary conditions at the pile head and tip exert a controlling influence on U_{cr} , with the lowest buckling loads occurring for piles with free (unrestrained) ends.

Design Example 6.1

Determining Critical Buckling Load, P_{cr} , by Davisson Method



A three-helix Type SS150 1½" square shaft helical screw foundation is to be installed into the soil profile as shown above. The top 3 feet is uncontrolled fill and is assumed to be soft clay. The majority of the shaft length (12 feet) is confined by soft clay with a $k_h = 15$ pci. The helix plates will be located in stiff clay below 15 feet. What is the critical buckling load per the Davisson Method?

The buckling model above assumes a pinned-pinned end condition for the pile head and tip. The foundation length is 15 feet, which is the shaft length in the soft clay.

Physical Properties - Hubbell/Chance Type SS150 Square Shaft Foundations		
Modulus of Elasticity (E_p)	Moment of Inertia (I_p)	Shaft Diameter (d)
30×10^6 psi	0.396 in ⁴	1.5 in

Assumptions:

- k_h is constant, i.e. it does vary with depth. This is conservative because k_h usually does vary with depth, and in most cases it increases with depth.
- Pinned-pinned end conditions assumed. In reality, end conditions are more nearly fixed than pinned, thus results are generally conservative.

$$R = \sqrt[4]{(30 \times 10^6 \times 0.396) / (15 \times 1.5)} = 26.96$$

$$L_{max} = (15 \times 12) / 26.96 = 6.7$$

From Figure 6.1, $U_{cr} = 2$

$$P_{cr} = (2 \times 30 \times 10^6 \times 0.396) / 26.96^2 = 32.69 \text{ kips}$$

A.B. CHANCE MATERIAL AND TOOLING SPECIFICATIONS

SQUARE-SHAFT "SS" SCREW ANCHORS

For Heavy-Guying Applications

Square-Shaft "SS" multi helix screw anchors are designed for heavy-guy loading. They have 1-1/2" square shaft. Extension shafts must be coupled to the helix section for installation to the proper depth. SS screw anchors consist of galvanized components: the lead section, the extension shaft, which includes an integral coupling, and the guy adapters. Extensions and guy adapters include a high-strength bolt and nut. Typical working torque is 3500 ft.-lbs. and ultimate tension strength is 70,000 lbs. **

APPLICATION AND ORDERING INFORMATION

LEAD SECTIONS

Catalog No.	Length	Helix Combinations	Std. Pkg./Pallet	Soil Anchor Holding Strengths - (lbs.) vs. Chance Soil Class					
				Class 7	Class 6	Class 5	Class 4	Class 3	Class 2
P012642-AE*	3 ft.	8" - 10"	1/20	19,000	23,000	27,000	32,000	36,000	41,000
P012642-EJ	3 1/2 ft.	10" - 12"	1/20	21,000	26,000	31,000	36,000	41,000	48,000
P012642-AEJ*	5 1/2 ft.	8" - 10" - 12"	1/20	26,000	32,000	39,000	46,000	51,000	58,000
P012642-EJN*	7 ft.	10" - 12" - 14"	1/20	29,000	37,000	45,000	53,000	61,000	69,000
P012642-AEJN	10 1/2 ft.	8" - 10" - 12" - 14"	1/20	31,000	40,000	49,000	58,000	67,000	
P012642-EJNS*	10 1/2 ft.	10" - 12" - 14" - 14"	1/20	40,000	51,000	62,000	70,000		

See page B-14 for anchor holding strengths vs standard penetration test and unconfined compression test values.

Note: Holding capacities are based on average test data and are offered as an application guide only.

*RUS Accepted.

EXTENSIONS

Catalog No.	Nominal Length	Std. Pkg./Pallet
12655	3 1/2 ft.	1/50
12656	5 ft.	1/50
12657	7 ft.	1/40
12658	10 ft.	1/50
+12656N	5 ft.	1/12

Note: 5 ft. SS Extension with 1-14" Helix.

GUY ADAPTERS

Catalog No.	Nominal Length	Description	Std. Pkg./Pallet
C102-0023	18"	THIMBLEYE®	5/175
C102-0024	18"	TWINEYE®	5/250
C102-0025	18"	TRIPLEYE®	5/250
C110-0026	20"	Threaded Stud	5/130
C110-0041	18"	Ovaleye	5/200

** Note: Ultimate strength ratings apply to properly installed anchors only.

Failure to install within 10° of alignment with the guy load may significantly lower strength.

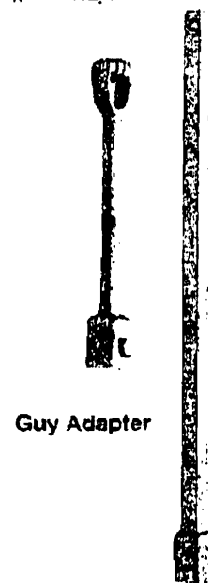
See pages B-25 — B-30 for installation tool options

Catalog Number includes helix section of anchor and Tripleye® guy adapter. For THIMBLEYE® guy adapter, change the suffix "3" to "1" (i.e.: 12654-1AE).

For TWINEYE® guy adapter, change the suffix "3" to "2" (i.e.: 12654-2AE).

For Ovaleye guy adapter, change the suffix "3" to "4" (i.e.: 12654-4AE).

Helix and extension shafts are banded to wood blocks to facilitate forklift handling. Guy adapters are shipped in corrugated cartons.



Guy Adapter

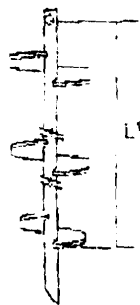
Extension

Square Shaft "SS" Anchor Combination

Catalog Number	Number of Helices	Anchor Height (Bottom)
12654-3AE	2	8" - 10"
12654-3EJ	2	10" - 12"
12654-3AEJ	3	8" - 10"
12654-3EJN	3	10" - 12"
12654-3EJNS	4	10" - 12"

See page B-14 for SS and RR anchor capacity charts
See Section D for Transmission Structure Foundations

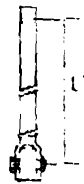
HIGH-STRENGTH SS ANCHORS for Heavy Tension Loading



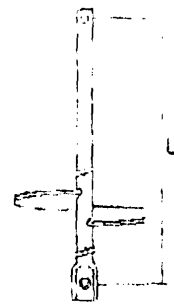
Lead Section



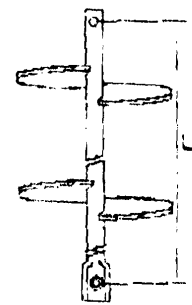
Lead Section



Plain Extension



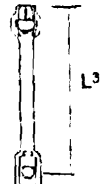
Single Helix
Extension



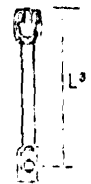
Two Helix
Extension



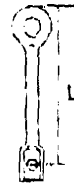
THIMBLEYE®
Adapter



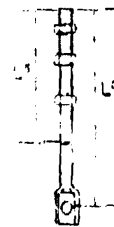
TWINEYE®
Adapter



TRIPLEYE®
Adapter



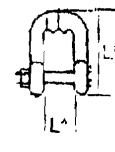
Ovaleye
Adapter



Threaded
Adapter



Chain
Shackie



TRIPLEYE® Chain
Shackie

RATINGS

Mechanical Properties	SS 150 1.50" Square Shaft	SS 175 1.75" Square Shaft	SS 200 2.00" Square Shaft	SS 225 2.25" Square Shaft
Max. Installation Torque	7,000 ft.-lbs.	10,000 ft.-lbs.	15,000 ft.-lbs.	20,000 ft.-lbs.
Min. Ultimate Tension Strength	20,000 lbs.	100,000 lbs.	150,000 lbs.	200,000 lbs.

ORDERING INFORMATION

LEAD SECTIONS

Helix Configuration	SS 150			SS 175			SS 200			SS 225		
	Galv.	Non-Galv.	L ¹	Galv.	Non-Galv.	L ¹	Galv.	Non-Galv.	L ¹	Galv.	Non-Galv.	L ¹
8, 9 & 10"	C110-0385	C114-0384	30"	C110-0247	C114-0220	30"						
9, 10 & 12"							C110-1569	C114-0214	42"	C110-0548	C114-0187	54"
10, 12 & 14"	C110-0386	C114-0218	57"	C110-0235	C114-0021	60"	C110-0570	C114-0215	60"	C110-0544	C114-0188	76"
10, 12 & 14"	C110-0504	C114-0119	120"	C110-0506	C114-0084	124"	C110-0572	C114-0216	122"	C110-0546	C114-0190	114"
8, 10, 12 & 14"		C114-0130	120"	C110-0247	C114-0103	124"	C110-0573	C114-0217	122"	C114-0189	C114-0189	113"

EXTENSIONS

Helix Configuration	SS 150			SS 175			SS 200			SS 225		
	Galv.	Non-Galv.	L ²	Galv.	Non-Galv.	L ²	Galv.	Non-Galv.	L ²	Galv.	Non-Galv.	L ²
None	C110-0388	C114-0016	37"	C110-0136	C114-0083	37"	C110-0568	C114-0209	37"	C110-0545	C114-0243	40"
None	C110-0470	C114-0104	59"	C110-0137	C114-0105	59"	C110-0564	C114-0210	58"	C110-0548	C114-0244	60"
None	C110-0389	C114-0017	50"	C110-0138	C114-0023	80"	C110-0566	C114-0211	80"	C110-0547	C114-0245	80"
None	C110-0440	C114-0020	123"	C110-0140	C114-0081	122"	C110-0566	C114-0212	123"			120"
One 14" Helix	C110-0471	C114-0105	48"	C110-0472	C114-0109	48"	C110-0572	C114-0220	45"	C110-0546	C114-0238	39"
One 14" Helix	C110-0454	C114-0056	80"	C110-0450	C114-0037	80"	C110-0581	C114-0224	80"	C110-0552	C114-0252	74"
None	C110-0475	C114-0117	123"	C110-0476	C114-0113	124"	C110-0586	C114-0231	123"			120"

TERMINATION ADAPTERS

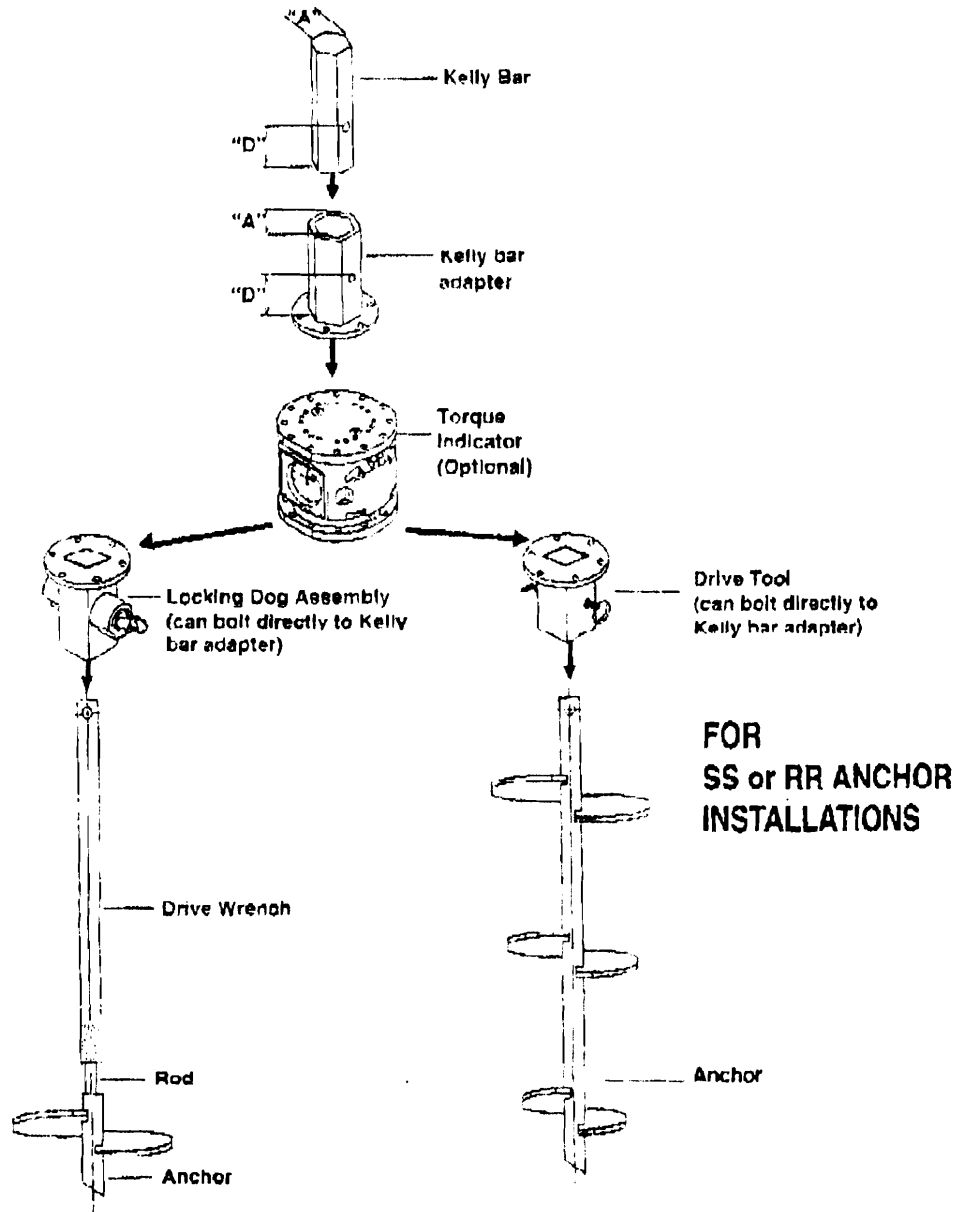
	SS 150			SS 175			SS 200			SS 225		
	Galv.	Non-Galv.	L ³	Galv.	Non-Galv.	L ³	Galv.	Non-Galv.	L ³	Galv.	Non-Galv.	L ³
Tripleye Adapter	C102-0023		17"	C110-0311		17"	C110-0310		17"			
Twineye Adapter	C102-0024		17"									
Tripleye Adapter	C102-0026		17"	C110-0465		17"						
Ovaleye Adapter	C110-0041		17"									
Threaded Adapter	C110-0076		20"	C110-0352*	L ³ =36"	48"						
Chain Shackie	C110-0574		3/8"	C110-0134	L ³ =1 1/2"	63"	C110-0577	L ³ =2 1/2"	44"	C110-0546	L ³ =2 1/2"	8"

*C110-0352 includes two nuts
C110-0352* shackle

POWER-INSTALLED SCREW ANCHOR TOOLING OPTIONS (For installing torques up to 10,000 ft.-lb.)

Selecting the correct Kelly bar adapter is the first step to building a successful Drive String. Follow these two easy steps:

- 1) Remove the auger from the digger and carefully measure the "A" and "D" dimensions of the Kelly bar.
- 2) Match the shape of the Kelly bar and the "A" and "D" dimensions with the Kelly bar adapter chart provided on page B-26. The "D" dimension on the Kelly bar adapter must be equal to or greater than the "D" dimension of the Kelly bar itself.



ension
rench
20027
30028

POWER-INSTALLED SCREW ANCHOR TOOLING SYSTEM (For installing torques up to 10,000 ft.-lb.)

A complete tool system consists of: Kelly bar adapter, torque indicator, locking dog assembly and drive-end assembly.

Remove the auger from the digger and select the Kelly bar adapter by matching the shape of the Kelly bar along with the "A" dimension (flat to flat on end of Kelly bar) and the "D" dimension (end of Kelly bar to center hole for bent arm pin). Match the shape and "A" and "D" dimensions with the chart provided below.

ORDERING DATA — KELLY BAR ADAPTER WITH BENT ARM PIN (5/8" ROU T CIRCLE)

Part No.	Kelly Bar Shape	Kelly Bar Dimension					Wt. Ea. Lbs.
		A	B	C	D	E	
P630017	Square	2 1/2"	1 1/4"	3 1/2"	2 1/2"	3 1/2"	10
P630016	Square	2 1/4"	1 1/4"	3 1/2"	2 1/2"	3 1/2"	10
P630013	Hex	2"	1 1/4"	6 1/4"	5"	6 1/4"	10
P630012HD	Hex	2 3/8"	3 3/8"	8 1/4"	4 1/2"	8 1/4"	12
P630011HD	Hex	2 1/2"	3 3/8"	8 1/4"	4 1/2"	8 1/4"	12

Kelly bar adapters have six 1/2" dia. holes on a 5 1/4" bolt circle and include six 1/2" bolts, nuts, lock washers and bent arm pin with coil lock.

LOCKING DOG ASSEMBLY

Cat. No.	Description	Wt. Ea.
C303-0069HD	Complete Heavy Duty Locking Dog Assembly	20 lbs.
C303-0070	Locking Dog Replacement Kit Includes parts necessary to replace both lock dogs.	4 lbs.

The Locking Dog Assembly has six 1/2" holes on 5 1/4" bolt circle and includes six 1/2" grade 6 bolts, nuts and lock washers.

7-Ft. Drive-End Wrench

C102-1532	For 1 3/8" Core Anchors. Installs 8,000 ft.-lb. (small hub) TOUGH ONE® anchors, 10,000 ft.-lb. (small hub) TOUGH ONE® anchors, Standard-Strength and Mid-Strength Anchors.	57 lbs.
C303-1064	For 1 1/2" Core anchors. Installs PISA® 6 & 7 anchors & 9,000 ft.-lb. (large hub) TOUGH ONE® anchors	64 lbs.

3 1/2-Ft. Drive-End Wrench

C102-1595	For 1 1/2" Core Anchors. Installs 8,000 ft.-lb. (small hub) TOUGH ONE® anchors, 10,000 ft.-lb. (small hub) TOUGH ONE® anchors, Standard-Strength and Mid-Strength anchors	29 lbs.
C303-1063	For 1 1/2" Core anchors. Installs PISA® 6 & 7 anchors and 9,000 ft.-lb. (large hub) TOUGH ONE® anchors.	28 lbs.

Extension Wrench for Drive-End Wrenches Above

C630027	3 1/2' Extension	42 lbs.
C630028	7' Extension	70 lbs.

The Drive-End Wrenches for 1 1/2" core anchors are painted with a yellow band on the ends to distinguish them from the Drive-End Wrenches for 1 3/8" Core Anchors

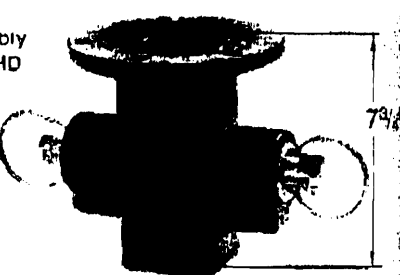
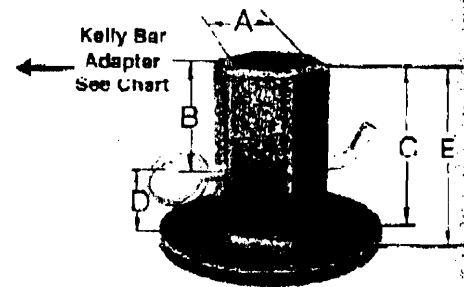
NOTE: These wrenches will fit 15,000 ft.-lb. Tough One® anchors dimensionally, but . . . MUST NOT be used for TORQUES IN EXCESS of 10,000 ft.-lb.!

• Convertible to Extension Use

Extension assemblies can be added where soil conditions dictate that anchors be set more than one rod length deep or where digger to ground clearances are limited

• Transmits Torque to Anchor Core

The wrench transmits the torque from the Kelly bar of the digger to the hub of the Power-Installed Screw Anchor so that the anchor rod need be only large enough in diameter to support the guy load.



Drive-End Wrench
C102-1583

Drive-End Wrench
C303-1064

Extension Wrench
830027
630028

ANCHOR INSTALLING TOOL PIN

Use with Kelly bar adapters, SS, RR and bumper post installing tools

Each Chance plated-steel Bent Arm pin is designed to attach a Kelly bar adapter to a Kelly bar. Also used to secure SS, RR and bumper post anchors to anchor drive tools.

Bent Arm pins are included with new tools as required. Order pins for existing tools as shown below

ORDERING INFORMATION

Kelly Bar Adapter	Bent Arm Pin and Coil Lock Assembly
630011HD	C303-1223
630012HD	C303-1223
630013	C303-1223
630013A	C303-1223
630015	C303-1227
630017	C303-1227

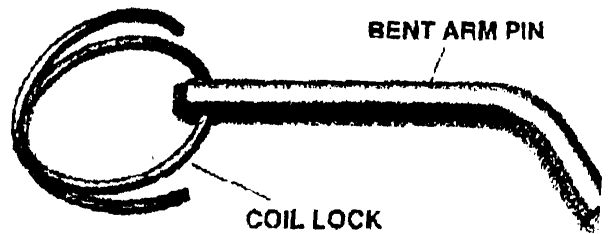
SS/RR Tools	Bent Arm Pin and Coil Lock Assembly
639001	C303-1226
C303-0195	C303-1225
C303-0201	C303-1224
C303-0202	C303-1224
C303-0020	C303-1226

Bumper Post Tools	Bent Arm Pin and Coil Lock Assembly
C303-0737	C303-1227
C303-0739	C303-1227



Chance Bent Arm pins are the only tested and approved means for through-pin attachment of drive tools.

Bent Arm Pin and Coil Lock Assembly	Size
C303-1226	3" x 5/8"
C303-1225	3 1/2" x 1/2"
C303-1224	4 1/2" x 1"
C303-1227	5" x 1/2"
C303-1223	4 1/2" x 1/2"
C303-1222	5" x 1/2"



To order Coil Lock only, order part No. P303-1215.

ESKRIDGE GEAR DRIVE SPECIFICATIONS



50 Gear Drive - Shaft Output

Typical Applications: Industrial, Marine or Mobile Equipment

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Performance Ratings

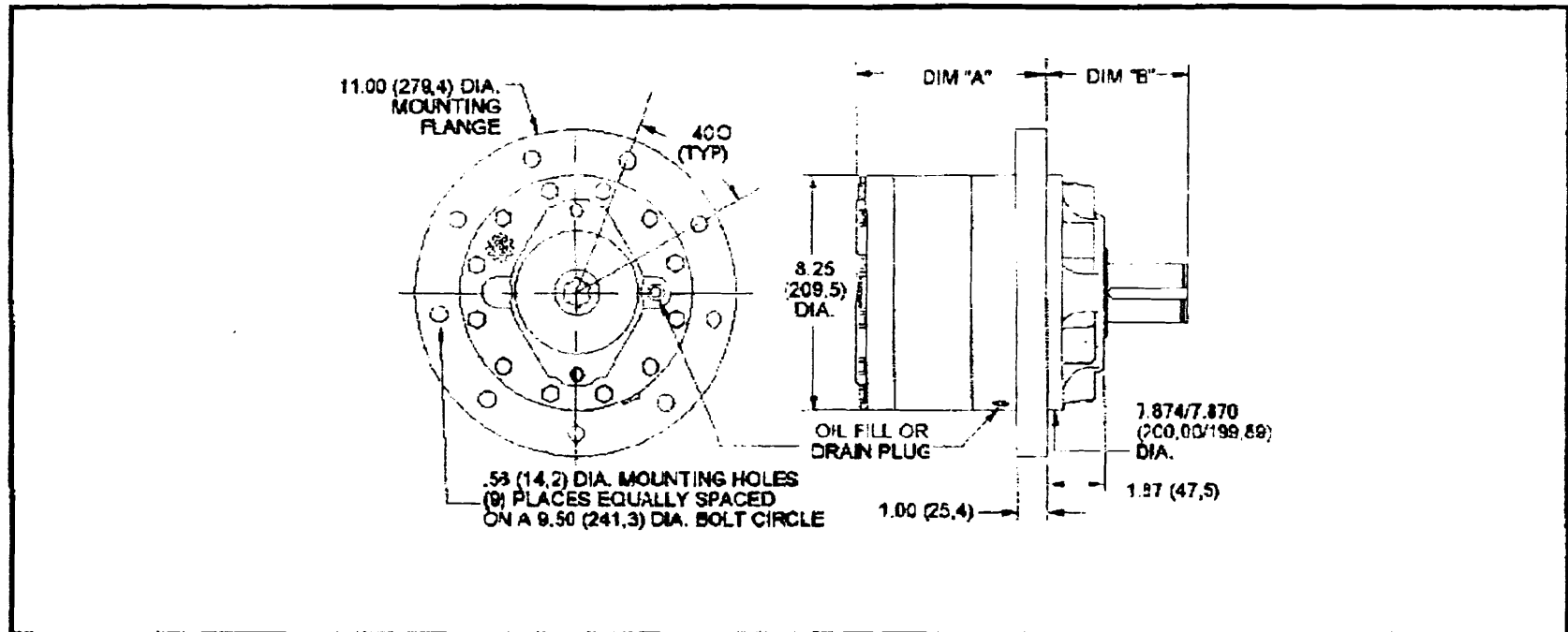
Maximum Intermittent Output Torque	50,000 in-lb (5,649 N-m)
Continuous Output Torque	25,000 in-lb (2,824 N-m)
Peak Torque Rating	Consult Eskridge
Maximum Input Speed (No Load)	3,000 RPM

Consult your Eskridge representative to determine ratings for your specific application or configuration.

General Dimensions for Flanged Gear Drive Mounting (ordering option 'A')

Other options may be available. See ordering information on last page or contact your Eskridge representative for more details.

Values are shown as inches (millimeters) * Please see pages 6 & 7 for full Dimension A & B specifications.





50 Gear Drive - Shaft Output

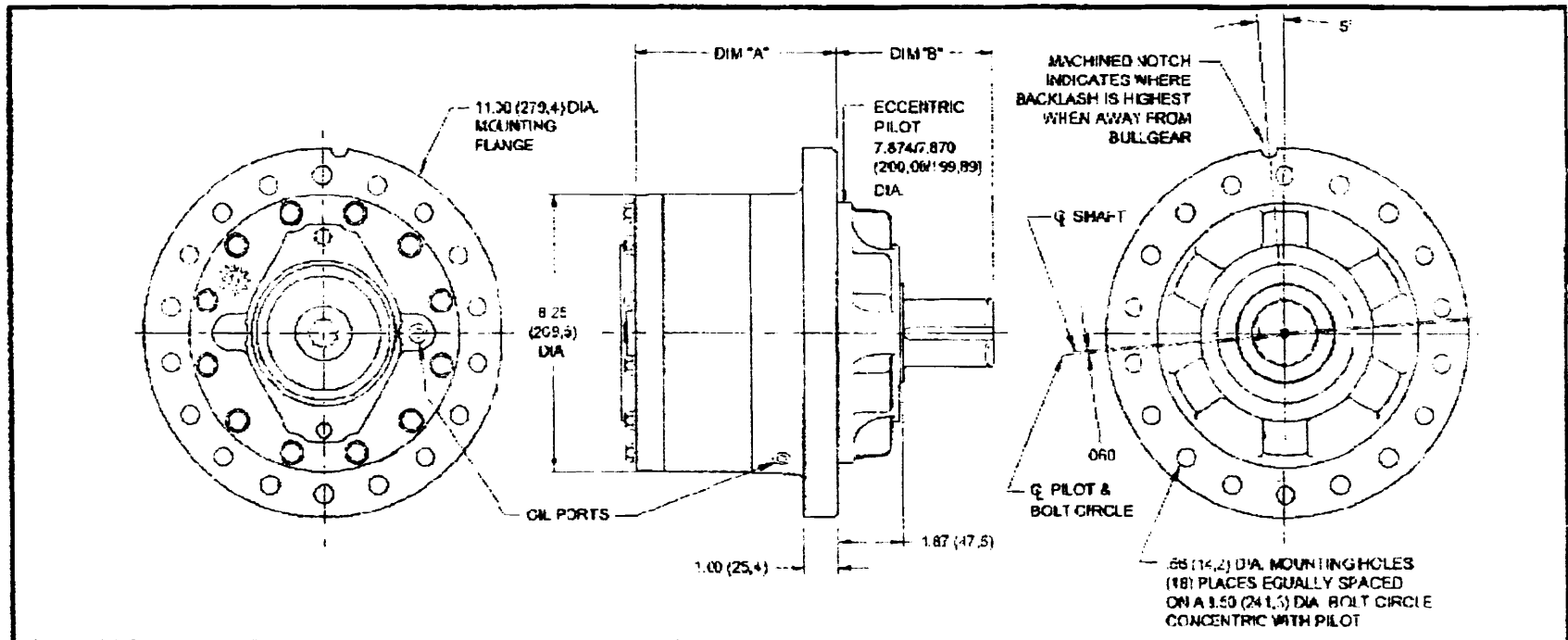
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General Dimensions for Flanged Quick Eccentric Gear Drive Mounting (ordering option 'AQ')

Other options may be available. See ordering information on last page or contact your Eskridge representative for more details.

Values are shown as "inches (millimeters)". Please see pages 6 & 7 for full Dimension A & B specifications.





50 Gear Drive - Shaft Output

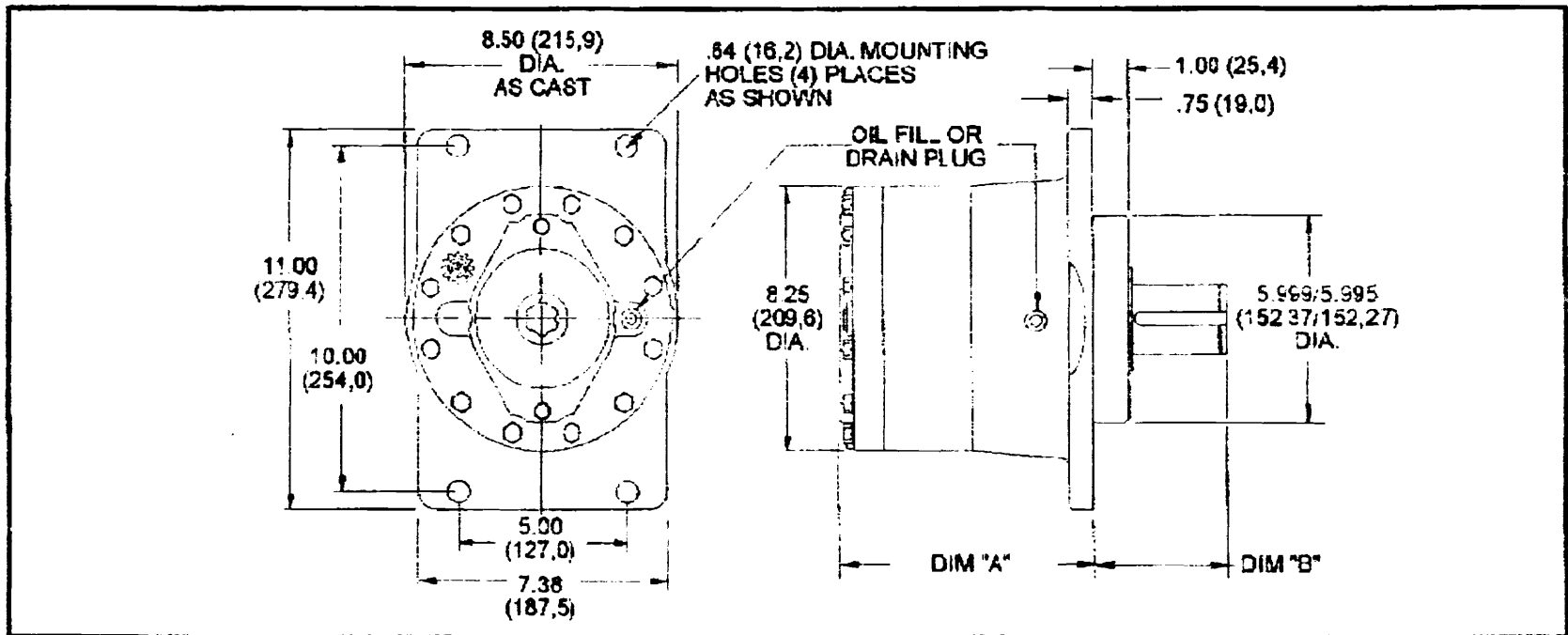
Typical Applications: Industrial, Marine or Mobile Equipment

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General Dimensions for Rectangular Gear Drive Mounting (ordering option 'E')

Other options may be available. See ordering information on last page or contact your Eskridge representative for more details.

Values are shown as "inches (millimeters)." Please see pages 6 & 7 for full Dimension A & B specifications.





50 Gear Drive - Shaft Output

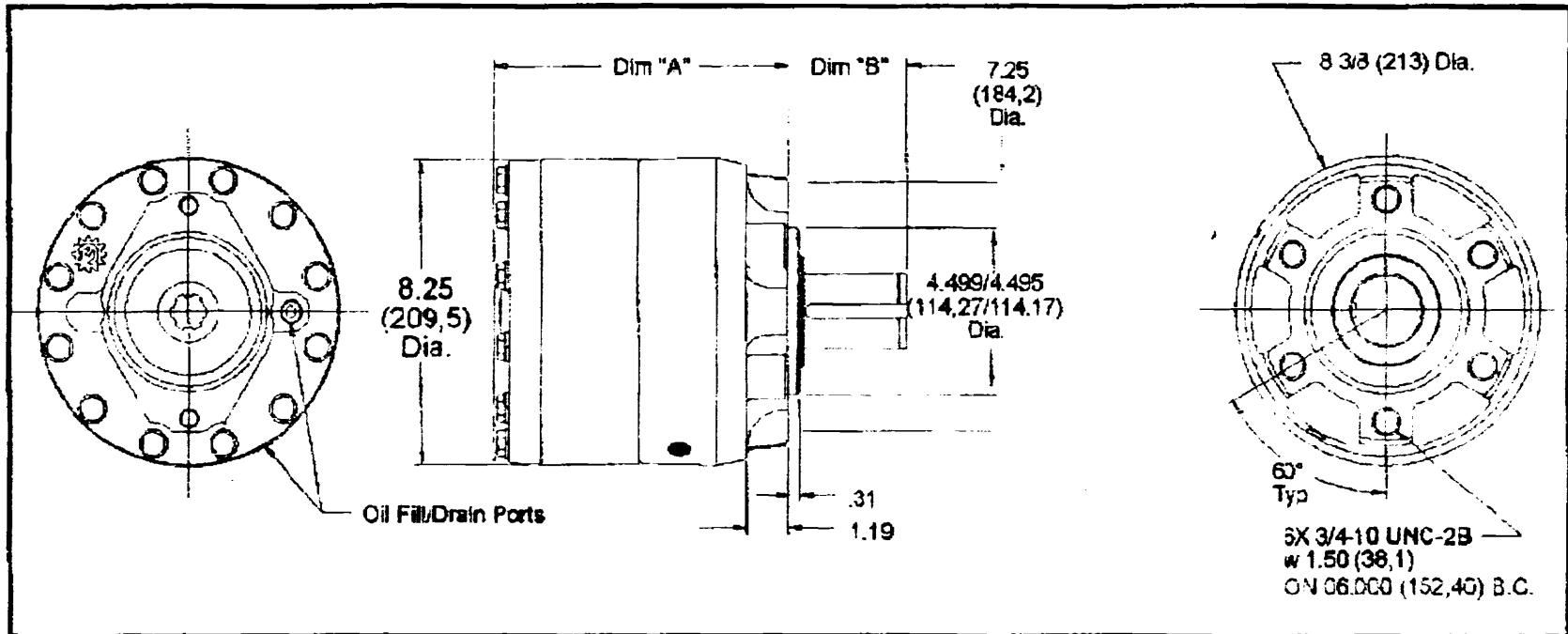
Typical Applications: Industrial, Marine or Mobile Equipment

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General Dimensions for Flangeless Gear Drive Mounting (ordering option 'F')

Other options may be available. See ordering information on last page or contact your Eskridge representative for more details.

Values are shown as "inches (millimeters)." Please see pages 6 & 7 for full Dimension A & B specifications.





50 Gear Drive - Shaft Output

Typical Applications: Industrial, Marine or Mobile Equipment

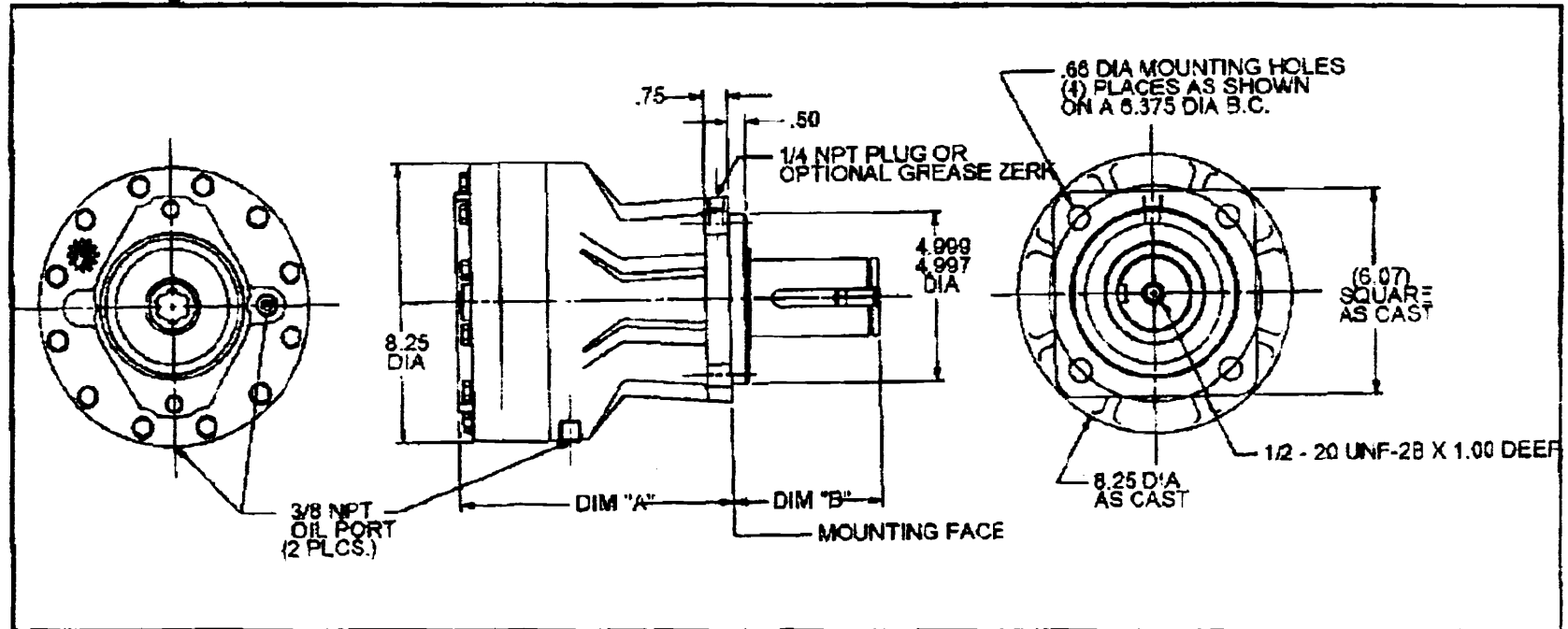
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Page 5 of 16

General Dimensions for Square, SAE "C" Gear Drive Mounting (ordering option 'G')

Other options may be available. See ordering information on last page or contact your Eskridge representative for more details.

Values are shown as "inches (millimeters)." Please see pages 6 & 7 for full Dimension A & B specifications.

This mounting must be ordered with the L shaft retention





50 Gear Drive - Shaft Output

Typical Applications: Industrial, Marine or Mobile Equipment

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Dimension "A" Specifications (Flange to Flange)

Gear Drive Mounting	Input Mounting, Option A SAE A - 2 & Modified 4 Bolt			Input Mounting, Option E SAE B - 2 Bolt			Input Mounting, Option C SAE C - 4 Bolt			Input Mounting, Option K SAE C - 2 Bolt		
	Single Planetary	Double Planetary	Triple Planetary	Single Planetary	Double Planetary	Triple Planetary	Single Planetary	Double Planetary	Triple Planetary	Single Planetary	Double Planetary	Triple Planetary
A	5.44 (138.1)	6.66 (169.1)	7.95 (201.9)	5.44 (138.1)	6.66 (169.1)	7.95 (201.9)	5.79 (147.0)	7.01 (178.0)	8.30 (210.8)	5.79 (147.0)	7.01 (178.0)	8.30 (210.8)
AQ	5.44 (138.1)	6.66 (169.1)	7.95 (201.9)	5.44 (138.1)	6.66 (169.1)	7.95 (201.9)	5.79 (147.0)	7.01 (178.0)	8.30 (210.8)	5.79 (147.0)	7.01 (178.0)	8.30 (210.8)
E	6.31 (160.2)	7.53 (191.2)	8.82 (224.0)	6.31 (160.2)	7.53 (191.2)	8.82 (224.0)	6.66 (169.1)	7.88 (200.1)	9.17 (232.9)	6.66 (169.1)	7.88 (200.1)	9.17 (232.9)
F	7.00 (177.7)	8.22 (208.7)	9.51 (241.5)	7.00 (177.7)	8.22 (208.7)	9.51 (241.5)	7.35 (186.6)	8.57 (217.6)	9.36 (238.3)	7.35 (186.6)	8.57 (217.6)	9.36 (238.3)
G	8.23 (209.0)	9.45 (240.0)	10.74 (272.7)	8.23 (209.0)	9.45 (240.0)	10.74 (272.7)	8.58 (217.9)	9.80 (248.9)	11.09 (281.6)	8.58 (217.9)	9.80 (248.9)	11.09 (281.6)
C	<i>Consult Eskridge on all options</i>											

1/10/05 13:30
 7/20/05 10:22
 11/11/05 11:11
 1/11/06 11:11



50 Gear Drive - Shaft Output

Typical Applications: Industrial, Marine or Mobile Equipment

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Dimension "B" Specifications

Gear Drive Mounting	Shaft Options										
	D1	D2	D3	D4	D5	D6	D7	D8	F2	H2	C1
A	4.78 (121.3)	4.78 (121.3)	5.00 (128.9)	5.00 (126.9)	—	—	—	—	5.63 (142.9)	7.62 (193.4)	Consult Eskridge on all options
AQ	4.78 (121.3)	4.78 (121.3)	5.00 (128.9)	5.00 (126.9)	—	—	—	—	5.63 (142.9)	7.62 (193.4)	
E	3.91 (99.2)	3.91 (99.2)	4.13 (104.8)	4.13 (104.8)	—	—	—	—	4.78 (120.8)	6.75 (171.3)	
F	3.22 (81.7)	3.22 (81.7)	3.44 (87.3)	3.44 (87.3)	—	—	—	—	4.76 (120.8)	6.06 (153.9)	
G	3.36 (85.4)	3.36 (85.4)	4.50 (114.4)	3.85 (97.9)	2.63 (64.3)	3.00 (76.3)	4.14 (105.3)	3.57 (90.8)	—	—	
C	Consult Eskridge on all options										

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50 Gear Drive - Shaft Output

Typical Applications: Industrial, Marine or Mobile Equipment

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Oil Capacities

Position		Quantity		
		Single Planetary	Double Planetary	Triple Planetary
A, AQ, E & F Mounts	Vertical	2.00 pts 1.0 L	3.00 pts 1.4 L	3.50 pts 1.7 L
	Horizontal	1.50 pts 0.7 L	1.75 pts 0.8 L	2.00 pts 1.0 L
G Mount	Vertical	1.75 pts 0.8 L	2.75 pts 1.3 L	3.25 pts 1.5 L
	Horizontal	1.25 pts 0.6 L	1.50 pts 0.7 L	1.75 pts 0.8 L

All units are shipped dry (without oil).

Approximate Unit Weights

Gear Drive Mounting	Stages		
	Single Planetary	Double Planetary	Triple Planetary
A	81 (37)	94 (43)	107 (49)
AQ	81 (37)	94 (43)	107 (49)
E	79 (36)	92 (42)	105 (48)
F	70 (32)	93 (38)	96 (44)
G	64 (29)	77 (35)	90 (41)
C	Consult Eskridge		

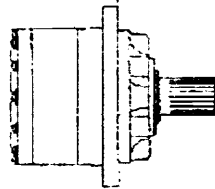
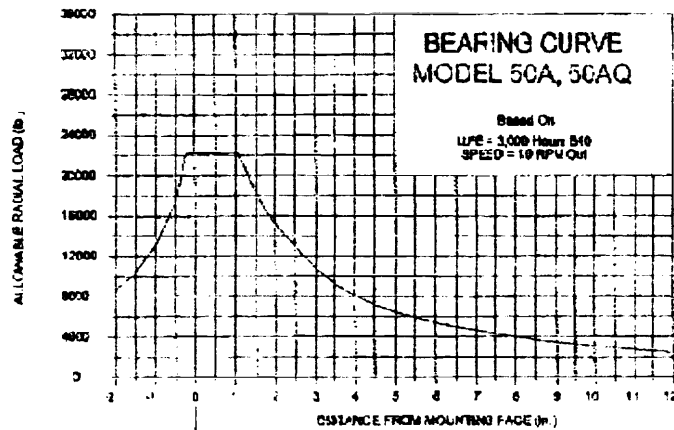


50 Gear Drive - Shaft Output

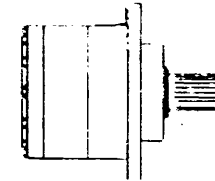
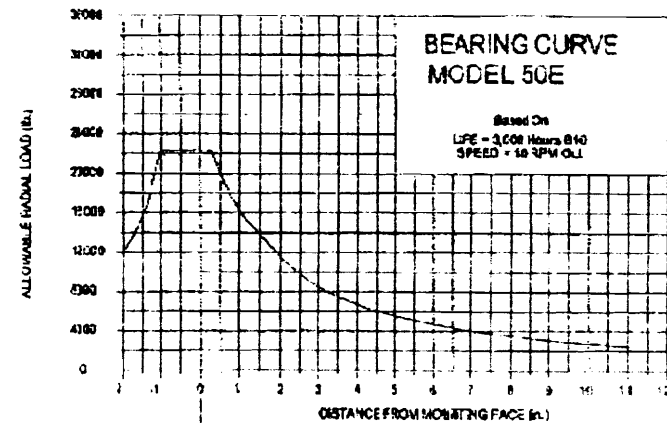
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Bearing Curve Option A/AQ



Bearing Curve Option E



To adjust for loads and speeds other than those shown on above curve, use this formula:

$$\text{Adjusted Life (hours)} = 3000 \left(\frac{10\text{rpm}}{\text{Speed(Adjusted)}} \right) \times \left(\frac{\text{Load (Curve)}}{\text{Load (Adjusted)}} \right)^{1/3}$$

10/06/2005 13:38 ESKRIDGE 10/22 SKULL WITH FORM PAGE 17

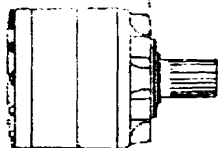
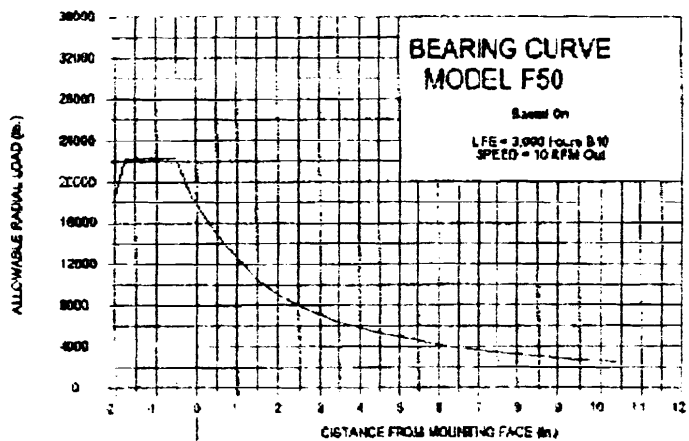


50 Gear Drive - Shaft Output

Typical Applications: Industrial, Marine or Mobile Equipment

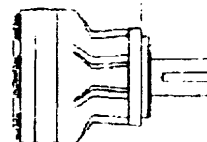
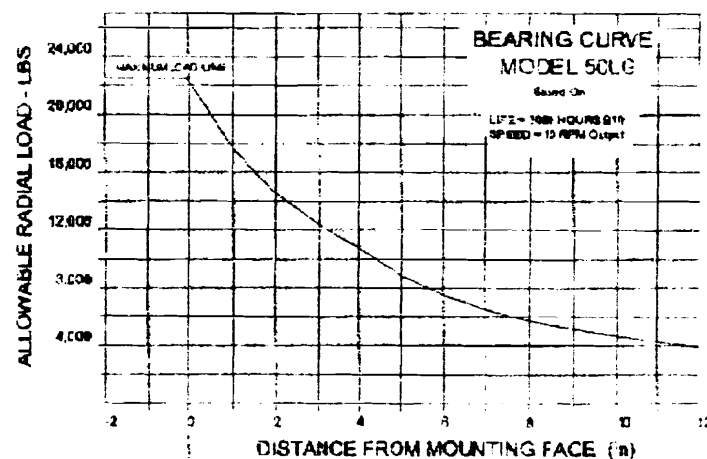
(913) 782-1238 (Tel)
 (913) 782-4208 (Fax)
Sales@EskridgeInc.com
www.EskridgeInc.com
 FORM: PESQ_0508
 Page 10 of 16

Bearing Curve Option F



Bearing Curve Option G

Option G must be ordered with option L shaft retention.



To adjust for loads and speeds other than those shown on above curve, use this formula:

$$\text{Adjusted Life (hours)} = 3000 \left(\frac{10\text{rpm}}{\text{Speed(Adjusted)}} \right) \times \left(\frac{\text{Load (Curve)}}{\text{Load (Adjusted)}} \right)^{100}$$



50 Gear Drive - Shaft Output

Typical Applications: Industrial, Marine or Mobile Equipment

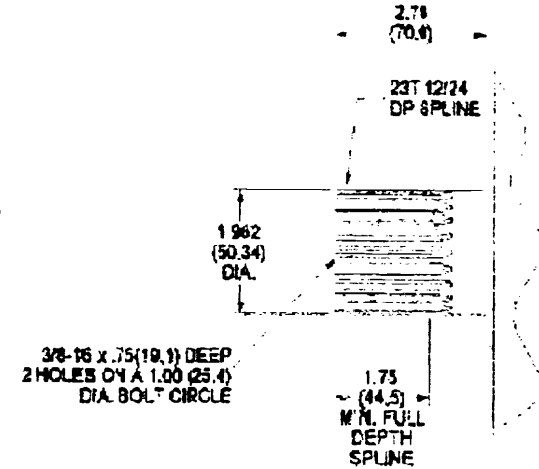
(913) 782-1238 (Tel)
 (913) 782-4208 (Fax)
 Sales@EskridgeInc.com
 www.EskridgeInc.com
 FORM: PS50_0505
 Page 11 of 18

Output Shaft Options Values are shown as "inches (millimeters)"

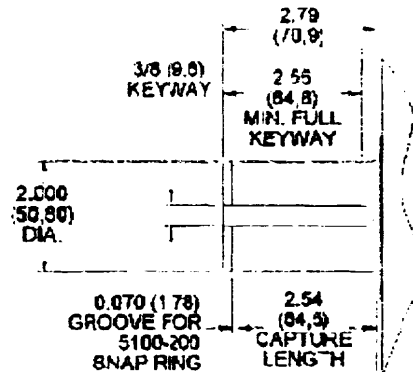
A, AQ, E & F Mounts Output Shaft Order Codes		
A, AQ, E & F Mounts Only	D1	2.00" Dia. x 3/8" Key
	D2	23T 12/24 DP Spline
	D3	2.125" Dia. x 1/2" Key
	D4	2.00" Dia. x 1/2" Key
	F2	2.00" Dia. x 1/2" Key (Internal) <i>(Only for use with K shaft retention option; contact Eskridge for details)</i>
	H2	2.00" Hex Drive
	C1	Custom Shaft, Consult Eskridge

D2 - 23T 12/24 DP Spline

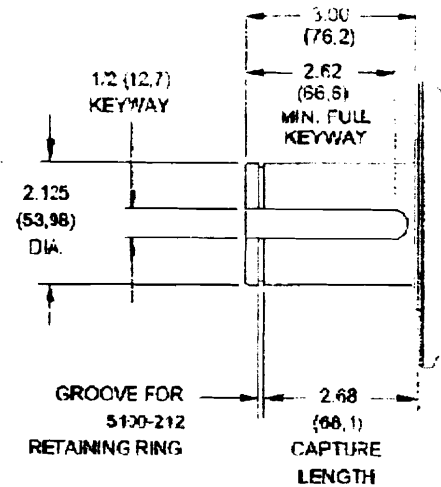
See Hubs & Pinions
technical data sheet for
details.



D1 - 2.00" Dia. x 3/8" Key



D3 - 2.125" Dia. x 1/2" Key





ESKRIDGE

50 Gear Drive - Shaft Output

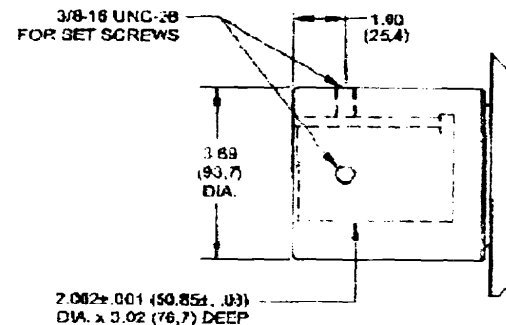
Typical Applications: Industrial, Marine or Mobile Equipment

(913) 762-1236 (Tel)
 (913) 762-4203 (Fax)
 Sales@Eskridgeinc.com
 www.Eskridgeinc.com
 FORM: PS50_0505
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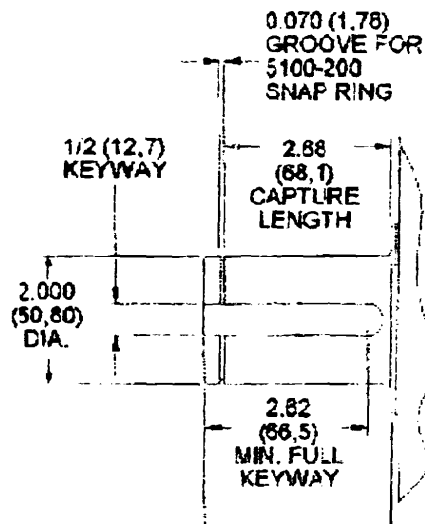
Output Shaft Options *Values are shown as "inches (millimeters)"*

A, AQ, E & F Mounts Output Shaft Order Codes	
A, AQ, E & F Mounts Only	D1 2.00" Dia. x 1/2" Key
	D2 23T 12/24 DP Spline
	D3 2.125" Dia. x 1/2" Key
	D4 2.00" Dia. x 1/2" Key
	F2 2.00" Dia. x 1/2" Key (Internal) <i>(Only for use with K shaft retention option; contact Eskridge for details!)</i>
	H2 2.00" Hex Drive
	C1 Custom Shaft, Consult Eskridge

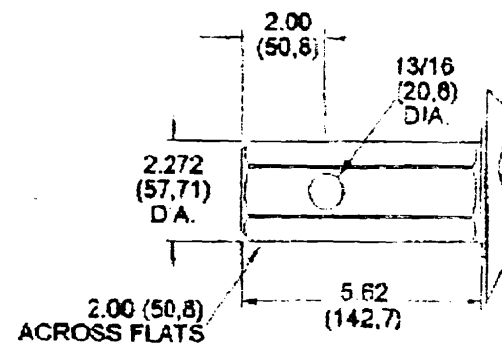
F2 - 2.00" Dia. x 1/2" Key (Internal)



D4 - 2.00" Dia. x 1/2" Key



H2 - 2.00" Hex Drive



18/06/2005 13:30 6030 1/28/02 SULLIVAN P111 12/11 P158 28



50 Gear Drive - Shaft Output

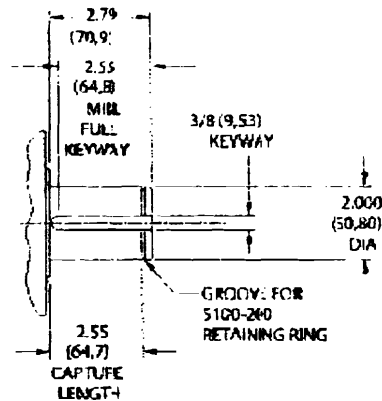
Typical Applications: Industrial, Marine or Mobile Equipment

(813) 782-238 (Tel)
 (913) 782-4206 (Fax)
Sales@EskridgeInc.com
www.EskridgeInc.com
 FORM: P550_0605
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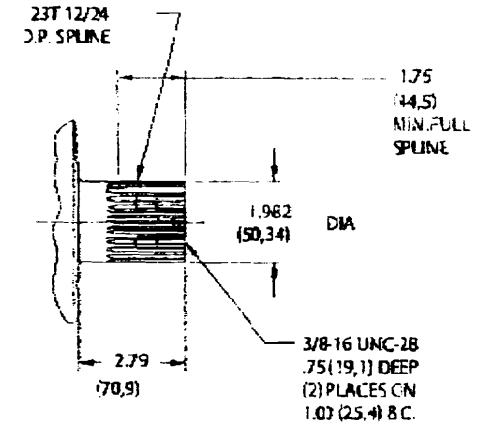
Output Shaft Options *Values are shown as "inches (millimeters)"*

G Mount Output Shaft Order Codes		
G Mounts Only	D1	2.00" Dia. x 3/8" Key
	D2	23T 12/24 DP Spline
	D3	2.25" x 1/2" Key
	D4	16T 8/16 DP Spline <i>(Replaces H&co Model 18)</i>
	D5	17T 12/24 DP Spline
	D6	17T 12/24 DP Spline (1/4" Longer than D5 Shaft)
	D7	2.00" Dia. x 1/2" Key
	D8	16T 8/16 DP Spline <i>(Replaces Char Lynn 10,000 Motor)</i>
	C1	Custom Shaft, Consult Eskridge

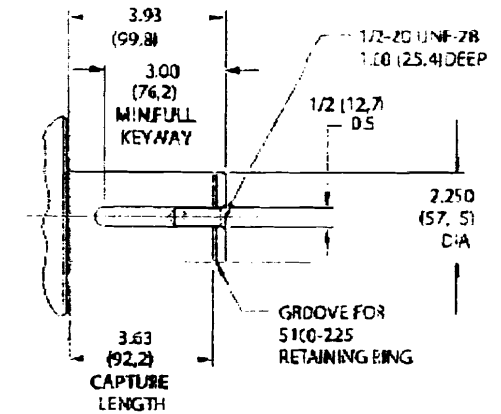
D1 - 2.00" Dia. x
3/8" Key



D2 - 23T 12/24 DP
Spline



D3 - 2.25" x
1/2" Key





50 Gear Drive - Shaft Output

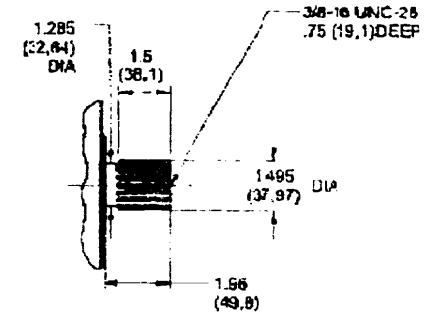
Typical Applications: Industrial, Marine or Mobile Equipment

(913) 782-1238 (Tel)
 (913) 782-4208 (Fax)
 Sales@EskridgeInc.com
 www.EskridgeInc.com
 FORM: P650_0505
 Page 14 of 16

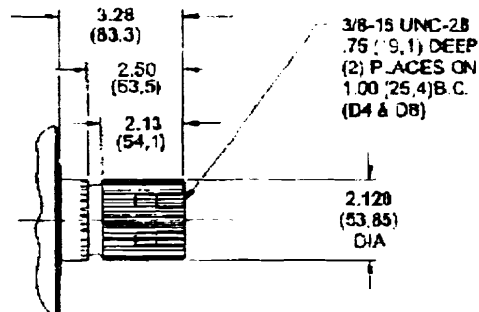
Output Shaft Options Values are shown as "inches (millimeters)"

G Mount		
Output Shaft Order Codes		
G Mounts Only	D1	2.00" Dia. x 1/4" Key
	D2	23T 12/24 DP Spline
	D3	2.25" x 1/2" Key
	D4	16T 8/16 DP Spline (Replaces H&C Model 16)
	D5	17T 12/24 DP Spline
	D6	17T 12/24 DP Spline (1/4" Longer than D5 Shaft)
	D7	2.00" Dia. x 1/2" Key
	D8	16T 8/16 DP Spline (Replaces Char Lynn 10,000 Motor)
	C1	Custom Shaft, Consult Eskridge

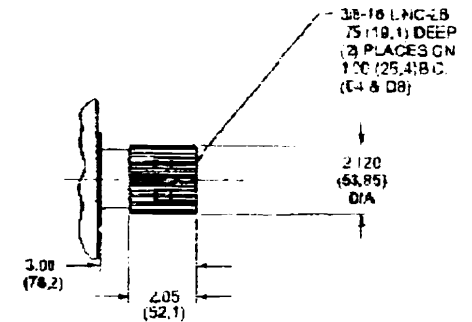
D5 - 17T 12/24 DP Spline



D4 - 16T 8/16 DP Spline



D6 - 17T 12/24 DP Spline (1/4" Longer than D5 Shaft)



10/06/2005 13:30 E038: 08/22 SULLIVAN, JIM PAGE 22



50 Gear Drive - Shaft Output

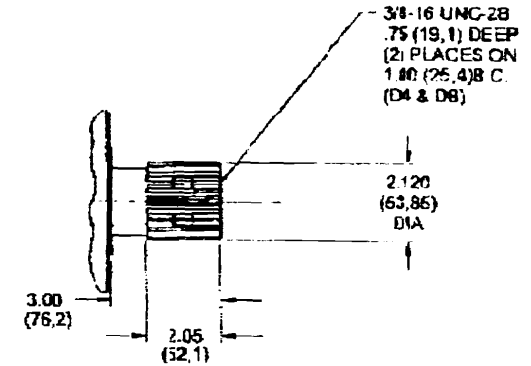
Typical Applications: Industrial, Marine or Mobile Equipment

(913) 782-1236 (Tel)
 (913) 782-4208 (Fax)
 Sales@EskridgeInc.com
 www.EskridgeInc.com
 FORM: P300_0505
 Page 15 of 16

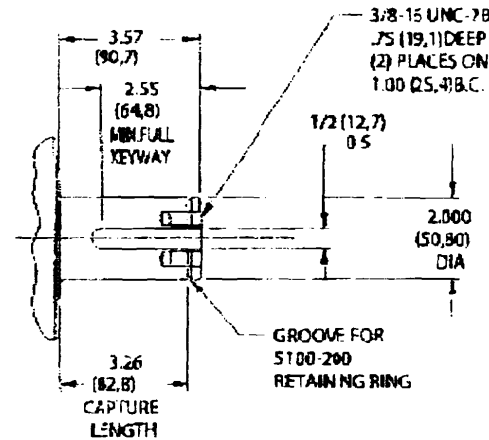
Output Shaft Options Values are shown as "Inches (millimeters)"

G Mount Output Shaft Order Codes	
G Mounts Only	D1 2.00" Dia. x 1/2" Key
	D2 23T 12/24 DP Spline
	D3 2.25" x 1/2" Key
	D4 16T 8/16 DP Spline <i>(Replaces Heco Model 16)</i>
	D5 17T 12/24 DP Spline
	D6 17T 12/24 DP Spline (1/4" Longer than D5 Shaft)
	D7 2.00" Dia. x 1/2" Key
	D8 16T 8/16 DP Spline <i>(Replaces Cher Lynn 10,000 Motor)</i>
	C1 Custom Shaft, Consult Eskridge

D8 - 16T 8/16 DP Spline



D7 - 2.00" Dia. x 1/2" Key





50 Gear Drive - Shaft Output

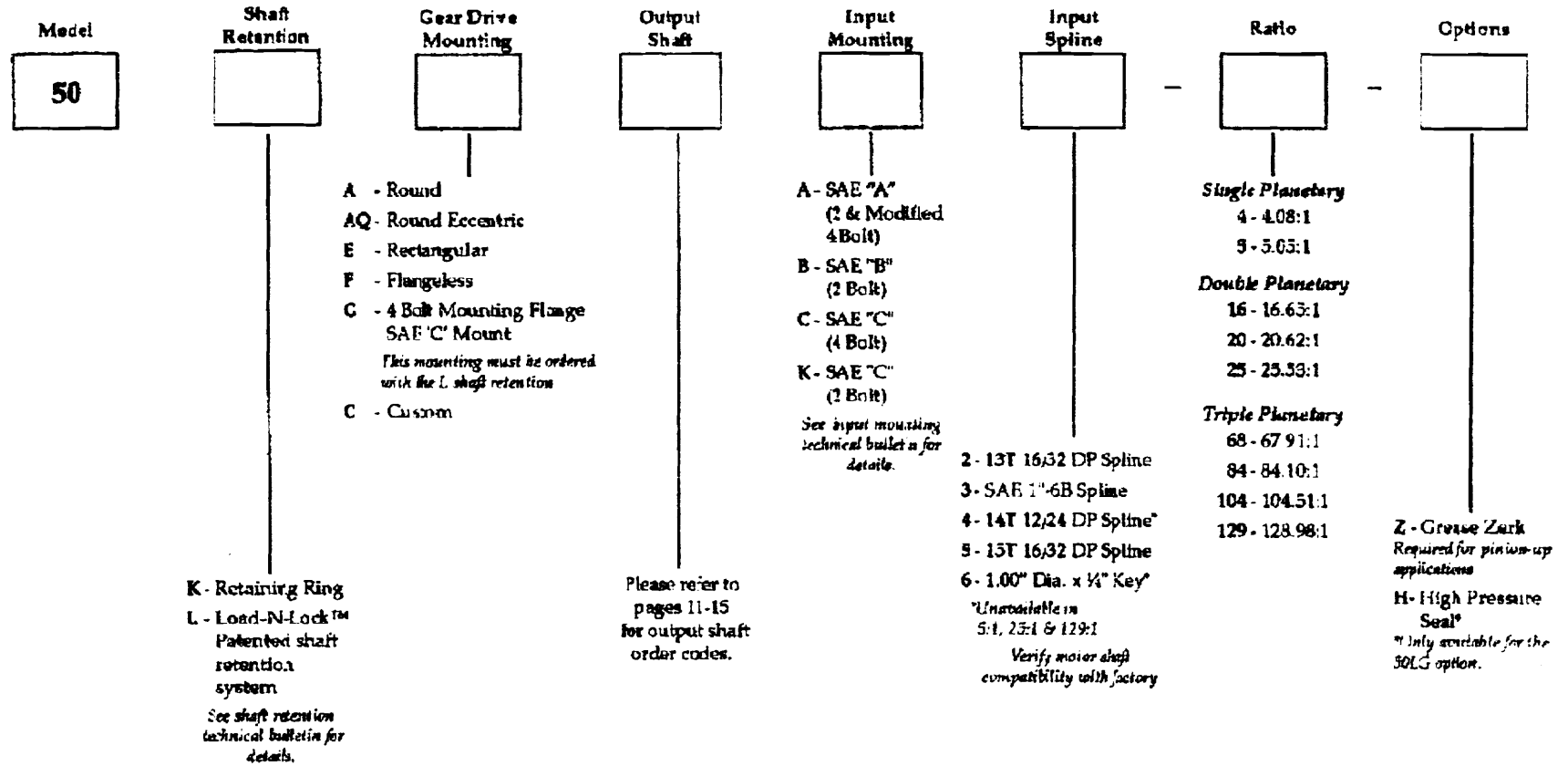
Typical Applications: Industrial, Marine or Mobile Equipment

(813) 782-1238 (Tel)
 (93) 782-4208 (Fax)
 Sales@EskridgeInc.com
 www.EskridgeInc.com
 FORM: PSSO_0305
 Page 16 of 16

Ordering Information

Example Part Number: 50KAD1A1-4

Please note that additional options are available on the 50 series.
 Contact the factory for further information about unlisted options.



50-20 Code 39 - NICHOLS 111A-088-AP-0

Digger Model
50-20

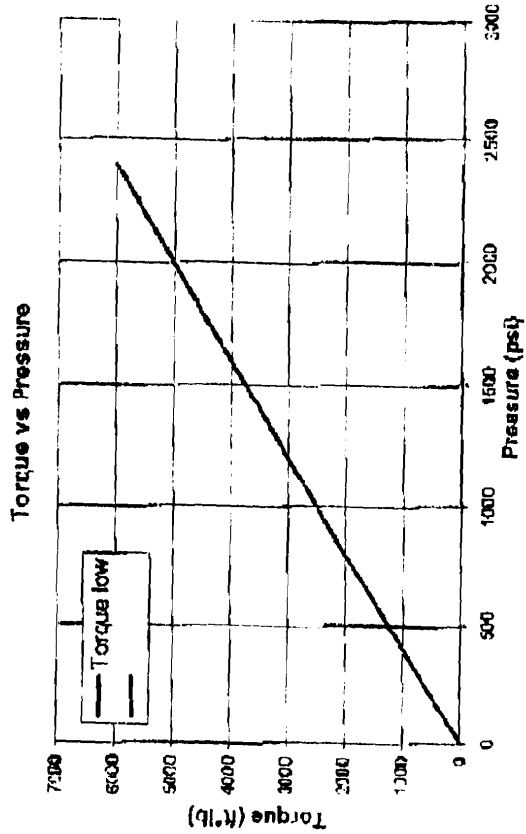
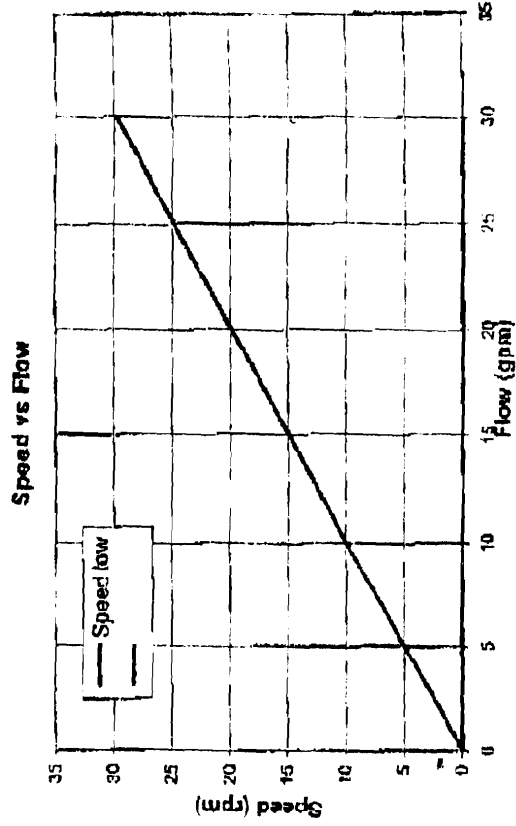
Ratio	eff	hl ratio	hl eff
20.61824	0.95	0	0

Motor description
Code 39 - NICHOLS 111A-088-AP-0

motor p/n	Disp low	Eff low	Disp hi	Eff hi	Max pressure
01-304-0390	10.6	3.91	0	0	2400

Pressure	Torque low
0	0
2400	6,014

flow gpm	Speed low
0	0
30	30

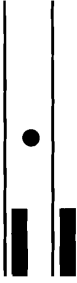


ESKRIDGE

B28 W/10.6 CID MOTOR

delta press (psi)	Torque low (ft-lb)	
0	0	
100	251	
200	501	
300	752	
400	1,002	
500	1,253	
600	1,503	
700	1,754	
800	2,005	
900	2,255	
1000	2,506	
1100	2,756	
1200	3,007	
1300	3,257	
1400	3,508	
1500	3,758	
1600	4,009	
1700	4,260	
1800	4,510	
1900	4,761	
2000	5,011	
2100	5,262	
2200	5,512	
2300	5,763	
2400	6,014	

1808.3.2



L & L STRUCTURAL
ENGINEERING SERVICES, INC.
Six Q Street
South Portland, ME 04106
Phone: (207) 767-4830
Fax: (207) 799-5432

September 6, 2005

Mr. James Sterling
142 High Street
Portland, Maine 04101

Subject: Amendment to the **SCHEDULE OF SPECIAL INSPECTIONS**

Dear Mr. Sterling

As we discussed we have revised our Schedule of Special Inspections to include monitoring the Helical pile driving. We have also included the pile design criteria on the general notes sheet. Our office has also contacted S.W. Cole Engineering to let them know that the pile monitoring will also be included in there scope of work.

If you have any questions, please call.

Sincerely,

L&L Structural Engineering Services, Inc.

A handwritten signature in black ink that reads "Mark F Leasure". The signature is written in a cursive, flowing style.

Mark F. Leasure, P.E.
Principal

Cc: Mike Nugent (City of Portland)
Peter Haber (Wright-Ryan Construction)

SCHEDULE OF SPECIAL INSPECTIONS

Project: 490 CONGRESS STREET

Page: 2of 3

MATERIAL/ ACTIVITY	ITEM	SERVICE	APPLICABLE TO THIS PROJECT		COMMENTS	AGENT #	DATE	COMPLETED
			Y/N	EXTENT (All,Sample, Other, None)				
TIMBER CONSTRCTION	1.08							
Floor Sheathing	1.10	Review sheathing for nail spacing, required glueing to support, and conformance with the project Specifications.	Y	Freq: After erection of each level of framing.		1		
Roof Sheathing	1.11	Review sheathing for nail spacing and conformance to the project project specifications	Y	Freq: After erection of each level of framing.		1		
Wall Sheathing	1.12	Review sheathing for nail spacing on wall studs, around windows and conformance to the project specifications.	Y	Freq: After erection of each level of framing.		1		
SOILS	1.13							
Site Preparation	1.14	Verify that the site has been prepared in compliance with the approved soils report.	Y	Freq: Inspect prior to placing concrete footings.		1		
Fill Placement	1.15	Verify that the maximum fill lift is in compliance w/ the design documents, as well as, materials.	Y	Freq: Inspect during the placement of fill material		1		
Soil compaction	1.16	Verify that the in-place dry density is in compliance with the design drawings.	Y	Freq: Inspect prior to placing concrete footings or slabs.		1		

FROM DESIGNER: L & L STRUCTURAL ENG SERV, INC.
 DATE: MAY 25, 2005
 Job Name: 490 CONGRESS ST.
 Address of Construction: 490 CONGRESS ST.

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) R2

Type of Construction 3B

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IRC 13

Is the Structure mixed use? Y if yes, separated or non separated (see Section 302.3) SEPARATE

Supervisory alarm system? Y Geotechnical/Soils report required?(See Section 1802.2) NA

STRUCTURAL DESIGN CALCULATIONS
YES Submitted for all structural members
 (106.1, 106.1.1)

Y Live load reduction
 (1803.1.1, 1807.9, 1807.10)
N Roof live loads (1803.1.2, 1807.11)

DESIGN LOADS ON CONSTRUCTION DOCUMENTS
 (1803)

Roof snow loads (1803.1.3, 1808)

Floor Area Use	Loads Shown
<u>DWELLING</u>	<u>42 PSF</u>
<u>CORRIDOR</u>	<u>100 PSF</u>
<u>STAIRS/EXIT</u>	<u>100 PSF</u>
<u>MECH/ELEC</u>	<u>60 PSF</u>

60 PSF Ground snow load, P_g (1808.2)
42 PSF If $P_g > 10$ psf, flat-roof snow load, P_f
 (1808.3)
0.9 If $P_g > 10$ psf, snow exposure factor, C_e
 (Table 1808.3.1)
1.0 If $P_g > 10$ psf, snow load importance
 factor, I_s (Table 1804.5)
1.0 Roof thermal factor, C_t (Table 1808.3.2)
N/A Sloped roof snowload, P_s (1808.4)

Wind loads (1803.1.4, 1808)
1609.1.1 Design option utilized (1809.1.1, 1809.6)
100 mph Basic wind speed (1809.3)
II/1.0 Building category and wind importance
 factor, I_w (Table 1804.5, 1809.5)
B Wind exposure category (1809.4)
1/0.18 Internal pressure coefficient (ASCE 7)
Z 4 (18.7) / 25 (22.5) Component and cladding pressures
 (1809.1.1, 1809.6.2.2)
33 PSF Main force wind pressures (1809.1.1,
 1809.6.2.1)

C Seismic design category (1816.3)
1.1 Basic seismic-force-resisting system
 (Table 1817.6.2)
2/2 Response modification coefficient, R ,
 and deflection amplification factor, C_d
 (Table 1817.6.2).
ASCE 7 Analysis procedure (1816.6, 1817.5)
50 KIPS Design base shear (1817.4, 1817.5.1)

Flood loads (1803.1.6, 1812)
N Flood hazard area (1812.3)
UNKNOWN Elevation of structure

Earthquake design data (1803.1.5, 1814 - 1823)
IBC-03 Design option utilized (1814.1)
II Seismic use group ("Category")
 (Table 1804.5, 1816.2)
0.35/0.16 Spectral response coefficients, S_{ps} &
 S_{p1} (1815.1)
D Site class (1815.1.5)

Other loads
 - Concentrated loads (1807.4)
 - Partition loads (1807.5)
 - Impact loads (1807.8)
 - Misc. loads (Table 1807.8, 1807.8.1,
 1807.7, 1807.12, 1807.13, 1810,
 1811, 2404)



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

ACCESSIBILITY CERTIFICATE

Designer: James Sterling, AIA, Archt.

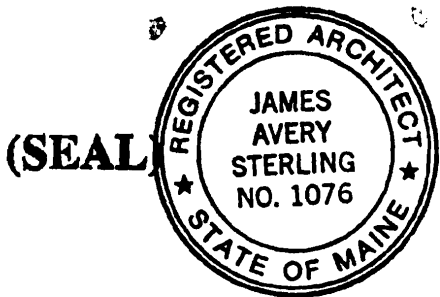
Address of Project: 490 Congress Street

Nature of Project: Renovation to existing building

Project exempt: building pre-dates

'First Occupancy' March 13, 1991 rule.

First Level Commercial space will Comply.
The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable referenced standards found in the Maine Human Rights Law and Federal Americans with Disability Act.



Signature: 

Title: Architect

Firm: James Sterling Architect

Address: 142 High Street, Suite 612
Portland, Maine 04101

Phone: 772-0037

From: Ethan Boxer-Macomber
To: Marge Schmuckal
Date: Tue, Jun 14, 2005 2:18 PM
Subject: Re: 490 congress st

Regarding 490 Congress-

They just got me docs to satisfy conditions of approval. I have not reviewed them thoroughly yet. It seems like they have made a change to the unit count which may require them to go back to the Planning Board. I will bring this to tomorrow's review meeting.

Not yet okay to issue a building permit.

Ethan

>>> Marge Schmuckal 06/14 1:04 PM >>>

Ethan,

What is the status of this project? I have received an application for a building permit. I also note that they have added two residential d.u. (from 21 to 23 du) since I reviewed this last for you in november. Is 23 the correct number of dwelling units at this time? How many of those units are within new construction and not within the old structure? When can I get a stamped approved site plan for this project?

Thanks,

Marge

CC: Sarah Hopkins

6/23/05 - Brown St is NOT
in the FAD district

From: Marge Schmuckal
To: Ethan Boxer-Macomber
Date: Tue, Jun 14, 2005 1:04 PM
Subject: 490 congress st

Ethan,

What is the status of this project? I have received an application for a building permit. I also note that they have added two residential d.u. (from 21 to 23 du) since I reviewed this last for you in november. Is 23 the correct number of dwelling units at this time? How many of those units are within new construction and not within the old structure? When can I get a stamped approved site plan for this project?

Thanks,
Marge

CITY OF PORTLAND, MAINE
PLANNING BOARD

Orlando E. Delogu, Chair
Lee Lowry III, Vice Chair
John Anton
Kevin Beal
Michael Patterson
David Silk
Janice E. Tevanian

November 12, 2004

Matthew Alcorn
Kimball Building
P.O. Box 427
Vinalhaven, ME 04863

RE: 490-492 Congress Street
Application #2004-0146, CBL #037 I002001

Dear Mr. Alcorn:

On November 9, 2004, the Portland Planning Board voted 7-0 to approve the subdivision application for the above referenced project. The approval was granted for the project based on the finding and subject to conditions as follows:

That the plan is in conformance with the subdivision standards of the land use code.

Conditions of Approval:

- i. The applicant shall present condominium documents to the City of Portland for final review and approval by Corporation Counsel.
- ii. A subdivision plat, in conformance with city code section 14-496, shall be prepared for signature by the Planning Board.

On November 9, 2004, the Portland Planning Board also voted 5-2 (Anton and Beal Opposed) to approve the subdivision application for the above referenced project. The approval was granted for the project based on the finding and subject to conditions as follows:

That the plan is in conformance with the site plan standards of the land use code.

Conditions of Approval:

- iii. The final design of the project's Congress Street façade shall be in substantial conformance with the approved plans. Final architectural finishes and detailing shall be subject to review and approval by the Planning Authority.
- iv. The final exterior lighting plan shall be subject to final review and approval by the Planning Authority.
- v. If for any reason, the lease with the City of Portland for 23 parking spaces at the Spring Street Parking Garage is terminated, not renewed, or otherwise becomes inoperative the developer or any succeeding condominium association shall nonetheless be responsible as the condition of this site plan approval for providing 23 parking spaces within 750 feet of 490-492 Congress Street. The spaces under the lease shall be allocated to the 23 residential units.
- vi. The developer shall present the City with a letter of financial capacity for review and approval by the Planning Authority.
- vii. The developer shall provide a contribution to the City Street Tree Program at a rate of two trees per residential unit and \$100 per tree for a total required contribution of \$4,600.

The approval includes a redesign and upper story addition to the property at 490-492 Congress Street for the creation of 23 upper-level, residential condominiums and open retail / office shell space on the first floor and in the basement. The Congress Street façade design was approved as part the site plan approval.

The approval is based on the submitted site plan and the findings related to subdivision and site plan review standards as contained in Planning Report #54-04, which is attached.

Please note the following provisions and requirements for all site plan approvals:

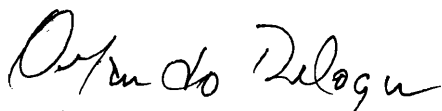
1. Where submission drawings are available in electronic form, the applicant shall submit any available electronic Autocad files (*.dwg), release 14 or greater, with seven (7) sets of the final plans.

2. A performance guarantee covering the site improvements as well as an inspection fee payment of 2.0% of the guarantee amount and 7 final sets of plans must be submitted to and approved by the Planning Division and Public Works prior to the release of the building permit. If you need to make any modifications to the approved site plan, you must submit a revised site plan for staff review and approval.
3. The site plan approval will be deemed to have expired unless work in the development has commenced within one (1) year of the approval or within a time period agreed upon in writing by the City and the applicant. Requests to extend approvals must be received before the expiration date.
4. A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.
5. Prior to construction, a pre-construction meeting shall be held at the project site with the contractor, development review coordinator, Public Work's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the pre-construction meeting.
6. If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

The Development Review Coordinator must be notified five (5) working days prior to date required for final site inspection. The Development Review Coordinator can be reached at the Planning Department at 874-8632. Please make allowances for completion of site plan requirements determined to be incomplete or defective during the inspection. This is essential as all site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions or concerns, please contact Ethan Boxer-Macomber at 756-8083 or ebm@portlandmaine.gov.

Sincerely,



Orlando Delogu, Chair
Portland Planning Board

cc: Lee D. Urban, Planning and Development Department Director
Alexander Jaegerman, Planning Division Director
Sarah Hopkins, Development Review Services Manager
Ethan Boxer-Macomber, Planner
Jay Reynolds, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Inspections Division
Michael Bobinsky, Public Works Director
Traffic Division
Eric Labelle, City Engineer
Jeff Tarling, City Arborist
Penny Littell, Associate Corporation Counsel
Lt. Gaylen McDougall, Fire Prevention
Assessor's Office
Approval Letter File

DEC

Who billing will be sent to: (Company, Contact Person, Address, Phone #)

Submittals shall include (9) separate folded packets of the following:

- a. copy of application
- b. cover letter stating the nature of the project
- c. site plan containing the information found in the attached sample plans check list

Amendment to Plans: Amendment applications should include 6 separate packets of the above (a, b, & c)
ALL PLANS MUST BE FOLDED NEATLY AND IN PACKET FORM

Section 14-522 of the Zoning Ordinance outlines the process, copies are available at the counter at .50 per page (8.5 x11) you may also visit the web site: ci.portland.me.us chapter 14

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:

This application is for site review ONLY, a building Permit application and associated fees will be required prior to construction.

490 CONGRESS

project description for permit application, July 2004

"490 Congress" is the redevelopment and conversion of the vacant Bernie's Fashions at 490 Congress Street. Under new owners, Kimball Builders LLC, work will be completed to include the renovation of 490 Congress, retaining commercial uses at street level, with 21 residential units above. For this 41,194 GSF project, approximately 65% (26,884 GSF) of the work will be renovation to the existing structure, with 35% (14,310 GSF) new construction of upper residential floors and mezzanine. There will be no increase to the existing lot coverage. Construction is scheduled to begin in fall of 2004, starting with the renovation of existing commercial space. Completion is anticipated for spring of 2005. Construction will adhere to codes outlined in BOCA 1999 and NFPA 101.

The project will tie together three existing buildings occupying virtually the entire site (chart #37; block#1; lot #2). The primary volume extends from Congress street to Free street, intersected by an auxiliary volume projecting to a Brown street frontage. A six foot wide alleyway runs along the southern end of the site; however there is no deeded access from Free street to the 490 Congress alley by way of the adjacent lot. Existing utility services will be adequate to serve all planned commercial and residential units. Solid waste will be stored on site, in a sprinklered, rated trash room in the basement. Solid waste removal will be managed by private pickup from Brown Street, through a contractual agreement with a solid waste disposal contractor. Commercial loading will continue to be addressed through the use of existing commercial loading spaces. Residential move-in and loading will be addressed through a loading zone adjacent to the Brown street entrance. Residential parking will be provided at the Spring Street Parking Garage, where there will be 20 reserved spaces.

Commercial units will occupy the street and basement levels and have public access from Congress street. Residential units will occupy the second through fourth floor mezzanine levels. Entry to the residential units will be through lobby access from Brown Street. The lobby will connect with an internal courtyard on the second level, from which all the residential units will be accessed. The Congress street façade will be renovated with the addition of two residential levels. The Free and Brown street façades will be renovated. Upper level mezzanines will open to private rooftop decks.

Congress Street already has the Portland Museum of Art, Portland's Public Library, MECA, a number of public squares, and many other commercial and cultural institutions. "490 Congress" will bring a fresh presence to the neighborhood, while addressing the lack of downtown loft style housing along Portland's central cultural corridor.