CITY OF PORTSMOUTH, NEW HAMPSHIRE

ADDENDUM NO. 1

To

PRIMARY CLARIFIER AND GRAVITY THICKENER REPLACEMENT

BID NO. 03-15

The following changes and additional information are hereby made part of the Contract Documents.

ANNOUNCEMENTS:

1. A pre-bid meeting was held on Thursday June 26, 2014 at 10:00 am at the Peirce Island Wastewater Treatment Facility. Meeting minutes and a list of attendees are provided in Attachment A to this Addendum.

SPECIFICATIONS

SECTION 00015 - TABLE OF CONTENTS

1. Page 00015-iii. Insert the following after "Geotechnical Data Report":

   "APPENDIX B

   City of Portsmouth Blasting Rules and Procedures

   APPENDIX C

   Existing Site Piping Drawings

   APPENDIX D

   Existing Gravity Thickener Dome Shop Drawing"

ADVERTISEMENT FOR BIDS:

1. Page A-1.1. Delete "until 10:00 am (Standard Time-Daylight Savings Time) on July 25, 2014" and replace with "until 2:00 pm (Standard Time-Daylight Savings Time) on July 24, 2014".

2. Page A-1.1. Item 1. Delete "60 calendar days for final completion" and replace with "438 calendar days for final completion".

3. Page A-1.2. Delete Item 7 in its entirety and replace with the following:

   "7. There will be two mandatory pre-bid meetings for prospective bidders. Bidders need only attend one of the pre-bid meetings. The meetings will be held at:

Peirce Island Wastewater Treatment Facility
200 Peirce Island Road
Portsmouth, NH 03801

The first meeting will be held on June 26, 2014 at 10:00 am. The second meeting will be held on July 14, 2014 at 1:30 pm. Representatives of the Owner and Engineer will be present to discuss the project."

4. Page A-1.2. Delete the final paragraph in its entirety and replace with the following:

   "Copies of the Contract Documents may be obtained from the Purchasing Department, Portsmouth City Hall, 1 Junkins Ave, Portsmouth NH, Tel. 603-610-7227 upon payment of a fee of $150.00 per set, which will not be refunded. Partial sets will not be distributed. All requests for mailed documents must be accompanied by an additional fee of $50.00 to cover the cost of postage and handling. Bidders wishing to submit a bid must purchase a set of Contract Documents from the City. Bids from bidders who do not purchase a set of Contract Documents from the City will be rejected.

   Any questions regarding bidding should be directed to the Purchasing Department at 603-610-7227. Any technical questions should be directed to Jon Pearson, AECOM Project Manager at 781-224-6270 or Jon.Pearson@aecom.com. All questions must be in writing. Questions must be received at least 7 days before the bid date."

INFORMATION FOR BIDDERS

1. Page A-2.1. Delete "until 10:00 am on July 25, 2014" and replace with "until 2:00 pm on July 24, 2014"

2. Page A-2.3. Delete the paragraph under the heading "PRE-BID CONFERENCE" in its entirety and replace with the following:

   "Two mandatory pre-bid meetings will be held. Bidders need only attend one of the pre-bid meetings. The meetings will be held at 10:00 am on June 26, 2014 and 1:30 pm on July 14, 2014 at the Peirce Island Wastewater Treatment Facility, 200 Peirce Island Road, Portsmouth, NH 03801."

BID

1. Page A-3.1. Delete "60 consecutive calendar days for final completion" and replace with "438 consecutive calendar days for final completion".

AGREEMENT

1. Page B-2.1. Delete "60 calendar days for final completion" and replace with "438 calendar days for final completion".

SPECIAL CONDITIONS

1. Page C-2.4. Item GC-62.5 Use of Explosives. Replace "Appendix A" with "Appendix B".

APPENDIX B – CITY OF PORTSMOUTH BLASTING RULES AND PROCEDURES

1. Insert the attached document titled "City of Portsmouth Blasting Rules and Procedures" as Appendix B.

APPENDIX C – EXISTING SITE PIPING DRAWINGS

1. Insert the attached drawings “LA-5 Grading and Drainage Plan”, “M-4 Outside Piping Schematic – New” and “C-6 Peirce Island WWTP Utility Plan” as Appendix C.

APPENDIX D – EXISTING GRAVITY THICKENER DOME SHOP DRAWING

1. Insert the attached shop drawing titled “Aluminum Dome” dated September 5, 1990 as Appendix D.

QUESTIONS:

1. Question: Are “or equal” manufacturers allowed for the FRP Baffles, Weirs, and Launder covers?

   Answer: Refer to Article 8 of the General Conditions.

2. Question: Whose responsibility is it to clean out the primary clarifiers and gravity thickener when drained?

   Answer: The Contractor is responsible for dewatering and cleaning tanks that are taken offline. Refer to Specification Section 01015, Paragraphs 4.d and 4.i.1.7.

AECOM
July 2, 2014

City of Portsmouth, NH
Department of Public Works

Pre-Bid Meeting Minutes and List of Attendees

AECOM Water
701 Edgewater Dr., Wakefield, Massachusetts 01880
T 781.246.5200 F 781-245-6293 www.aecom.com

Memorandum

Job No.	60323328
Date:	June 30, 2014
To:	File (conference sign in list attached)
From:	Erik Meserve
Subject:	City of Portsmouth, NH Bid No. 03-15 Primary Clarifier and Gravity Thickener Replacement Project Pre-Bid Conference

In accordance with the bidding procedure stated in the Invitation to Bid, on June 26, 2014, a Pre-Bid Conference for the Primary Clarifier and Gravity Thickener Replacement Project was held at the Peirce Island WWTF. A copy of the attendees list is attached. Following the conference a walkthrough of the WWTF was held.

General Discussion

Following an introduction of the representatives of the City and AECOM, AECOM presented an overview of the project. The Scope of the Work was reviewed, and the following major points were noted:

1. The bid opening date is July 25, 2014. Bids are to be received at the Finance/Purchasing Department, City Hall. Bids must be written and be within a separate sealed envelope noting the name of the project and the bidder's name. If bids are sent via UPS or FedEx, the bids must be within an envelope inside the UPS or FedEx package.
2. The contract documents are available through the City's Purchasing Department.
3. It was noted that all questions during the bid phase must be provided in writing and will be addressed in an addendum. No oral questions will be responded to. Questions must be received at least seven days before the bid date. If required, the final addenda will be issued five days before the bid date.
4. There are a number of work limitations that will be imposed on the Contractor (such as the number of units/pieces of equipment that can be taken off line at a time) due to the fact that the WWTF must maintain operation and meet permit during construction. Specification Sections 01010, 01015, and 01046 identify a number of these items.
5. Addendum No. 1 is currently being prepared. Items to be included in the addenda include the following:
    a. Change the number of calendar days for final completion to 438 days.
    b. Add a requirement that contractor's that submit a bid must have purchased a set of plans and specs from the City.

Questions

Following the project overview, a question and answer period was held. The questions asked and the answers provided are as follows:

Q1: Have the vendors named in the specifications confirmed that delivery of the gravity thickener mechanism within 16 weeks after approved shop drawings is possible?

A1: Yes.

Q2: Are there limitations as to crane placement on the site?

A2: The limitations associated with crane placement are related to the United States Coast Guard (USCG) navigation lights and maintenance of plant operations. Crane placements should be reviewed with both the USCG and plant staff to confirm acceptability.

Q3: Whose responsibility is it to clean out the primary clarifiers and gravity thickener when drained?

A3: This question will be addressed via addendum.

Q4: Are the bypass pumps required to be manned 24 hours a day?

A4: No. They are required to be tied into the existing WWTF SCADA system to alert City staff and also automatically contact the Contractor if problems occur.

Q5: Is the visible crack in the weir wall of Primary Clarifier No. 1 part of the bid item associated with concrete repair?

A5: No, the crack in the primary clarifier is part of the lump sum bid item. The intent of the concrete repair bid item is for work that is not visible while the tanks are in service that will be identified during construction.

Q6: Can the time bids are due be changed to 2 PM?

A6: This question will be addressed via addendum.

Q7: Are there disadvantaged business enterprise and prevailing wage requirements on this project?

A7: No.

Q8: Can the reimbursement costs of electric power associated with the bypass pumps be a separate bid item?

A8: This question will be addressed via addendum.

Q9: Will a bid item be added for ledge removal?

A9: This question will be addressed via addendum.

Q10: Is the existing grout in the bottom of the clarifiers and thickener to be replaced?

A10: No. The condition of the grout will be examined once the tanks are out of service, and if needed, repairs will be done under the concrete repair bid item.

Q11: Are any new borings required to be done as part of the project?

A11: A new observation well is required to be installed, but no other borings are required.

SIGN IN SHEET
PRE-BID MEETING AND SITE VISIT
10 am June 26, 2014

Name	Representing	Phone Number	Email
Erik Meserve	AECOM	781.224.6069	erik.meserve@aecom.com
Andrea Tuthill	Heymont Const.	603.524.3103	~~pattie@worldpath.net~~ pres.heymont@gmail.com
Simon Moseley	Atlantic Fluid Tech	508 755-6662	simon@AFTINC.com
Brian Thelian	NHDES	603-419-0295	Brian.Hilliard@des.nh.gov
JASON KEHRER	WINSTON BUILDERS	508-366-1767	jason.winston@verizon.net
Kheven Niland	Baker Corp	603-851-2487	KNiland@Bakercorp.com
Wes Wixson	Infrastructure Const. Corp	603-224-1004	WWixsm_ICC@Comcast.net
Mike Connor	Kinsmen Corp.	603 625 9199	E.R.Connor@kinsmenCorp.com
GARY ROBINSON	RI+WHITE CONST CO., INC	508-832-3295	grobinsond+hwhite.com
PAUL SUSSMAN	The Maher Corp.	781-421-2602	psussman@themaher-corp.com
Josh Dickerson	Waterline Ind	603-365-6431	Josh@waterlineind.com

SIGN IN SHEET
PRE-BID MEETING AND SITE VISIT
10 am June 26, 2014

Name	Representing	Phone Number	Email
Shawn M. Slattery	SMS Demolition	978-683-1166	tonka44@comcast.net
Heath Todd	Apex	603 330 3600	heath@apex-constructioninc.com
Al Blandford	PRB	603 528 7703	PRB@METROCAST.NET
Michael Loiselle	Methven Const-	603-328-2222	Estimating@Methvenconstruction.c
Charles Fritz Jr	EII	603-520-0513	clfijr@comcast.net
Jon Pearson	AECOM	781-224-6270	Jon.Pearson@aecom.com
Terry Desmarais	City of Portsmouth	603 766 1421	tldesmarais@city of portsmouth.com
Paula Anania	City of Portsmouth	603-427-1553	panania@cityofportsmouth.com
Mike Merrill	City of Portsmouth	603-957-8558	MuMerrill@cityofportsmouth.com
mike Baker	City of Portsmouth	603-427-1553	mbaker@cityofportsmouth.com

Appendix B - City of Portsmouth Blasting Rules and Procedures

PUBLIC WORKS DEPARTMENT
CITY OF PORTSMOUTH
680 Peverly Hill Road
Portsmouth N.H. 03801
(603) 427-1530 FAX (603) 427-1539

CITY OF PORTSMOUTH
BLASTING RULES AND PROCEDURES

1.0 General

All blasting work shall comply with the following regulations:

- City Ordinance Article VII: Section 5:02;
- State of New Hampshire Department of Transportation Standard Specifications for Road and Bridge Construction – 1997
- Storage and Transportation of explosives shall be in accordance with State of New Hampshire Code of Administrative Rules: Chapter/Part Saf-c 1600. In case of conflict, the more stringent regulation shall govern

2.0 Insurance

2.1 The blasting contractor shall procure and maintain $5,000,000 of personal injury & property damage liability insurance covering the permitted blasting operations, or such an amount as may be determined necessary by extraordinary circumstances.

2.2 The Certificate shall name the City as an additional insured.

3.0 Permit Process

3.1 The blasting contractor shall apply in person at the Department of Public Works for a permit to perform blasting operations before commencing the pre-blast survey procedure.

3.2 At the time of application, the blasting contractor shall provide the following items:

a) Plan showing location and extent and purpose of proposed blasting operations

b) Copy of valid Use and Transportation License for the blasting company as required by Article VII, Section 5:702.

c) Copy of valid Insurance Certificate as required by Article VII, Section 5:702 and defined in Section 2 of these rules and procedures.

4.0 Pre-Blast Condition Surveys

4.1 Pre-blast surveys shall be performed as required in City Ordinance Article VII: Section 5:02 and the following procedures.

4.2 The pre-blast condition survey shall consist of a written description of the interior and exterior condition of each of the structures examined. Descriptions shall locate any existing cracks, damage or other defects and shall include such information so as to make it possible to determine the effect, if any, of the construction operations on the defect. Where significant cracks or damage exist, or for defects too complicated to describe in words, photographs shall be taken. A good quality videotape survey with appropriate audio description of locations, and conditions, and defects can be used.

4.3 The Pre-Blast Contractor shall send a pre-blast survey letter by regular mail to all abutters within a 500 foot radius of the blasting site, with copies of the letter sent also to:

Deputy Director of Public Works
680 Peverly Hill Rd.
Portsmouth, NH 03801

City Manager
1 Junkins Avenue
Portsmouth NH 03801

Fire Chief
170 Court Street
Portsmouth, NH 03801

Chief of Police
3 Junkins Avenue
Portsmouth NH 03801

Zoning Officer, Housing Code Inspector
City Hall, Legal Dept.
1 Junkins Avenue
Portsmouth, NH 03801

Chief Building Inspector
City Hall
1 Junkins Avenue
Portsmouth, NH 03801

4.4 The pre-blast survey company shall make at least three attempts over a minimum 1-week period to contact a property owner before that property is listed as non-respondent.

4.5 Copies of the Pre-blast Condition Survey shall be made available to the Department of Public Works and/or the property owner upon request. The blasting company shall maintain copies of all pre-blast survey records for a period of no less than one year from the completion of the blasting operations.

4.6 Before the issuance of a Blasting Permit, The blasting contractor shall submit to the Department of Public Works a list of all properties within the 500-foot radius of the blasting. The list shall include names, addresses, with tax map and lot numbers of all abutters within the 500-foot radius and the status of the survey, whether completed, refused or non-respondent.

5.0 Blasting Permit

5.1 The blasting contractor shall submit to the Engineering Division of the Public Works Department all items described in sections 2, 3 and 4 of these procedures. The blasting contractor will be authorized to proceed with the mailing blasting notification letter described in Article VII Section 5: 702 B upon approval of the submitted material.

5.2 A copy of the certified mail recipients of the blasting notification letter shall be submitted prior to issuance of the permit. Copies of the certified letter shall also be sent the Deputy Director of Public Works, Chief of Police, Building Inspector, and Fire Chief, indicating when the blasting is scheduled to begin.

6.0 Blasting Operations

6.1 All blasting operations shall be conducted in accordance with State of New Hampshire Department of Transportation Standard Specifications for Road and Bridge Construction – 1997.

6.2 All blasting operations shall require vibration measuring equipment meeting the following minimum requirements:

a) Measure, display, and provide a permanent record on a strip chart of particle velocity components.

b) Measure three mutually perpendicular components of particle velocity in directions vertical, radial, and perpendicular to the vibration source.

c) Have a velocity frequency response of 2Hz to 150 Hz and be capable of measuring Peak Particle Velocity (PPV) of up to 250 mm/s (10 in/s)

d) All seismographs used shall display the date of the most recent calibration.

e) Calibration must have been performed within the last 12 months and must be performed to a standard traceable to the National Institute of Standards and Technology.

6.3 The blasting contractor shall maintain daily logs of all blasting activities. Those records, including seismic monitoring records shall be made available to the City of Portsmouth for a period of 5 Years.

ARTICLE VII: BLASTING

Section 5:702 BLASTING PERMIT REQUIRED

No person shall perform or cause to be performed any blasting within the City limits unless a Blasting Permit is obtained from the City Engineer. This permit shall not be issued until the following terms and conditions have been satisfied by the applicant:

A. All abutters within five hundred (500) feet of the area where the blasting will occur shall receive notice by certified mail two full business days (excluding Saturday, Sunday and holidays) in advance of the blasting. The term "abutter" shall be defined in the manner used for the notification of zoning abutters. (Amended 9/17/2001)

B. That the City Engineer's office as well as the Building Inspector shall receive the same notice, also sent by certified mail, at least two full business days (excluding Saturday, Sunday and holidays) in advance of the blasting.

C. The name and address of the blasting company be provided.

D. The name of a company representative be provided and the twenty-four (24) hour telephone number of the representative; such representative being a person who is capable of responding to claims and issues arising from the blasting performed.

E. A pre-blast survey shall be completed by the blasting company for an area within five hundred (500) feet of the proposed blasting. (Amended 9/17/2001)

F. Any reports, measurements or video tapes made in connection with this pre-blast survey or with the subsequent blasting shall be made available upon request to all abutters within five hundred (500) feet of the area. (Amended 9/17/2001)

G. That the cost of such a pre-blast survey shall be borne by the blasting company.

H. The Use and Transport License of the hauler shall be designated.

I. The route of removing blasting material shall be designated.

J. The location of the blasting shall be designated.

K. The blasting shall take place within the hours of 8:00 A.M. to 5:00 P.M. Monday through Friday.

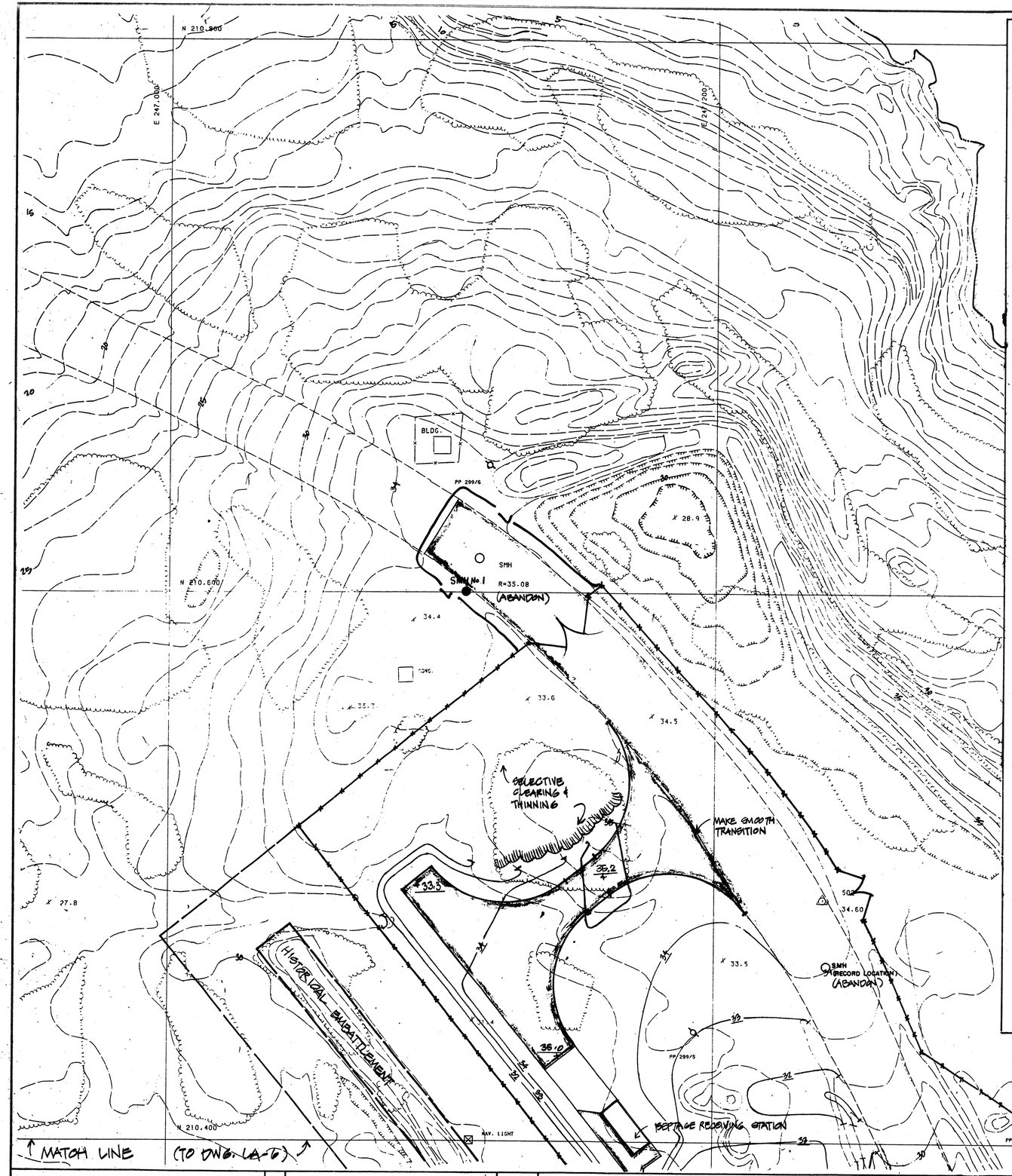
L. An Insurance Certificate shall be posted with the City Engineer in an amount and type deemed appropriate by the City Engineer and the City Attorney. (Amended 9/20/93)

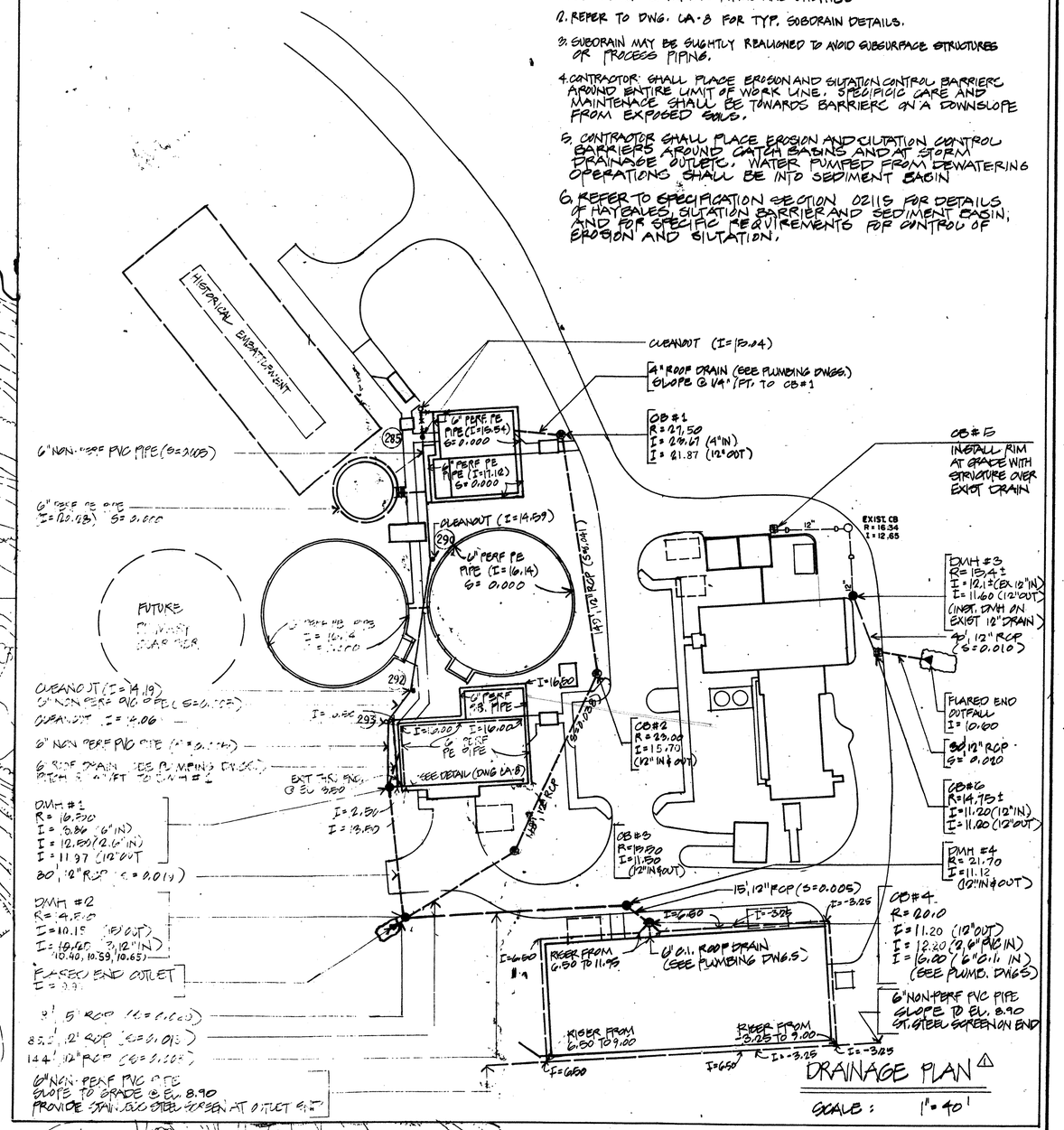
M. The Public Works Director is hereby authorized to promulgate blasting rules consistent with the intent of this ordinance, such rules shall become effective on acceptance by the City Council. (Item M. adopted 9/17/2001)

Appendix C – Existing Site Piping Drawings

NOTES

1. REFER TO ELECTRICAL, MECHANICAL AND PLUMBING DRAWINGS FOR OTHER EXTERIOR PIPING AND UTILITIES
2. REFER TO DWG. LA-8 FOR TYP. SUBSURFACE DETAILS.
3. SUBSURFACE MAY BE SLIGHTLY REALIGNED TO AVOID SUBSURFACE STRUCTURES OR PROCESS PIPING.
4. CONTRACTOR SHALL PLACE EROSION AND SILTATION CONTROL BARRIERS AROUND ENTIRE LIMIT OF WORK LINE. SPECIFIC CARE AND MAINTENANCE SHALL BE TOWARDS BARRIERS ON A DOWNSLOPE FROM EXPOSED SOILS.
5. CONTRACTOR SHALL PLACE EROSION AND SILTATION CONTROL BARRIERS AROUND CATCH BASINS AND AT STORM DRAINAGE OUTLETS. WATER PUMPED FROM DEWATERING OPERATIONS SHALL BE INTO SEDIMENT BASIN
6. REFER TO SPECIFICATION SECTION 02115 FOR DETAILS OF HAYBALES, SILTATION BARRIER AND SEDIMENT BASIN, AND FOR SPECIFIC REQUIREMENTS FOR CONTROL OF EROSION AND SILTATION.





DRAINAGE PLAN ⚠

SCALE: 1" = 40'

NORTH

a - 1

37 of 46

ADDENDUM No. 1
ITEM No. 27

NO.	DESCRIPTION	DATE
	REVISIONS	
4	REVISED TO RECORD PLAN	9-93
3	DRAWING REVISED (ADDENDUM #1)	11/89
2	Drawing Revised	9/89
⚠1	REVISED SUBDRAIN SYSTEM	2/88

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

THE STATE OF NEW HAMPSHIRE — STEPHEN E. SEIGAL No. 4934 REGISTERED PROFESSIONAL ENGINEER

ORIGINAL FULL SIZE DRAWING = 4"
REPRODUCTIONS MAY BE REDUCED SIZE

APPROVED Stephen E. Seigal

DESIGNED	DRAWN	CHECKED	SCALE	DATE
G.B.W.	G.B.W.	E.R.C.	1"=20'	SEPT. 1985

DRAWING NO. LA-5
JOB NO. 85-163
CONTRACT NO. 3
SHEET 7 OF 106 SHEETS

WASTEWATER TREATMENT FACILITY
PORTSMOUTH, N. H.
GRADING AND DRAINAGE PLAN

FOTOBEAM/BROOKSIDE 267-24x36

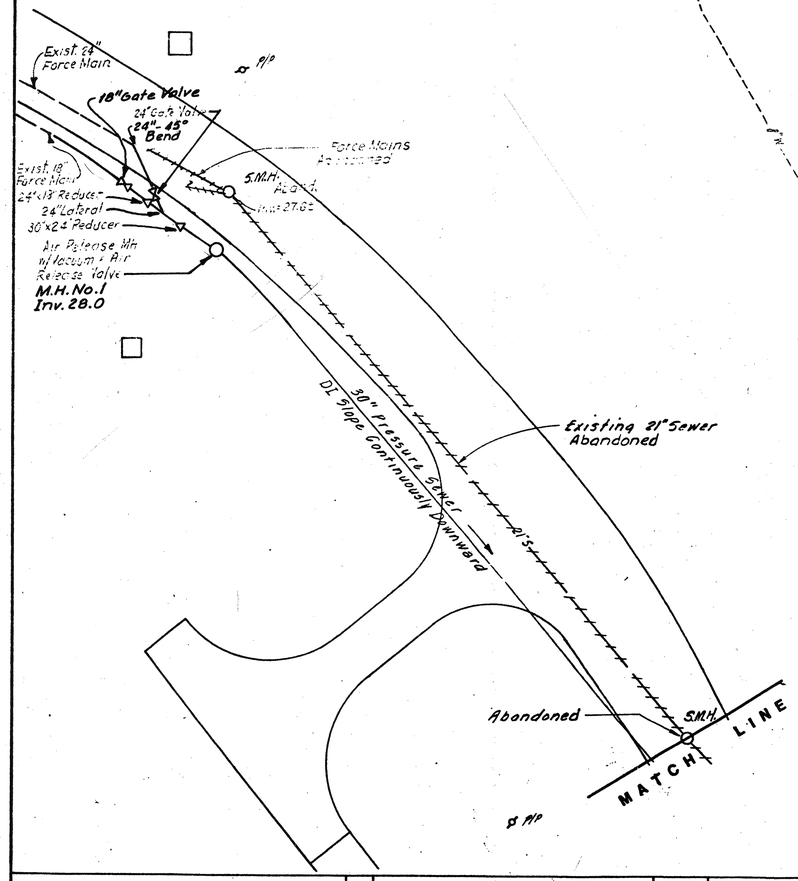
N

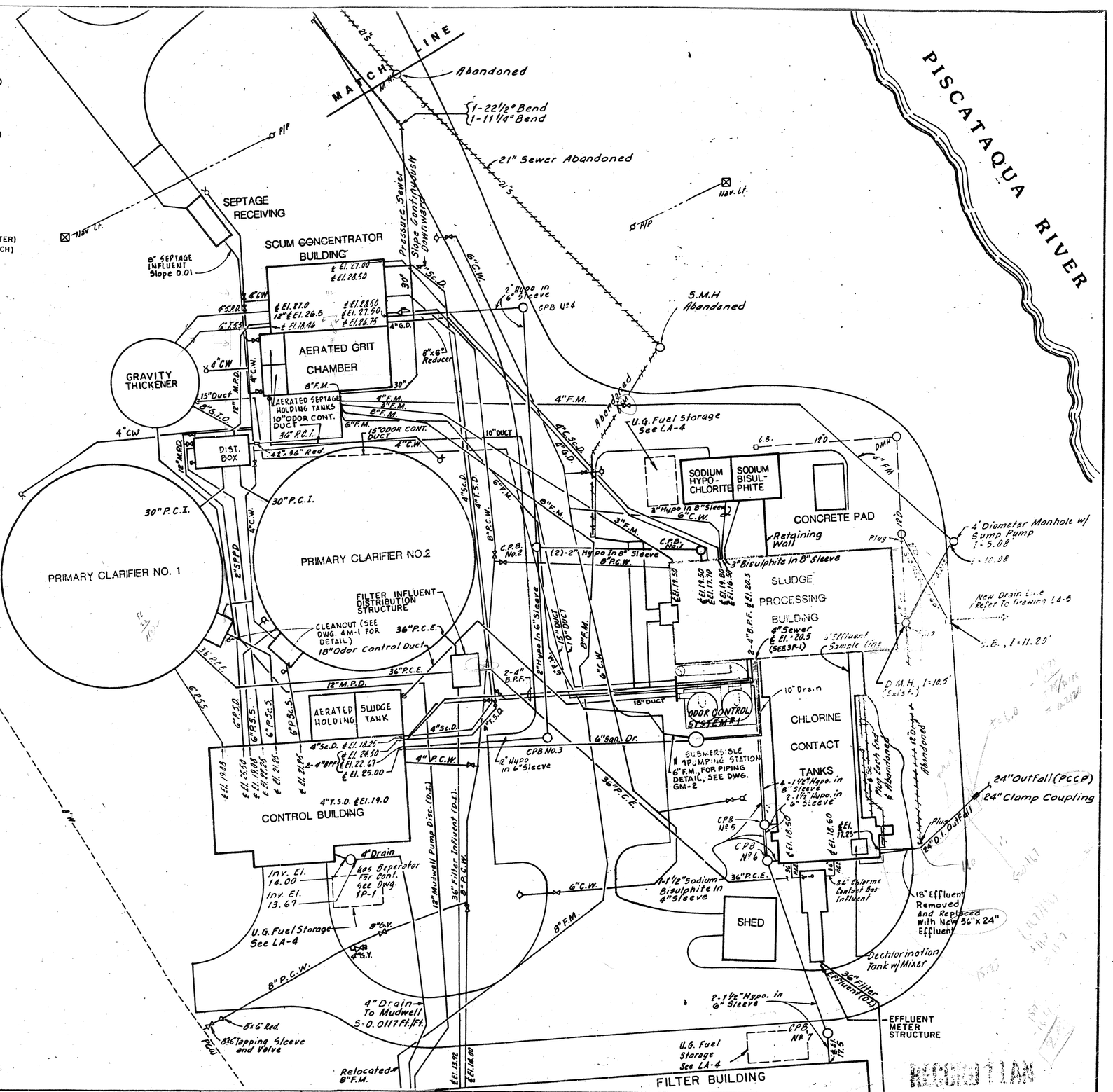
NOTES:

1. Existing manholes that are to be abandoned will be demolished to two feet below finished grade and filled in with structural fill. Frames and covers are to remain the property of the owner.
2. All piping shall have a minimum of five feet of cover unless otherwise shown or approved by the engineer. All scum piping (i.e. PScS, ScD, and CScD) shall have a minimum of six feet of cover.
3. All bends in grit, sludge and scum piping shall have cleanouts. See detail on Drawing GM-3.
4. All grit, sludge and scum piping shall be glass lined.
5. All piping from or into a structure shall have two flexible couplings within three feet of the structure face.
6. Locations of existing piping are approximate. The precise locations and elevations shall be determined by the contractor as required for connection to or crossing of existing lines. Any piping disturbed during construction shall be repaired and/or replaced in conformance with the specifications and as directed by the Engineer. Existing piping shall be relocated or rerouted as required for the installation of new piping. Piping to be abandoned shall be disconnected, plugged, capped, or removed at locations shown and as directed by the Engineer.
7. CW and PPW pipes larger than 2 inch shall be D.I., pipes 2 inches and smaller shall be CU or PVC.
8. Refer to Drawing M-1 for Abbrevations and Symbols.

LEGEND

ABBREVIATION	TYPE OF PIPE
BPF	DI (SEE NOTE 4)
CScD	DI (SEE NOTE 4)
CW	DI, CU (SEE NOTE 7)
Dr	DI
GD	DI (SEE NOTE 4)
GTO	DI
PCE	DI
PCI	DI
PW	DI CU (SEE NOTE 7)
PScS	DI (SEE NOTE 4)
PSD	DI (SEE NOTE 4)
PSS	DI (SEE NOTE 4)
ScD	DI (SEE NOTE 4)
SOD.HYPO.	POLY IN PVCC
SDr	DI
SPD	DI
SPPD	DI
TSD	DI (SEE NOTE 4)
TSS	DI (SEE NOTE 4)
DUCTS	PVC
F.M.(FORCE MAIN)	DI (4-INCH AND GREATER)
F.M.(FORCE MAIN)	PVC (LESS THAN 4-INCH)





NO.	DESCRIPTION	DATE
	REVISIONS	
3	Revised To Record Plan	9/93
2	Drawing Revised	9/89
1	REVISED AS PER STATE COMMENTS 2/88	

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

THE STATE OF NEW HAMPSHIRE — STEPHEN E. SEIGAL No. 4594 REGISTERED PROFESSIONAL ENGINEER

ORIGINAL FULL SIZE DRAWING = 4"
REPRODUCTIONS MAY BE REDUCED SIZE

APPROVED Stephen E. Seigal

DESIGNED	DRAWN	CHECKED	SCALE	DATE
TEP	DTC	SES	1"=20'-0"	SEPT, 1985

DRAWING NO. M-4
JOB NO. 85-163
CONTRACT NO. 3
SHEET 49 OF 106 SHEETS

WASTEWATER TREATMENT FACILITY
PORTSMOUTH, N. H.
OUTSIDE PIPING SCHEMATIC - NEW

RECORD PLAN

FOTOBEAM/BROOKSIDE 267-24x36

NOTE:

1. THIS PLAN WAS CREATED USING RECORD DRAWING INFORMATION AND FIELD OBSERVATINS. CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING UTILIITES AND NOTIFY ENGINEER OF ANY DISCREPANCIES. SHEET C-7 PROVIDES SOME ADDITIONAL RECORD INFORMATION FOR THE CONTRACTOR'S USE.

2. SEE SHEET E-1 FOR SIGNAL DUCT BANK LAYOUT AND DUCT BANK DETAILS.

KEYNOTES:

1. UNDERGROUND ELECTRICAL CONDUIT AND LINE (SEE ELECTRICAL SHEETS).
2. 4" DUCTILE IRON WATER LINE. (2 / C-8)
3. CONNECT EXISTING 4" SPD (SEPTAGE DISCHARGE) LINE TO EXISTING 8" EFFLUENT SEPTAGE LINE. SEE PR-9 AND PR-10.
4. PLUG AND CAP EXISTING SPD LINE. (10 / C-9)
5. ODOR CONTROL DUCT (SEE SHEET M-3).
6. 3" PE SODIUM HYPOCHLORITE LINE IN 8" PVC CARRYING SLEEVE
7. 14" SCUM TANK LINE. (SEE SHEET PR-13)
8. 4" DUCTILE IRON WATER LINE WITH 45° BEND. (2 / C-8)
9. RELOCATE EXISTING HOSE BIBB AND, VALVE, PROVIDE 6"x4" REDUCER AND 4" 45° BEND
10. RELOCATE EXISTING LIGHT POLE
11. 1" POLYETHYLENE SODIUM HYDROXIDE LINE IN 6" PVC CARRYING SLEEVE.
12. ELECTRIC PULL BOX. (SEE ELECTRICAL SHEETS)
13. 8'x17' PRECAST SCUM COLLECTION TANK (SEE SHEET PR-13)
14. SODIUM HYPOCHLORITE TANK AND CONTAINMENT STRUCTURE. (SEE SHEET PR-16)
15. CONTRACTOR TO CONTACT USCG PRIOR TO WORK THAT WOULD IMPACT NAVIGATIONAL LIGHTS.

EXIST 12" RCP INV OUT: 10.85

EXIST 6" PVC INV OUT: 8.62

EXIST TRANSFORMER

SLOPED TO FILTER BUILDING

EXIST STEPS

EXIST CHLORINE CONTACT TANK

EXIST PARSHALL FLUME

EXIST SLUDGE PROCESSING BLDG

EXIST SODIUM BISULFITE TANK

EXIST SODIUM HYPO-CHLORITE TANK

EXIST ODOR CONTROL TANKS

EXIST PUMPING STATION

EXIST SHED

EXIST UNDERGROUND FUEL TANK

EXIST FILTER BLDG

NAVIGATION RANGE LIGHT

ASPHALT PAVEMENT

USED RECYCLED GRANITE CURB

EXIST FILTER INFLUENT BOX

EXIST UNDER-GROUND CHEMICAL STORAGE TANK

EXIST AERATED GRIT CHAMBER

EXIST SCUM BLDG

SLUDGE HOLDING TANK

CHEMICAL FEED BLDG FFE: 34.00'

EXIST PRIMARY CLARIFIER

EXIST SLUDGE HOLDING TANK

EXIST CONTROL BLDG

EXIST RADIO TOWER

EXIST DISTRIBUTION BOX

EXIST GRAVITY THICKENER

THICKENER FOUNDATION

ALUMINUM COVER

UTILITY PLAN
SCALE: 1"=20'

GRAPHIC SCALE
20 0 20 40
SCALE: 1 INCH = 20 FT.

RECORD DRAWING

ISSUE FOR			
APPROVAL	Date	By	
	2/15/02	WSC	
CONSTRUCTION	Date	By	
	2/19/02	WSC	
RECORD DRAWING	Date	By	
	2/25/05	WSC	

NO.	REVISIONS	APP'D

Drawn TRB
Designed TRB
Checked PHR
Approved WSC
Date 2/15/02
Book No. -
Project No. 948
Dwg. ID 948C-PI-UTLR
Scale 20

Underwood Engineers, Inc.
25 Vaughan Mall, Portsmouth, N.H. 03801
Tel. 603-436-6192 Fax. 603-431-4733

PEIRCE ISLAND WWTP
UTILITY PLAN

WASTEWATER FACILITIES UPGRADE

CITY OF PORTSMOUTH
PORTSMOUTH, N.H.

DWG NO C-6

SHEET 7 OF 71

Appendix D – Existing Gravity Thickener Dome Shop Drawing

TRANSMITTAL TO WHITMAN & HOWARD, INC.

CONTRACTOR'S JOB NO. 825 **SECTION 1 (FOR CONTRACTOR'S USE)** **WHITMAN & HOWARD, INC.** JOB NO. ~~85-167~~

DATE	PROJECT NAME & CONTRACT NO.	LOCATION	TRANSMITTAL NO.	SPEC. SECT. NO.
9/5/90	Falmouth WWTF Cont 5	Falmouth MA	83C	05-16

RECEIVED
SEP 6 1990
Whitman & Howard, Inc.

TO: WHITMAN & HOWARD, INC.
45 WILLIAM ST.
WELLESLEY, MA 02181
ATTENTION: SHOP DWG. COORDINATOR

FROM: Catamount Cast Inc
Walcott VT

ITEM NO.	DESCRIPTION OF ITEM (NAME, TYPE, SIZE, CAPACITY, SPECIFIC USE, ETC.)	MANUFACTURER OR DESIGNER	DRAW. NO. CATAL. NO. BROCHURE NO. ETC.	NO. OF COPIES	CONTRACT DRAW REF.	2 ENGINEERS USE: ACTION CODE	REVIEWED BY	NO. OF COPIES RETURNED
1.	Alo Dome	Ultraflote		8		1		
	~~Aluminum Dome~~	~~Ultraflote Corp.~~						

THIS CERTIFIES THAT ALL ITEMS SUBMITTED HEREWITH HAVE BEEN CHECKED BY THE CONTRACTOR, ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, EXCEPT AS NOTED, AND ARE APPROVED BY THE CONTRACTOR FOR THIS PROJECT.

SPECIAL INSTRUCTIONS

SIGNATURE & TITLE

SECTION 2 (FOR ENGINEERS USE)

ACTION CODE
1 – NO EXCEPTIONS TAKEN
2 – MAKE CORRECTIONS NOTED
3 – AMEND AND RESUBMIT
4 – REJECTED – SEE REMARKS

a. INSTALLATION SHALL PROCEED ONLY WHEN ACTION CODE IS 1 OR 2.
b. ACTION CODED 3 SHALL BE RESUBMITTED WITHIN TIME LIMIT SET IN CONTRACT.
c. REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY OF COMPLIANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

SEE REVERSE SIDE FOR INSTRUCTIONS

WHITMAN & HOWARD, INC. By

DATE 9/19/90

FORM #385

APPROVED ☐
NOT APPROVED ☐

By SW Date 9/5/90

NOTE: Approval does not relieve supplier from responsibility for errors or omissions to contract documents.

Ultraflote

RECEIVED
SEP 6 1990
Whitman & Howard, Inc.

	1.	NO EXCEPTIONS TAKEN
✓	2.	MAKE CORRECTIONS NOTED
	3.	AMEND AND RESUBMIT
	4.	REJECTED — SEE REMARKS

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for the dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication process or to techniques of construction; for coordination of the work of all trades; and all other contractual requirements.

WHITMAN & HOWARD, INC.
45 WILLIAM ST. WELLESLEY MASS. 02181
August 31, 1990

SIGNATURE

CHECKED BY _____ DATE 9/19/90

Catamount Construction, Inc.
P.O. Box 98
Hooksett, NH 03106

ATTN: Mr. Steven Conner, Project Manager

REF: Engineering re-submittal
UFC Ref. No. 61070-1

Gentlemen,

This letter and attached documents constitute our engineering re-submittal for:

Structure : Ultradome Aluminum Dome
Project : Gravity Thickener Cover
Location : Portsmouth, NH WWTP
Specification section : 05162 and Addendum Item 12
Your Purchase Order number : 036

Ultraflote uses an in house Computer Aided Design system which utilizes Standardized Shop Drawings with specific dimensions and quantities supplied by the Material Bill (also computer generated). Since this is a high volume, proprietary structure, it is not our general practice to draw a set of "custom" drawings for every project. In this way, we can provide the customer with a quality product while keeping the overall costs to the customer as low as possible.

The computerized "Stress Summary Sheet" is used as a vehicle to transmit all of the pertinent information to the reviewing agencies in a concise manner. Most, if not all, of the additional information that has been requested was available on those sheets. The number of fasteners in each connection, the type of fasteners and load rating, the beam designation, the size and thickness of the Node Plates, etc. were all detailed on the stress summary sheets.

We have reviewed the engineers notes carefully and have answered (we hope) all of his specific questions by revising the existing drawings and creating several new ones. In accordance with his instructions, we have NOT included those items which he has already "Accepted" (such as the Stress Analysis).

ULTRAFLOTE Corporation
8558 Katy Freeway, Suite 100
Houston, Texas 77024
Phone: 713/461-2100
Fax: 713/461-2213
Telex: 311065

There was one note that we do not completely understand. The notation "ASTM #" was beside our discussion of the "panel loading" requirement. To our knowledge there is no ASTM test available that could be properly applied to this portion of the analysis.

The loadings on any one triangular panel are resisted by a "membrane" stress within the panel. This is a highly indeterminate case that requires a considerable number of questionable assumptions to "mathamatically" analyze (by finite element for example). It is customary in this industry, however, to TEST the strength of ones panel joining system very throughly under the "worst" case conditions. This testing is then the basis for declaring "compliance" with the panel loading portion of a given specification.

In our case we have throughly tested full size portions of our dome panels (as well as field tests of actual domes) with loadings well in excess of TWICE the typical "panel" loading requirements without ANY distress in any portion of the system.

While our previous answer may have sounded somewhat glib, it is still valid. We are confidant that any of our panels will safely sustain loadings well in excess of the requirements. We welcome any reasonable "field test" the engineer may choose (for example, TWICE the concentrated loading requirement since this is the easiest to apply). Whether it consists of "sandbags" or "workmen" is immaterial since "workmen" still have to walk onto the panel to "place" the sandbags.

Since we feel that we have answered all of the engineers questions (and since none of the answers involve ANY changes in any of the fabrication details) we plan to press onward with the shop fabrication of this project in order to avoid losing our "place" in our shop schedule (this is our BUSIEST time of year). For this reason, please let us know as soon as possible if you see ANY details or dimensions that might change.

If there are any questions or if you require additional information, please call or write at your earliest convienence. We look forward to receiving your final approval.

Very truly yours,
ULTRAFLOTE CORPORATION

Ronald Carl Kern, P.E.
Vice President &
Technical Director
Ultraflote Corporation

RCK/wp
Encls.

U L T R A F L O T E C O R P O R A T I O N
8558 Katy Freeway #100, Houston, Texas 77024 TLX 311065 (713) 461-2100

ULTRADOME MATERIAL SPECIFICATIONS (UDMS)

	Part Name or Description Various Alloy & Temper Designations USS = U. S. Standard, ISO, ASTM, DIN BS = British Standard, AN = Analysis	Typical Ultimate Tensile Strength KSI (MPA)	Minimum Ultimate Tensile Strength KSI (MPA)	Alum Assn Allowable Tensile Stress KSI (MPA)
1.	Triangulated Space Truss Beams, Integral Tension Ring Beams, Primary Structural Extrusions, Batten Bars (retainer strips), and Structural Node Plates (Gussets). USS 6061 T6, ISO AlMg1SiCu, BS H20 DIN 1748 AlMg1Si0.8Cu, ASTM B 221 AN = Si 0.60, Cu 0.28, Mg 1.00, Cr 0.20	45.00 (310)	38.00 (260)	19.00 (131)
2.	All Secondary Extrusions. (Handrails, Braces, etc.) USS 6063 T5, ISO AlMgSi, BS H19 DIN 1743 AlMgSi0.5, ASTM B 221 AN = Si 0.40, Mg 0.70	27.00 (185)	22.00 (150)	9.50 (65)
3.	Triangular Closure Panels, Peripheral Skirting & Flashing, Miscellaneous Sheeting, etc. USS 3003 H16, ISO AlMg1Cu, BS NH 3 H4 DIN AlMn1.2Cu, ASTM B 209 AN = Cu 0.12, Mn 1.20	26.00 (179)	23.00 (165)	12.50 (86)
4.	Hatches, Skylight Frames, Std. Doors, Vent & Duct Curbs, etc. USS 5052 H32, ISO AlMg2.5, BS 2L.55 DIN AlMg2.5Cr, ASTM B 209 AN = Mg 2.50, Cr 0.25	33.00 (228)	31.00 (215)	14.00 (97)

5.	Castings (non-structural) clips, lugs, fittings, etc.	36.00	33.00	18.50
		(248)	(228)	(128)
	USS 356 (modified)			
	AN = Si 7.00, Mn 0.35, Mg 0.30, Zn 0.35			

6. Structural Fasteners (bolts, nuts, washers) (interior bolts only, ALL exterior bolts 304 SS)

		Ultimate Tensile	Allowable Shear
~~Type 1 = Cadmium Plated Steel *~~	~~Grade 8~~	~~162.00~~	~~32.00~~
		~~(1116)~~	~~(221)~~
~~Type 2 = Aluminum~~	~~2024 T4~~	~~62.00~~	~~16.00~~
		~~(428)~~	~~(110)~~
Type 3 = Stainless Steel	304	90.00	18.00
		(620)	(124)

~~* ALL plating on carbon steel fasteners EXCEEDS Federal Specification QQ-P-416-C, Class III, Type I (Clear Finish)~~

See the computer generated "Summary Sheet" and/or the "Material Bills" for the type of Structural Fastener used on a specific Ultradome.

7. Sheeting Fasteners, Flashing Fasteners, and Batten Screws. 1/4" dia. 300 series S.S. Self Tapping Screws w/ 300 series S.S. Domed Washer, & Neoprene Rubber Sealing Washer. Construction Fasteners Southwest #14 x 3/4" HH AB 305 SS w/ 5/8" Dome or equal. Batten Screws same except 1 1/4" long.

8. Slide Bearing Pads. Stainless Steel slide plates on Flurogold Teflon.

9. Static Ground Cables. 1/8" dia. 18-8 S.S. 7x19 Aircraft Cable
Electrical Resistance = 0.031 ohms/ft.
(0.102 ohms/M)

10. Skylights, 1/4" Clear Acrylic, various styles.
All incorporate a 6" high curb with closed cell foam gasketing to allow for differential thermal movement.

Full Flat Triangular Panels, repalces a full triangular closure panel.
Square or Triangular, various sizes, Domed 15% to 20% of largest span.
Square or Triangular, various sizes, Flat with cross braces for support.

11. Bird Screening. 3/4 No. 0.081 Plain Aluminum Expanded Metal.

12. Foam Seal Tape. Polyvinyl Chloride medium density closed-cell foam. 1" wide x 1/8" thick. Norton V714 or equal. (designed specifically for fastener insertion)

Foam Gasket Tape. Polyvinyl Chloride medium density closed-cell foam. Pressure sensitive adhesive on one side and bonded polyester film on the other. 1" wide x 3/16" thick. Norton V696 ~~or equal.~~

13. Peripheral Seal Fabric. 0.020" thk. Urethane coated Nylon Fabric Reeves 7576 ~~or equal.~~

14. Sealants.

Metal to Metal. Silicone Sealant, Dow 790, G.E. 1200, ~~or equal.~~
Fabric to Concrete. Urethane Sealant, Vulchem 631 ~~or equal.~~

15. Batten Bar Seal Strips Solid Silicone rubber extrusions. GE Number SE-44/88 or equal.

These are GENERAL Specifications for materials used in the construction of the ULTRADOME clear span domed roof. Not all of these materials are used on any one specific dome. See the computer generated "Summary Sheet" and Layout Drawings for SPECIFIC material selection and thickness.

G L O S S A R Y

KSI = Kilopounds per Square Inch = 1,000 Pounds per Square Inch

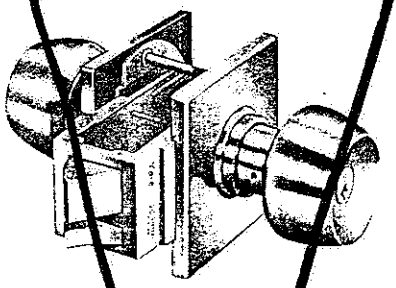
MPA = MegaPAscals = Newtons per Square Millimeter = 0.145038 KSI

Si = Silicone, Cu = Copper, Mn = Manganese, Mg = Magnesium

Cr = Chromium, Zn = Zinc, Al = Aluminum

Mono-Locks 6200 Series

ANSI Series 2000, Grade 1



General Description

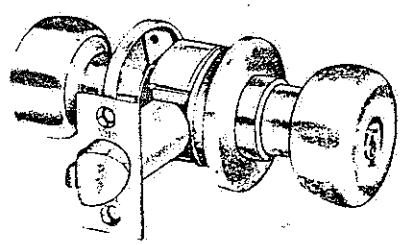
Yale Mono-Lock 6200 Series Locksets provide the highest level of key-in-knob security. These locksets can be installed on doors prepared to ANSI A115.6 Specs covering pre-assembled locks. They are pre-assembled and feature through-the-door-bolts for easy installation and positive security. These locksets are available in a wide variety of trim and lock functions.

Construction Features

Frame: extruded brass, interlocks to frame plate.
Frame Plate: Heavy-gauge steel, completely encloses lock mechanism.
Backset: 2-3/4″ only.
Deadbolt: 5/8″ throw, extruded bronze; hardened steel insert to order.
Latchbolt: 3/4″ throw, hinge-type, extruded bronze.
Guardbolt: Deadlocks latchbolt when door is closed; standard for locking functions without deadbolts.
Door Thickness: Lock not adjustable, specify 1-3/8″, 1-3/4″, 2″ or 2-1/4″ thickness.
Door Bevel: Front not adjustable; 1-3/8″ flat standard; all others standard 1/8″ bevel; 1-3/4″ thick flat to special order.
Rabbeted Doors: For standard 1/2″ step parallel bevel; 1-3/4″ doors only.
Lead Shielding: Available to order to reduce emission of harmful rays.
Keying and Cylinders: KD thru GGMK including hotel/motel keying; cylinder can be removed without removing the lockset from the door; Removable Core and Bicentric cylinders also available in some knob/rose designs.
Reversibility: Recommend hand of door be specified.
Strikes: Curved lip × correct length standard to accommodate lock function.
Trim: See page 8.
Lock Functions: See pages 12 thru 14.

Cylindrical Locksets 5400/5500 Series

ANSI Series 4000, Grade 1



General Description

Yale 5400/5500 Series Locksets provide the highest level of key-in-knob cylindrical lockset security. These locksets can be installed on doors prepared to ANSI A115.2 Specs covering cylindrical locksets. 5400 Series is for [redacted] 5500 Series, with most components of stainless steel, is recommended for corrosive environments. These series are available in a wide variety of trim and lock functions.

Construction Features

Mechanism: 5400 Series heavy-gauge steel, completely plated; 5500 Series heavy-gauge stainless steel.
Backset: 2-3/4″ standard both series; 3-3/4″ or extension links thru 42″ available for 5400 Series only.
Latchbolts: 1/2″ throw, standard both series; 5/8″ and 3/4″ available for 5400 Series only.
Guardbolt: Deadlocks latchbolt when door is closed, standard on all locking functions.
Door Thickness: Adjustable from 1-3/8″ to 2″ standard; 1-1/4″ to 1-3/8″ or 2″ to 2-1/2″ to special order for most trim.
Fronts: 2-1/4″ × 1-1/8″ beveled standard. Flat fronts to order.
Rabbeted Doors: Latchbolts with 1/2″ rabbet step available to order.
Lead Shielded: Available to order to reduce emission of harmful rays.
Keying and Cylinders: KD thru GGMK including hotel/motel keying; Removable Core and Bicentric cylinders for some knob/rose trim.
Reversibility: Locksets are field reversible.
Strikes: 1-1/4″ curved lip for 1-3/4″ door standard; other lip lengths available to order; all reversible.
Trim: See page 8.
Lock Functions: See pages 12 thru 14.

Electrified Locksets Mortise Locksets 8790/8690/4690 Series

(8700/8600/4600 Series Electrified)

Cylindrical Locksets 5490 Series

(5400 Series Electrified)

General Description

These Electrified Locksets incorporate the high level of security available from Yale Locksets with the added flexibility and security of remote electrical control. A solenoid, integral to the lock mechanism, controls the lock function from any remote switch. When incorporated with the Yale Model 128 Control Console, 20 locks or 20 groups of locks can be controlled from this single console. Custom consoles for special applications are available. System can be selected to "Fail Safe" (doors open during power outage) or "Fail Lock" (doors locked during power outage).
Yale electrified locksets permit the monitoring and control for locking and unlocking doors from a single remote location. These locksets can also be tied into fire alarm systems.

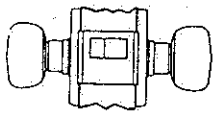
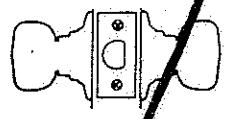
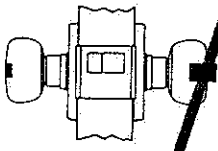
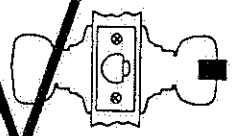
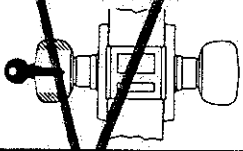
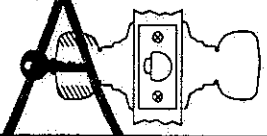
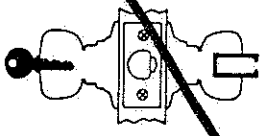
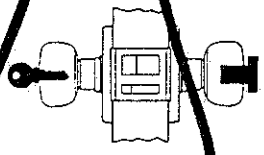
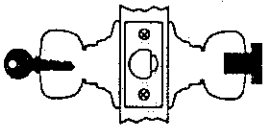
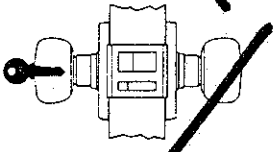
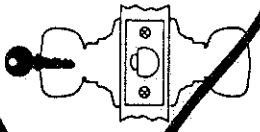
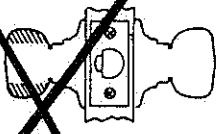
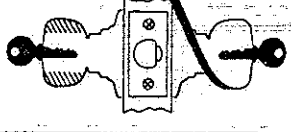
Construction Features

The construction features of each electrified lockset series is identical to the regular series from which it is derived. Refer to those details on these pages.

Trim: Available in all knob and lever handle trim for all Series: see Trim Design pages 6 thru 8.

Lock Functions: See page 19.

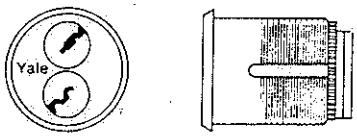
Yale Locksets
Lock Functions

(ANSI) List No. Monolocks	Function/Application	(ANSI) List No. Cylindrical Locksets
(F36) 6201 	**Passage or Closet Latch** • For doors that do not require locking. • Either knob operates latch bolt at all times.	(F75) 5401 5501 5701 5301 
(F37) 6202 	**Privacy, Bedroom or Bath Lock** • For lavatory or other privacy doors. • Either knob operates latch bolt unless outside knob is locked by pushbutton inside. • Button automatically releases when inside knob is turned or door is closed. • A coin inserted and turned in emergency slot will unlock door from outside. • Inside knob always active.	(F76) 5402 5502 5702 5302 
	Patio Lock • For exit doors with limited entry. • Dead locking latch bolt. • Either knob operates latch bolt unless outside knob is locked by pushbutton inside. • Button automatically releases when inside knob is turned or door is closed. • Inside knob always active.	(F77) 5403 5503 5703 5303 
(F44) 6205 	**Storeroom or Closet Lock** • For use on storeroom, utility, exit doors. • Dead locking latch bolt. • Latch bolt operated by knob inside, key in outside knob. • Outside knob always rigid. • Inside knob always active.	(F86) 5405 5505 5705 5305 
	Service Station Lock • Deadlocking latch bolt. • Either knob operates latch bolt. • Pushbutton locks outside knob. • Pushbutton automatically releases when inside knob is turned, door is closed or key is rotated in outside knob (except when slotted pushbutton is rotated 90° clockwise to retain outside knob in lock position). • Lock opened by key in outside knob, inside knob always active.	(F92) 5406 5506 5706 5306 
(F40/41) 6207 	**Entrance, Storeroom or Corridor Lock** • For entrance, general home or office doors. • Deadlocking latchbolt. • Either knob operates latchbolt (except when outside knob is locked from inside). • Pushing turn button in inside knob locks outside knob. (Automatically releases when inside knob is turned or key is rotated in locked outside knob). • Outside knob may be retained in locked position by pushing and rotating turn button 90° clockwise to a horizontel position; not released until turn button is manually returned to the vertical position. • Latchbolt is operated by key in outside knob or by rotating inside knob. • Inside knob always active.	(F81/82) 5407 5507 5707 
(F42) 6208 	**Classroom Lock** • For classroom or utility room doors. • Dead locking latch bolt. • Either knob operates latch bolt (except when outside knob is locked by key). • Inside knob always active. • Key releases outside knob.	(F84) 5408 5508 5708 5308 
	Exit Latch • For exit door with no entry desired. • Deadlocking latch bolt. • Outside knob always rigid. • Inside knob always active.	(F89) 5409 5509 
	Closet Latch • For closet doors requiring no lock. • Knob or thumb turn operates latch bolt.	5713 5313 
	Entrance Lock **For entrance doors requiring optional locking of inside knob.** • Deadlocking latch bolt. • Latch bolt operated by knob or key from inside and by key only from outside. • Inside knob may be locked or unlocked by full turn of key in inside knob. • Outside knob always locked when key is removed.	5714 5316 

Cylinders

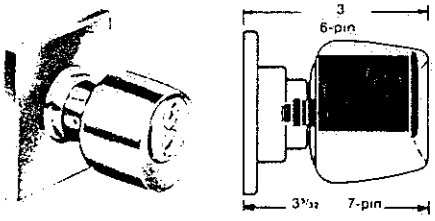
Yale® Builders Hardware Locksets are available in a choice of Cylinder and Keying Systems to meet the degree of security desired for the installation. All cylinders are normally supplied with two keys. Additional change keys for each cylinder and all special keys (e.g. master keys, control keys, display keys and construction keys) must be ordered as separate items.

Bicentric



Mortise Locks

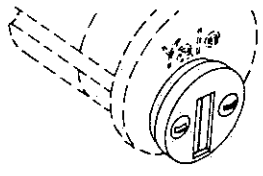
The Bicentric Cylinder contains dual cylinder mechanisms, each complete and independently controlled by its own key. There are two separate keyways. Each plug rotates independently of the other. The upper key plug is operated by the master key. The lower plug is operated by the change key. Optional safe deposit operation: the two keys must be used simultaneously to open lock.



5400 & 6200 Series

Also available for rim locks.

Dust Shields



Many Yale® Cylinders are available with a dust shield to protect the pin tumbler and plug from the penetration of dust, sand and other unusual environmental properties.

Keying

Yale® Builders Hardware Locksets can be furnished in any of the following keying arrangements.

- Keyed Different (KD)
- Keyed Alike (KA)
- Master Keyed (MK)
- Grand Master Keyed (GMK)
- Great Grand Master Keyed (GGMK)
- Construction Keying (CMK)

Master Keying

There are several types of master key systems:

- Simple Master Key Systems. Each lock has its own individual key which will not operate any other lock in the system, but all locks in the system can be operated by the master key.
- Grand Master Systems. Each lock has its own individual key as in the simple master key system, and the locks are divided into two or more groups, each group being operated by a Master Key, and all groups, or the entire system, operated by the Grand Master Key.
- Great Grand Master Systems (or higher levels of keying). Each lock has its own individual key, and the locks are divided into additional sub groups as needed including master keys and grand master keys with all groups, or the entire system operated by a Great Grand Master Key.

Construction Keying

Conventional cylinders for all locksets can be provided with construction keying for use by architect and contractor personnel during building construction. A special break-out key is used to permanently void the construction key. This action eliminates further use of the construction or break-out key.

Hotel Keying

(Hotel Function Locks Only)

Guest's Key: Operates only the lock or locks of one room or suite.

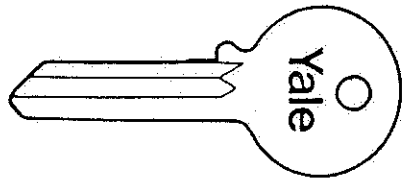
Maid's Key: Maid's master key operates one group of locks, generally the guest room entrances and linen closets on one floor served by one maid.

Housekeeper's Key: Housekeeper's master key operates a number of Main's groups, generally the entire Guest Room portion. Furnished only with great grand master key systems, when requested.

Emergency/Shut-Out Key: Operates all Guest Room locks even when they are locked from the inside. It is also a shut-out key, locking a Guest Room so that it cannot be opened by any other keys in the system, except the individual display key.

Display Key: For Guest Rooms used as sample rooms, or when extra security or privacy is required. This key locks the door against other keys except the emergency/shut-out key. Furnished only when ordered.

Grand Master Key: Generally operates all locks in the hotel. The Grand Master Key does not operate as an emergency/shut-out key.



Key Bows: "R" key bows are standard; other bow styles to order.

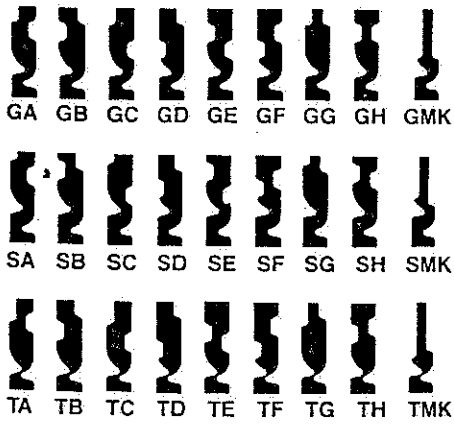
Key Sections

E1R (PARA)

Standard Simplex/Key* Section
This key section supplied as standard unless otherwise specified.

Typical Surety Key* Sections Available
Primarily used for master key systems.

*Cross-section of the key blade viewed from the bow towards the tip.



BALL BEARING • STANDARD WEIGHT • TEMPLATE

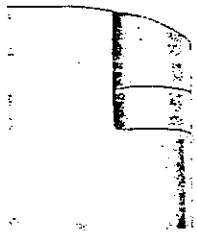
For use on Medium Weight Doors or Doors Requiring Average Frequency Service

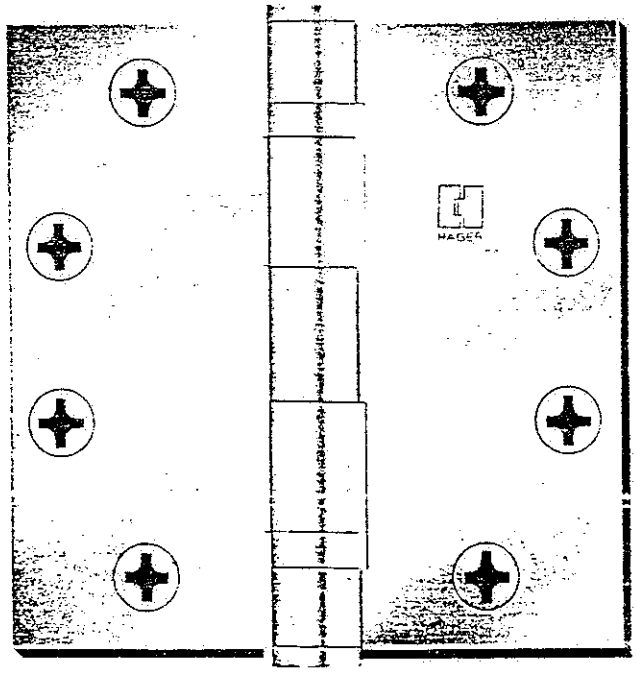
BB1191
Government #T2106
BHMA #A2112
Stainless Steel BHMA #A5112
with stainless steel pin

BB1279
Government #T2107
BHMA #A8112
steel with steel pin

FIVE KNUCKLE
TWO BALL BEARINGS
NON-RISING REMOVABLE PIN
BUTTON TIP AND PLUG

For Hospital type prefix "HT" to catalog number





All sizes, except 3½x3½, packed 1½ pair per box with screws.
Size 3½x3½ packed 1 pair per box with screws.
Regularly furnished with Phillips flat head screws.

Size Open (Inches)	3½x3½†	4x4	4½x4 4½x4½	5x4 5x4½ 5x5	6x4½ 6x5 6x6
Gauge of metal	.123	.13[illegible]	.134	.146	.160
Number of holes	6	[illegible]	8	8	10
Machine screw size	½x10-24	½x12-24	½x12-24	½x12-24	½x¼-20
Wood screw size	1x10	1¼x12	1¼x12	1¼x12	1¼x14
Pair in case	50	24	24	12	12
Average weight per case (lbs.)					
Steel—Stainless	66	43	55	37	57
Brass	72	47	60	4[illegible]	62

† Furnished with screw hole location to conform to standards approved by Steel Door Institute and (ANSI) A 156.7—1972.

U L T R A F L O T E C O R P O R A T I O N
8558 Katy Freeway # 100, Houston, Texas 77024 TLX 311065 (713) 461-2100

D O O R S C H E D U L E

UFC File # = 61070-1 DOME LOCATION = PORTSMOUTH, NH.

TANK DIA. = 34' TANK NAME OR NUMBER = GRAVITY THICKENER

DOOR TYPE = (SINGLE), DOUBLE, (circle one) DOOR SETS REQUIRED ON THIS DOME = 1

(STD. DOOR) = Ultradome Standard Industrial Strength Open Back Welded Plate Door

ALT. DOOR =

DOOR HEIGHT = 84" DOOR WIDTH (each) = 36" THICKNESS = 2½"

MATERIAL = ALUMINUM THICKNESS & ALLOY = 1/8" 5052-H32

WINDOW = (NONE), ONE, MATERIAL =

WINDOW SIZE = LOCATION =

DOOR FRAME = JAMB DEPTH = HEADER HT. =

DOOR STOP = THRESHOLD =

HINGES = 1 1/2 Pair HAGAR BB1191 4½ x 4½ x 32D

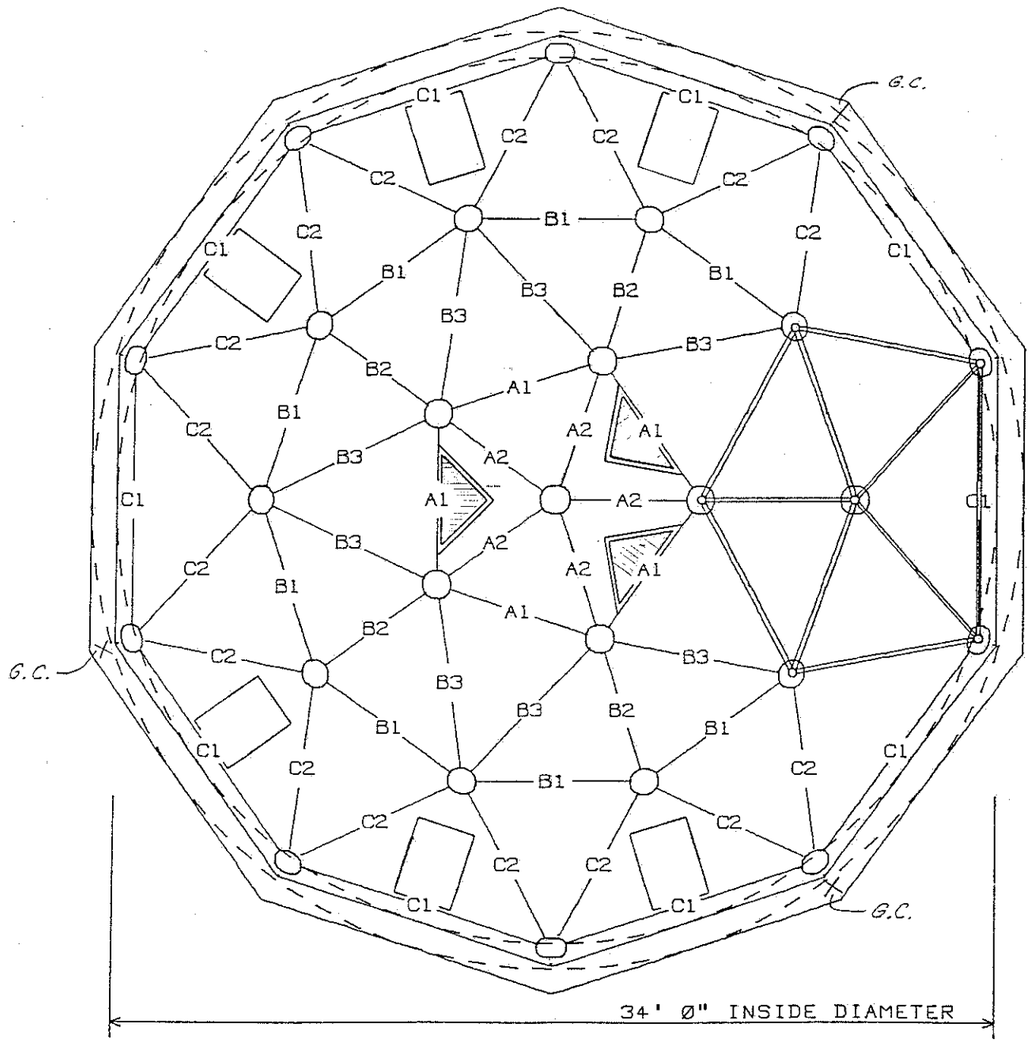
LOCKSET = YALE 5507 x LF x 32D

LOCKSET HT. = 38" MANUAL FLUSH BOLTS = N/A

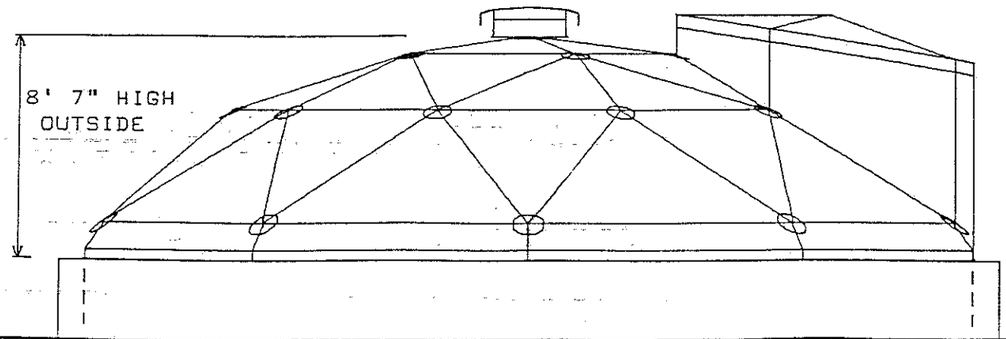
CLOSER = N/A

WEATHERSTRIP = ⅛" x 1" FOAM TAPE DOOR SWEEP = ULTRAFLOATE WIPER

DOOR HANDING = (circle one)
LH DSI LH Active
RH DSI RH Active
LHR DSO LHR Active
(RHR) DSO RHR Active



X— G.C. INDICATES GROUND CABLE LOCATIONS (3).



NUMBER OF BOLTS / END (STAINLESS)	TOP	BOT
INNER BEAMS	4	4
TENSION RING	4	4
SUPPORT LEGS	4	4
DORMER CENTER	2	2

G.C. PLEASE NOTE

DOOR SUPPLIED BY THIS CONTRACT TO BE KEYED TO NEW SYSTEM FOR ENTIRE SYSTEMS FACILITY

Ø 1Ø 2Ø FT.

SCALE 1/6 IN. = 1 FT.

ACCESSORIES AND NOTES

1 - LARGE POLYGONAL GRAVITY RELIEF VENT LOCATED AT DOME APEX. FOUR SQ. FT. OPEN THROAT AREA.

1 - STD. GAZEBO-TYPE DORMER WITH 8'-8" HEADROOM CLEARANCE. EQUIPPED WITH STD. WELDED ALUMINUM DOOR, S.S. HARDWARE, AND MASTER KEYABLE LOCKSET MOUNTED ABOVE STEP OVER TENSION RING BEAM.

3 - 48" 9Ø* TRIANGULAR SKYLIGHTS MOUNTED IN EVERY OTHER A1 PANEL. 1/4" THICK CLEAR, FLAT ACRYLIC. SKYLIGHTS PROVIDE 2Ø.7 SQ. FT. (2.28 %) OPEN AREA

6 - STD. 3Ø" X 42" ALUMINUM ACCESS HATCHES WITH HINGED SHOEBOX STYLE LIDS, ALUM. HINGES, HANDLES, AND HOLD OPEN LANYARDS. HATCHES TO BE EQUALLY DISTRIBUTED AROUND PERIPHERY OF DOME PER ENGR.

- PERIPHERY OF DOME SEALED TO CONCRETE WALL WITH URETHANE COATED NYLON FABRIC PERMANENTLY ATTACHED TO DOME FLASHING AND CONCRETE TANK WALL.
- DOME MOUNTED ON TANK WALL USING STANDARD SLIDE SUPPORT BASES WITH TEFLON PADS AND ANCHORED WITH 1/2" X 6 1/4" STAINLESS STEEL ANCHOR BOLTS.
- PERIPHERAL FLASHING OVERHANGS TANK WALL AND IS FREE TO SLIDE WITH DOME THERMAL MOVEMENTS.

DESIGN CRITERIA & WEIGHTS

SNOW LOAD	= 5Ø PSF	/	LIVE LOAD	=	55 PSF
WIND SPEED	= 92 MPH	/	PRESSURE	=	23.Ø PSF
SEISMIC ZONE	= 2	/	IMPORTANCE	=	1.ØØ
LIFT WEIGHT	= 2,1ØØ LBS	/	NET WEIGHT	=	2,425 LBS

MAXIMUM SUPPORT REACTIONS

BOTTOM RING	= ASYMMETRIC	/ 3 TIERS	= 1Ø SUPPORTS
VERT'L DOWN	= 5.381 KIPS	/ UPLIFT	= 2.223 KIPS
TANGENTIAL	= Ø.24Ø KIPS	/ ON EACH OF	4 SUPPORTS

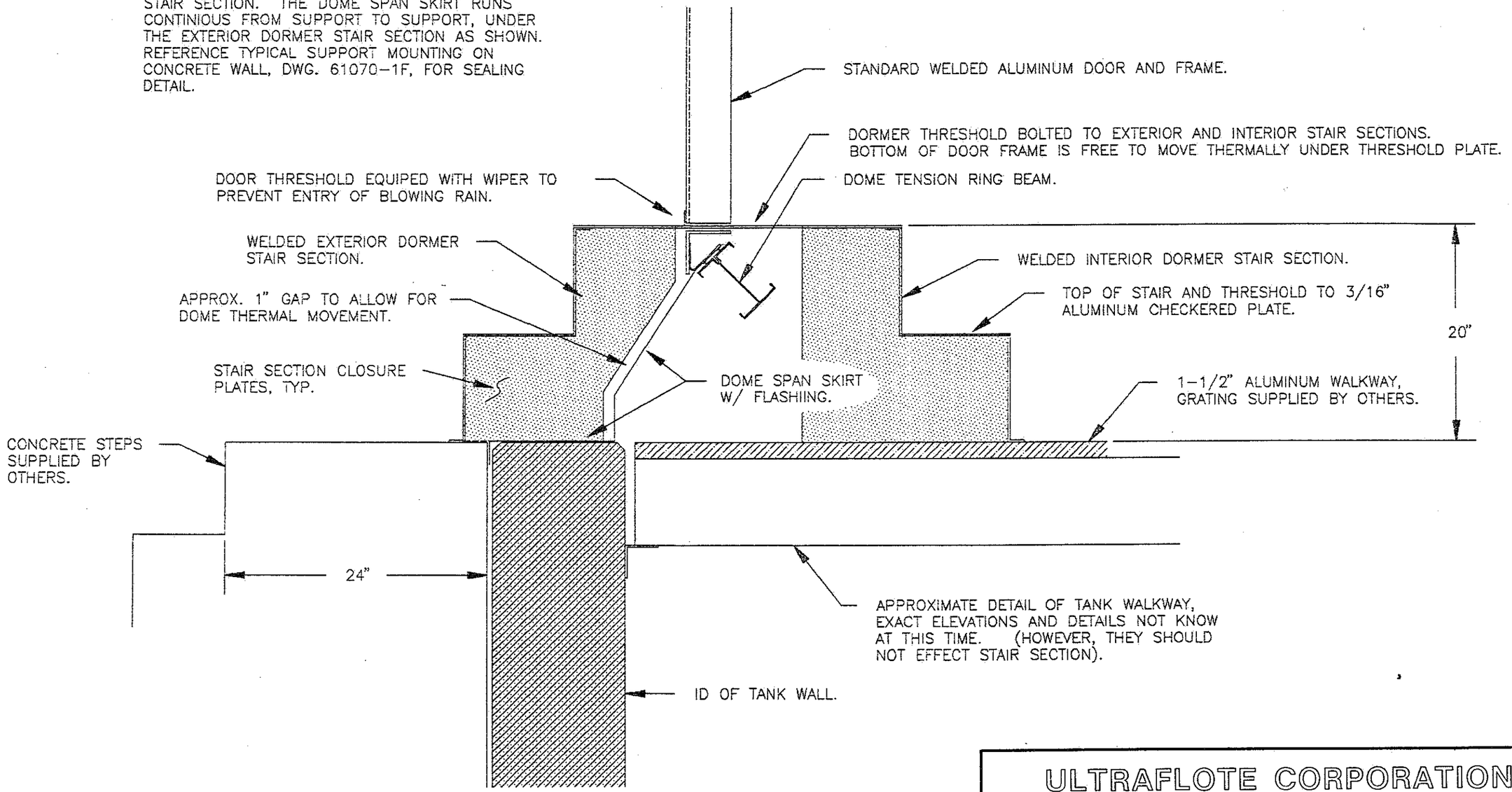
ULTRAFLOTE CORPORATION

GENERAL ARRANGEMENT / APPROVAL

CATAMOUNT CONSTRUCTION, FOR CITY OF PORTSMOUTH, NH
GRAVITY THICKENER
TANK = 34' Ø" INSIDE DIA. AT GROUND LEVEL

BY	DATE		DWG. NO.
MRR	Ø6/29/9Ø		61Ø7Ø-1-APR

THE WEATHERTIGHT INTEGRITY OF THE DOME SPAN SKIRT IS NOT EFFECTED BY THE ADDITION OF THE DORMER STRUCTURE OR THE EXTERIOR DORMER STAIR SECTION. THE DOME SPAN SKIRT RUNS CONTINIOUS FROM SUPPORT TO SUPPORT, UNDER THE EXTERIOR DORMER STAIR SECTION AS SHOWN. REFERENCE TYPICAL SUPPORT MOUNTING ON CONCRETE WALL, DWG. 61070-1F, FOR SEALING DETAIL.

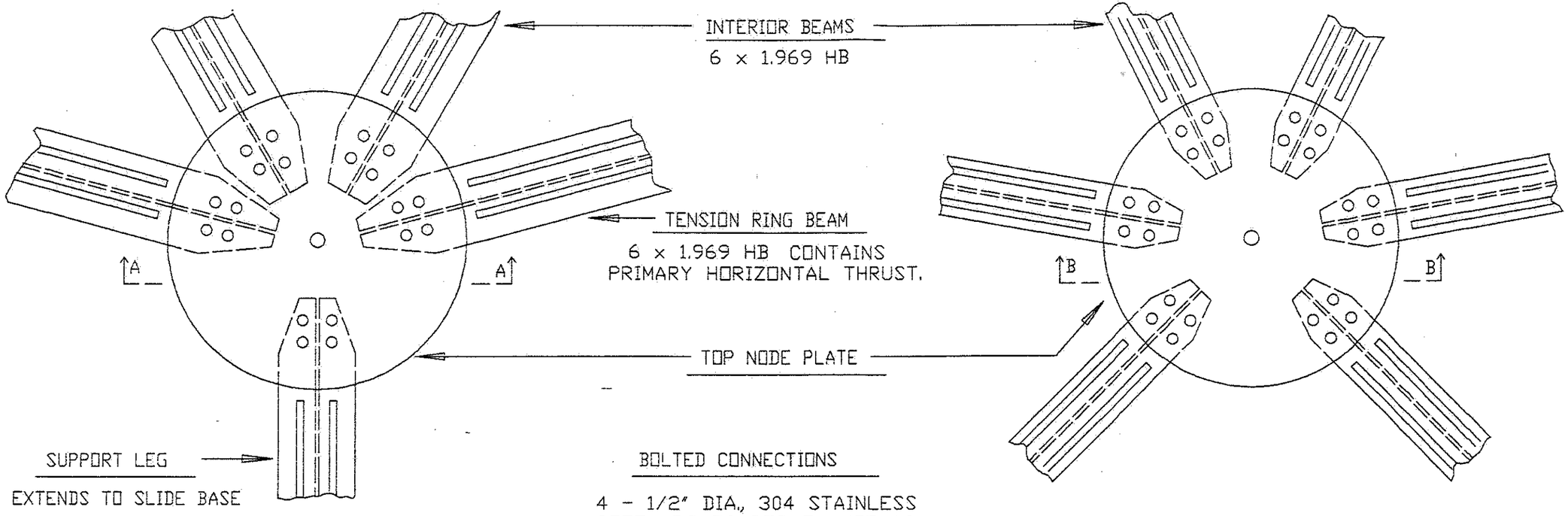


ULTRAFLOTE CORPORATION

STEP OVER TENSION RING DETAIL

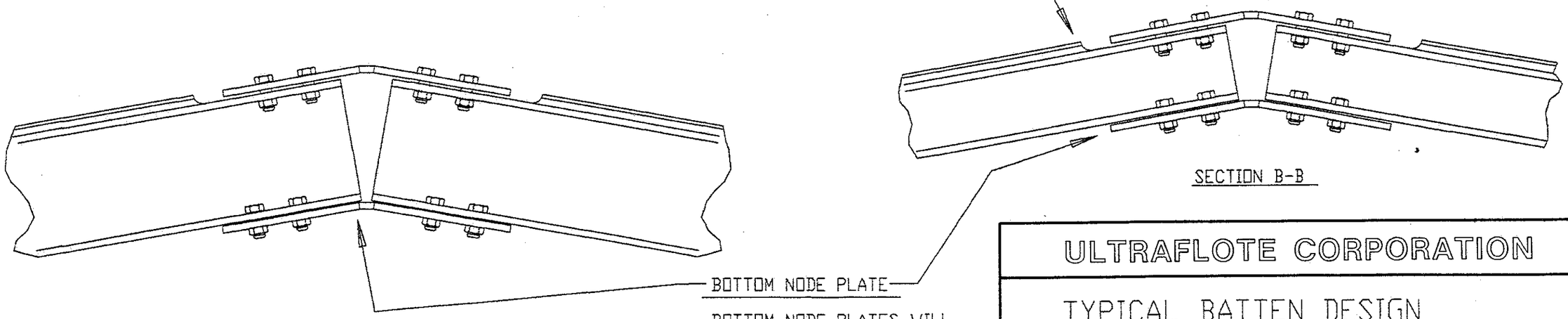
PORTSMOUTH, NH.

BY	DATE	REV.	DWG. NO.
DFG	6/28/90	8/31/90	61070-S



TENSION RING NODE CONNECTION

INTERNAL NODE CONNECTION



SECTION A-A

SECTION B-B

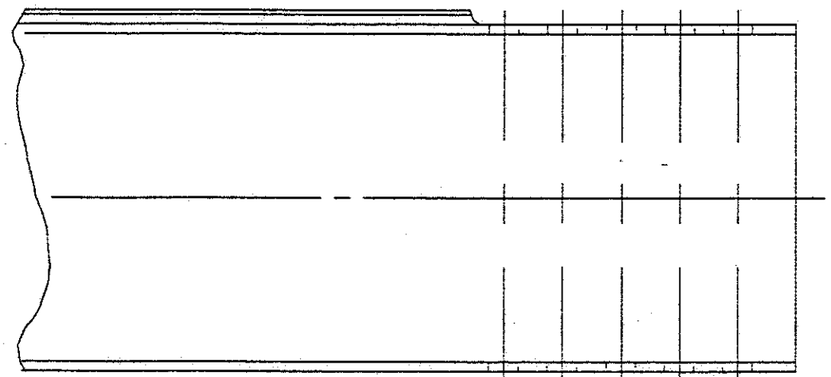
ULTRAFLOTE CORPORATION

TYPICAL BATTEN DESIGN NODE DETAILS

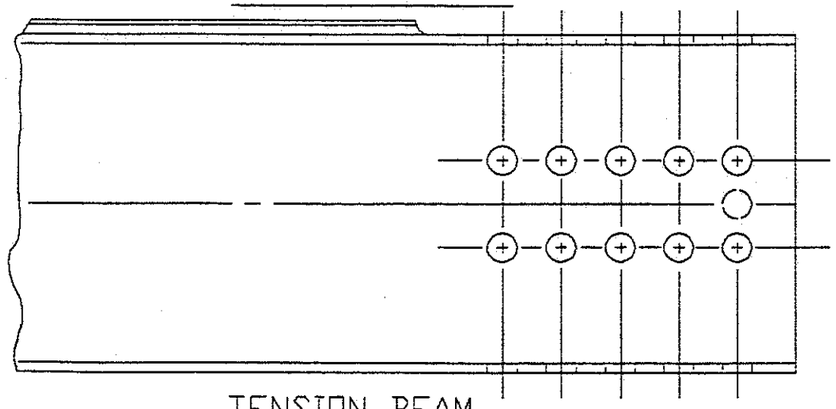
BY	DATE		DWG. NO.
DGB	2-02-86		61070-1A

NOTE : FLANGE BOLT HOLES
==========

BOLT HOLE AND NUMBER DETERMINED BY SIZE AND LOADING. SEE STRESS SUMMARY SHEET FOR DETAILS.



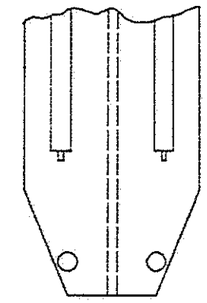
INTERNAL BEAM



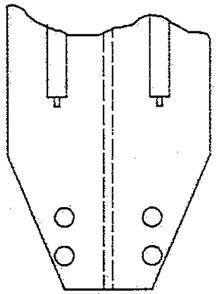
TENSION BEAM

NOTE : WEB BOLT HOLES
==========

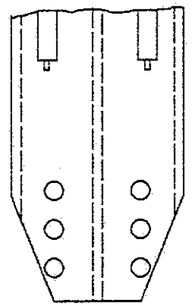
HOLES ARE REQUIRED IN THE BEAM WEB ONLY WHEN A TENSION TIE IS CALLED FOR ON THE STRESS SUMMARY SHEET. THE NUMBER OF TENSION TIE HOLES AND PATTERN WILL VARY WITH LOADING. HOLES ADDED IN VERTICAL ROWS OF 1, 2, OR 3, STARTING AT THE FREE EDGE AND WORKING INWARD. ALL PATTERNS SYMMETRICAL ABOUT THE ORIGIN.



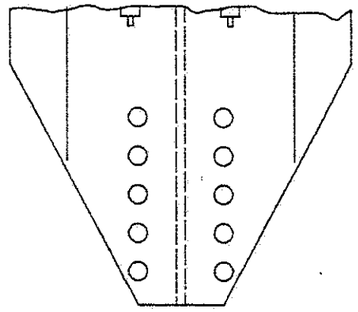
4 BOLTS PER END
2 PER FLANGE



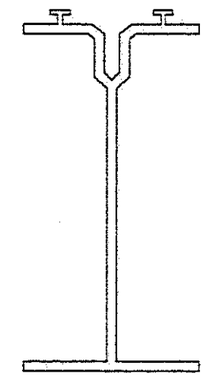
8 BOLTS PER END
4 PER FLANGE



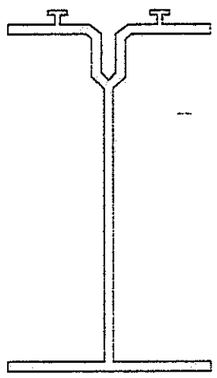
12 BOLTS PER END
6 PER FLANGE



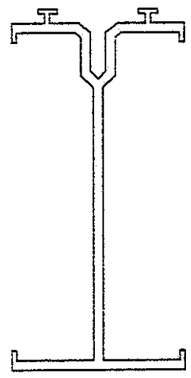
16 BOLTS PER END
8 PER FLANGE



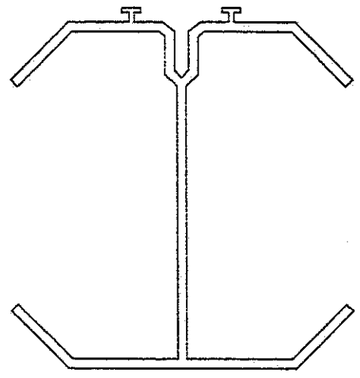
"IB"



"WB"



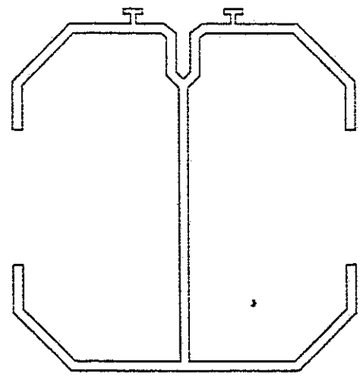
"HB"



"VB"

NOTE : DOME BEAMS
==========

SIZE, SHAPE, WEIGHT, THICKNESS, AND AREA OF BEAM WILL VARY ACCORDING TO THE INDIVIDUAL STRESS REQUIREMENTS. SEE THE STRESS ANALYSIS FOR DETAILS.



"DB"

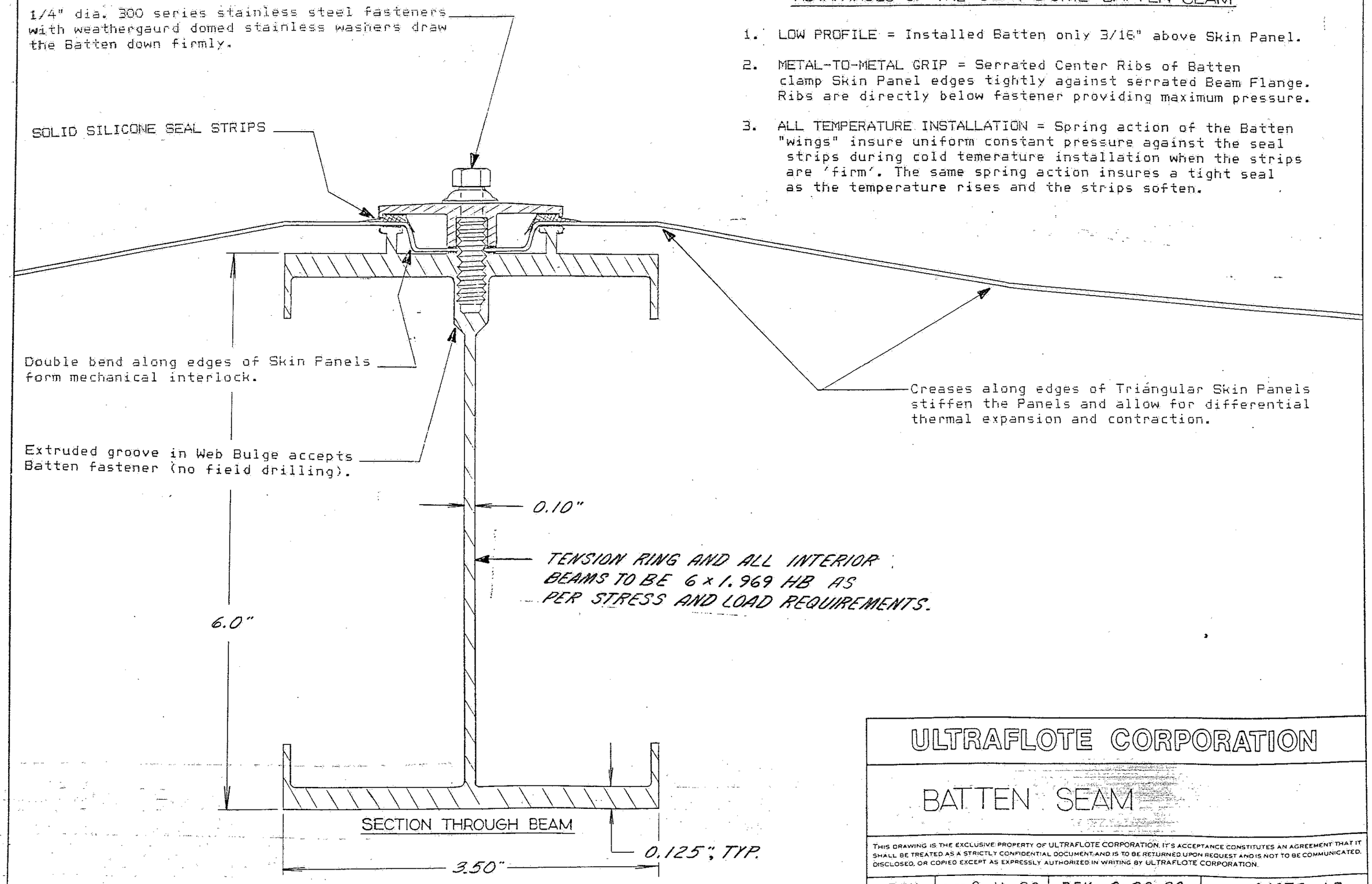
ULTRAFLOTE CORPORATION

TYPICAL BATTEN-RIBBED DOME BEAMS

BY	DATE	REV	DWG. NO.
JKB	9-11-84	REV 2-02-86	52160

ADVANTAGES OF THE ULTRADOME BATTEN SEAM

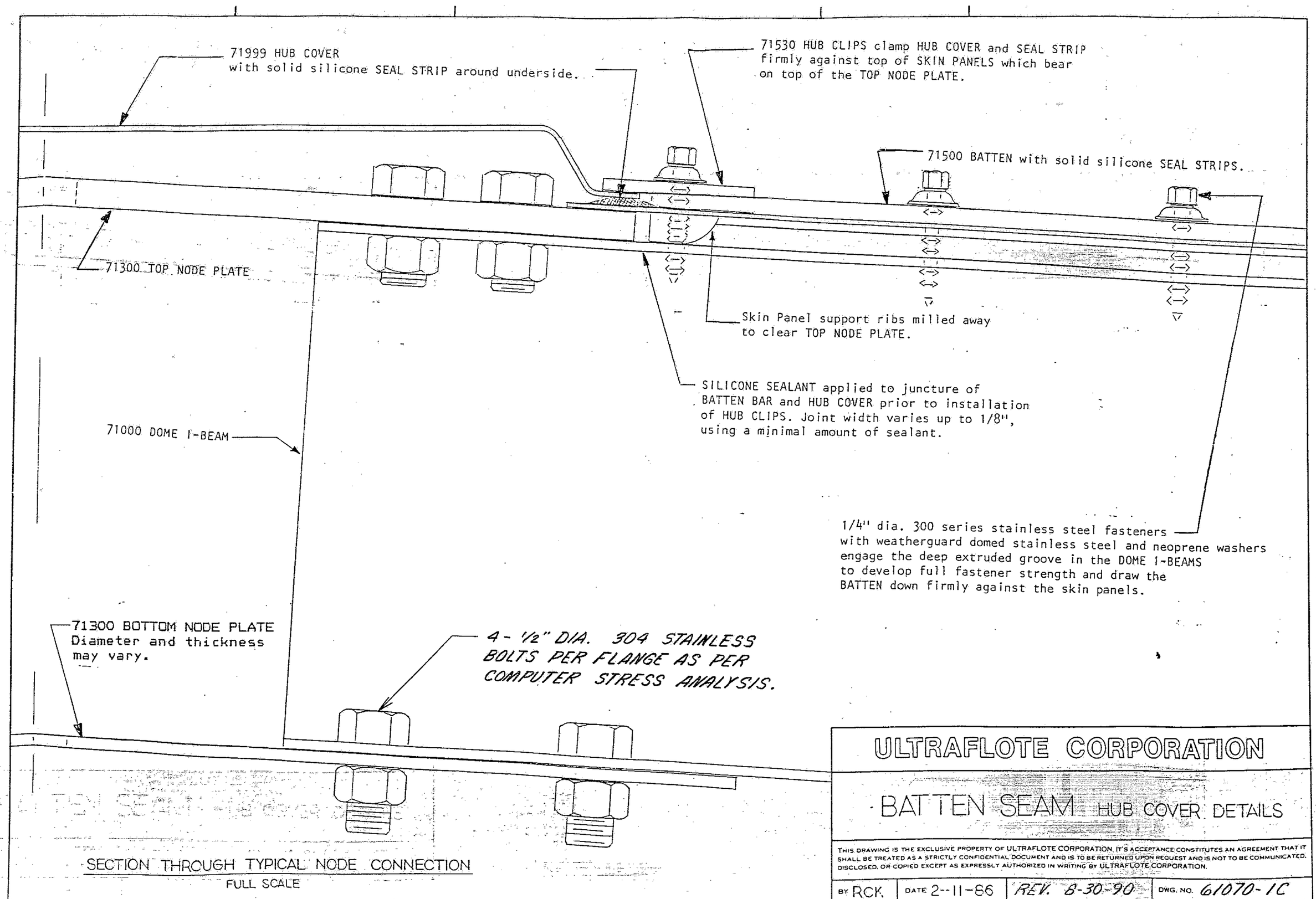
1. LOW PROFILE = Installed Batten only 3/16" above Skin Panel.
2. METAL-TO-METAL GRIP = Serrated Center Ribs of Batten clamp Skin Panel edges tightly against serrated Beam Flange. Ribs are directly below fastener providing maximum pressure.
3. ALL TEMPERATURE INSTALLATION = Spring action of the Batten "wings" insure uniform constant pressure against the seal strips during cold temerature installation when the strips are 'firm'. The same spring action insures a tight seal as the temperature rises and the strips soften.



ULTRAFLOTE CORPORATION

BATTEN SEAM

BY	DATE	REV.	DWG. NO.
RCK	2-11-86	8-30-90	61070-1B



SECTION THROUGH TYPICAL NODE CONNECTION

FULL SCALE

ULTRAFLOTE CORPORATION

BATTEN SEAM HUB COVER DETAILS

BY	DATE	REV.	DWG. NO.
RCK	2--11-86	8-30-90	61070-1C

SKIN PANELS and BATTENS not shown on this side for illustration purposes.

71999 HUB COVER with solid silicone SEAL STRIP around underside.

71500 BATTEN with solid silicone SEAL STRIPS.

71000 DOME I-BEAM with custom extruded skin panel support ribs and deep screw retention groove.

1/4" dia. 300 series stainless steel fasteners with weatherguard domed stainless steel and neoprene washers on 10" centers engage the deep extruded groove in the DOME I-BEAMS to develop full fastener strength.

4- ½" DIA., 304 S.S. BOLTS PER FLANGE AS PER COMPUTER STRESS ANALYSIS. TYP. ALL INTERIOR AND TENSION RING BEAMS.

71530 HUB CLIPS clamp HUB COVER and SEAL STRIP firmly against top of SKIN PANELS which bear on top of the TOP NODE PLATE.

NO FASTENERS PASS THROUGH HUB COVER

HUB CLIP fasteners engage the same extruded groove in the DOME I-BEAM as the BATTEN fasteners.

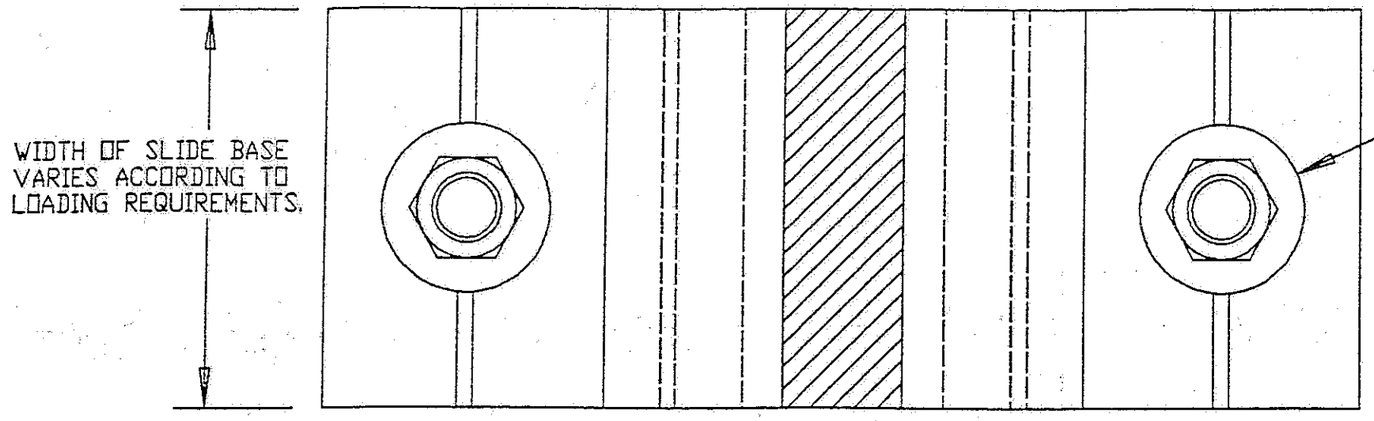
SILICONE SEALANT applied to juncture of BATTEN BAR and HUB COVER prior to installation of HUB CLIPS. Joint width varies up to 1/8" using a minimal amount of sealant.

SCALE: 1/4" = 1"

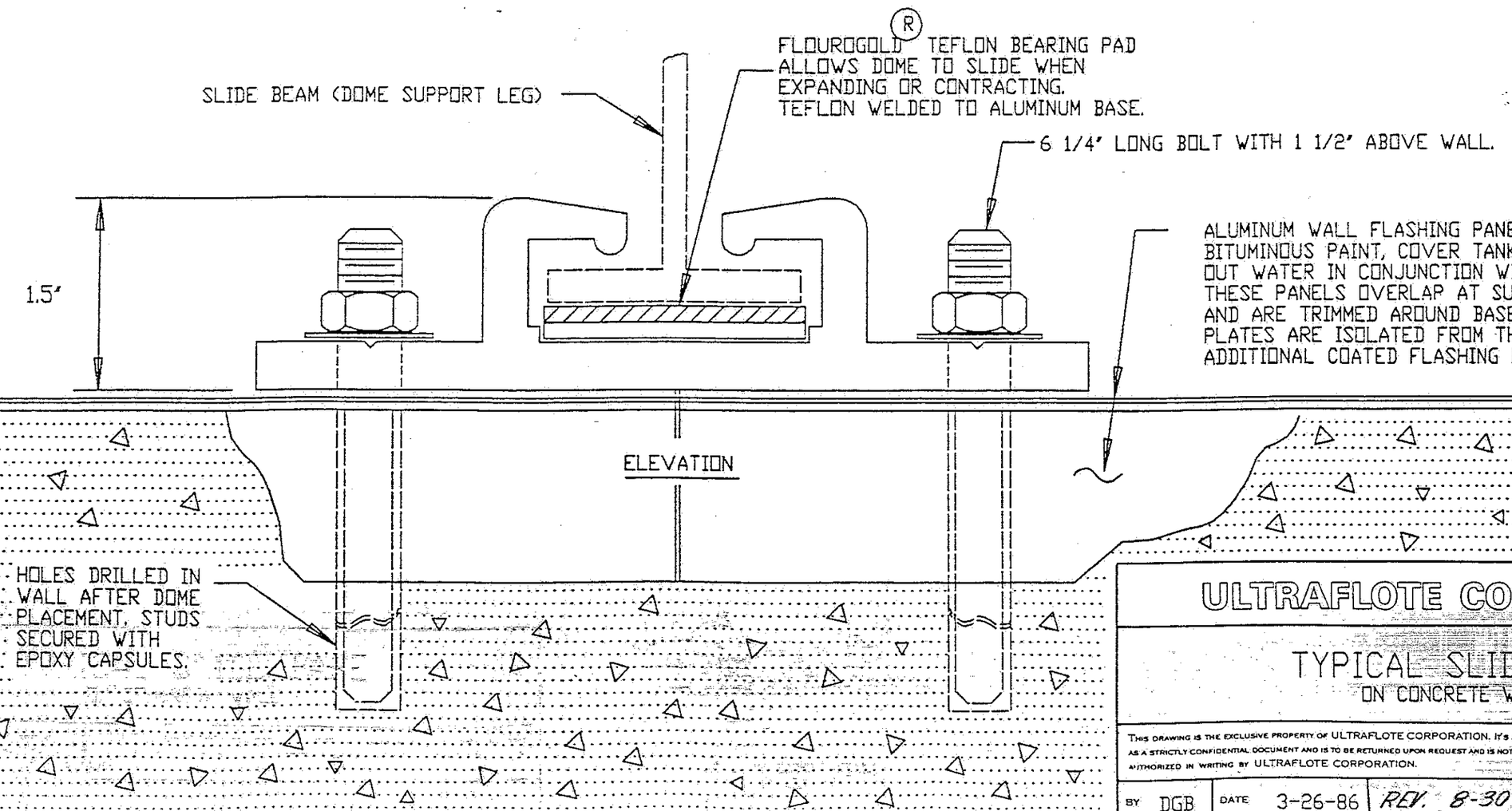
ULTRAFLOTE CORPORATION

BATTEN SEAM HUB COVER ASSEMBLY

BY RCK	DATE 2-11-66	REV. 8-30-90	DWG. NO. 61070-1D



PLAN

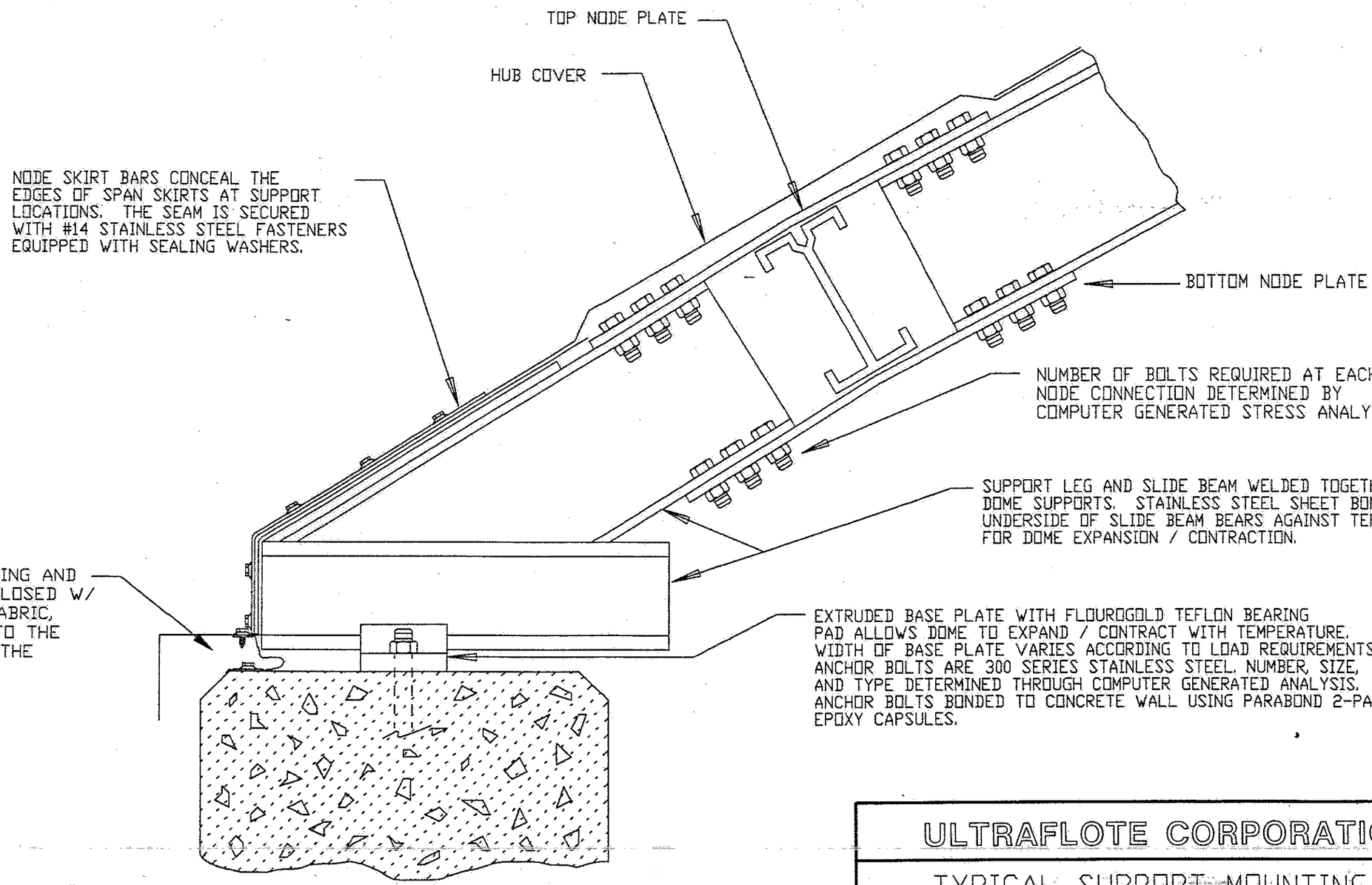


ELEVATION

ULTRAFLOTE CORPORATION

TYPICAL SLIDE BASE
ON CONCRETE WALL

BY	DATE	REV.	DWG. NO.
DGB	3-26-86	8-30-90	61070-1E



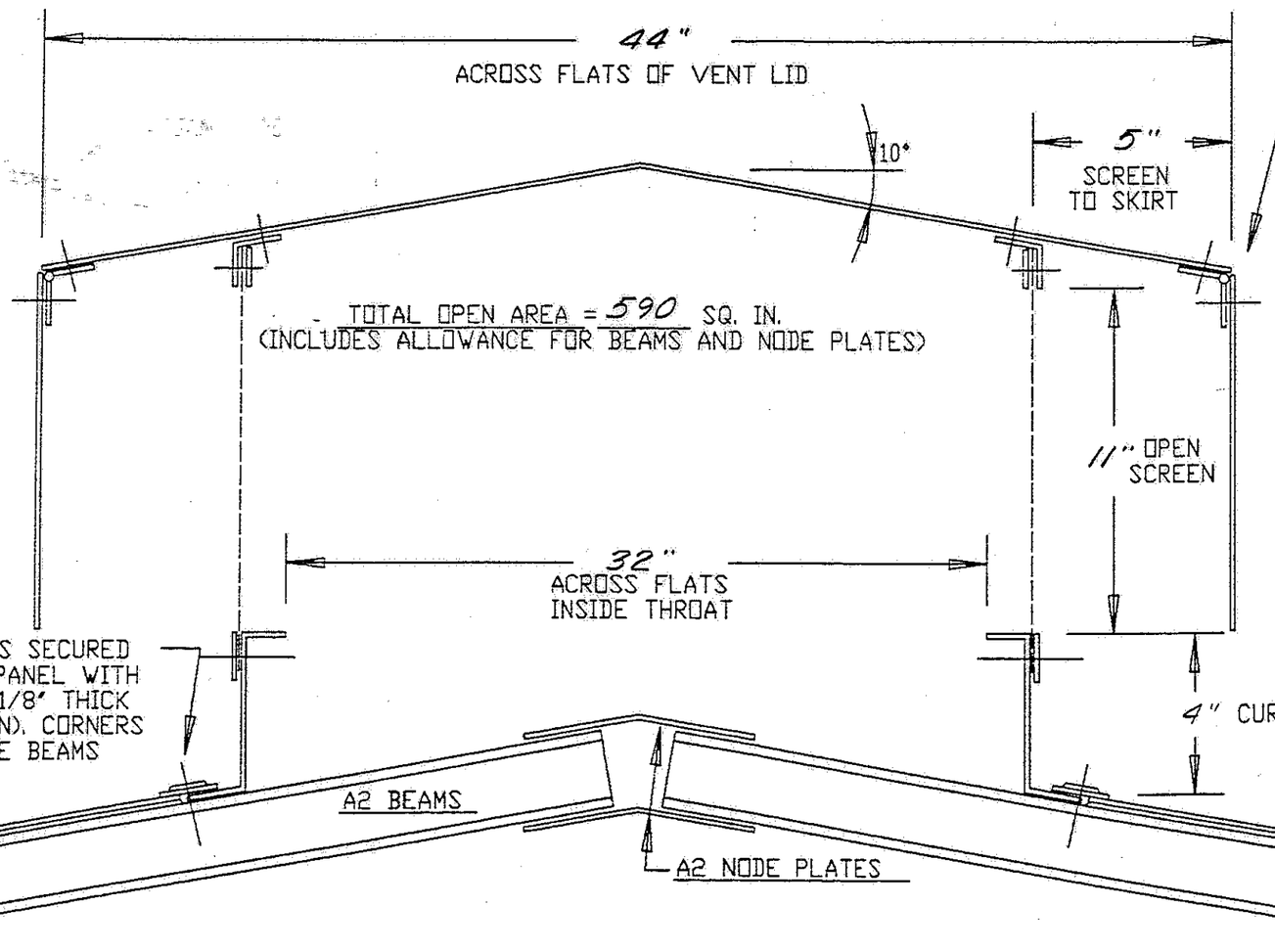
ULTRAFLOTE CORPORATION

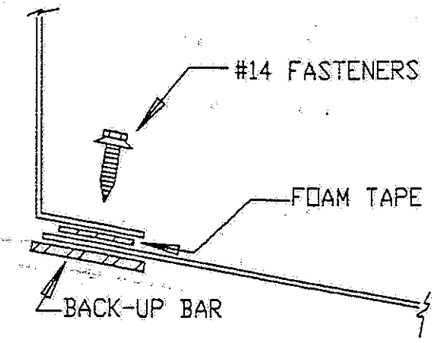
TYPICAL SUPPORT MOUNTING ON CONCRETE WALL

BY	DATE	REV.	DWG. NO.
DGB	3/13/86	8/30/90	61070-1F

MATERIAL : 0.080" THICK 5052-H32 ALUMINUM
SCREEN : 0.050" THICK EXPANDED ALUMINUM
1/2" x 3/4" DIAMOND SHAPE.
~~INSECT SCREEN : 16 x 18 MESH FIBERGLASS.~~

POP RIVET CONTINUOUS ALUMINUM HINGE TO ROOF PANELS AND RAIN PANEL SO RAIN PANEL WILL OPEN AND LAY ON TOP OF ROOF PANEL.





THE VENT BASE FLANGE IS SECURED THROUGH THE DOME SKIN PANEL WITH #14 S.S. FASTENERS INTO 1/8" THICK BACK-UP BARS (NOT SHOWN). CORNERS OF BASE SECURED TO DOME BEAMS WITH 'HUB CLIPS'.

INSTALLATION PROCEDURE :

1) CENTER VENT OVER DOME APEX. DRILL 3/16" DIA HOLES THROUGH BASE FLANGE INTO SKIN PANELS.SECURE TWO OPPOSITE CORNERS WITH SCREWS.

2) REMOVE RAIN HOOD FROM VENT. SCORE LINES AROUND INSIDE OF BASE. REMOVE BASE FROM DOME.

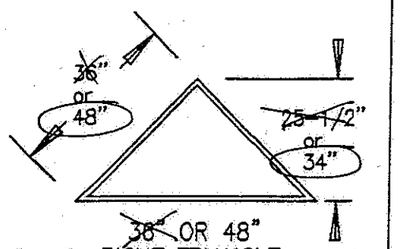
3) TRIM SKIN PANELS ON SCORED LINES. APPLY FOAM TAPE TO BASE FLANGE. DO NOT OVERLAP TAPE. FILL CRACKS WITH SILICONE CAULK.

4) PLACE BACK-UP BARS INTO POSITION. REPLACE VENT BASE AND SECURE WITH #14 x 1 1/4" LONG S.S. FASTENERS. SECURE CORNERS OF BASE WITH #14 x 1 1/4" LONG S.S. FASTENERS AND 'HUB CLIPS'.

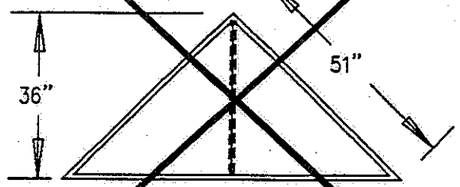
ULTRAFLOTE CORPORATION

LARGE POLYGONAL CENTER VENT

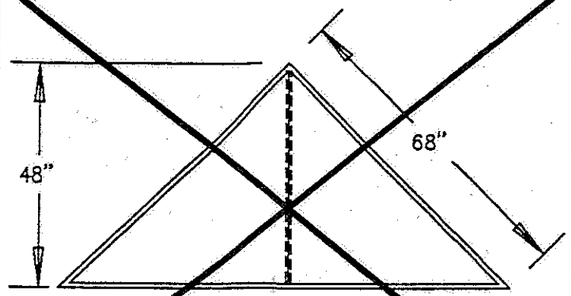
BY	DATE	REV	DWG. NO.
DGB	12-22-86	REV 3-27-89	50210



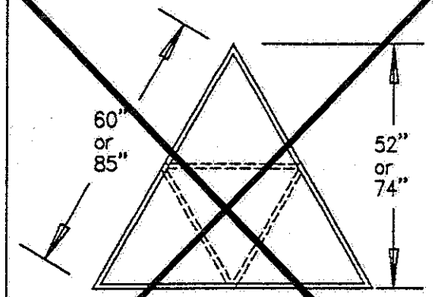
~~36"~~ OR 48"
RIGHT TRIANGLE
FLAT ONLY



51" RIGHT TRIANGLE
WITH SEAM
FLAT ONLY

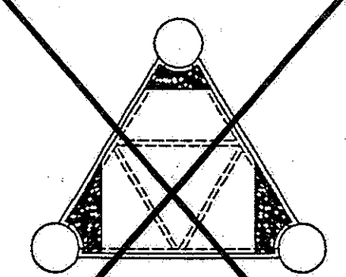


68" RIGHT TRAINGLE
WITH SEAM
FLAT ONLY

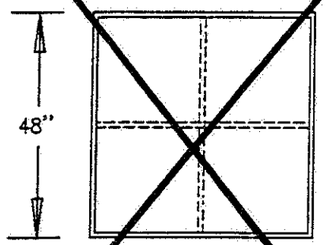


36", 60° OR 85" 60° TRIANGLE
FLAT WITH BRACING
OR DOMED *

* 85" NOT AVAILABLE DOMED.

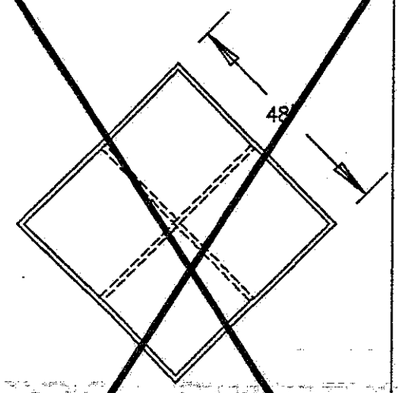


CUSTOM FULL PANEL SKYLIGHT
REPLACES ENTIRE SKIN PANEL
FLAT ONLY
OPENING DIMENSIONS LIMITED
BY ACRYLIC AVAILABITY.



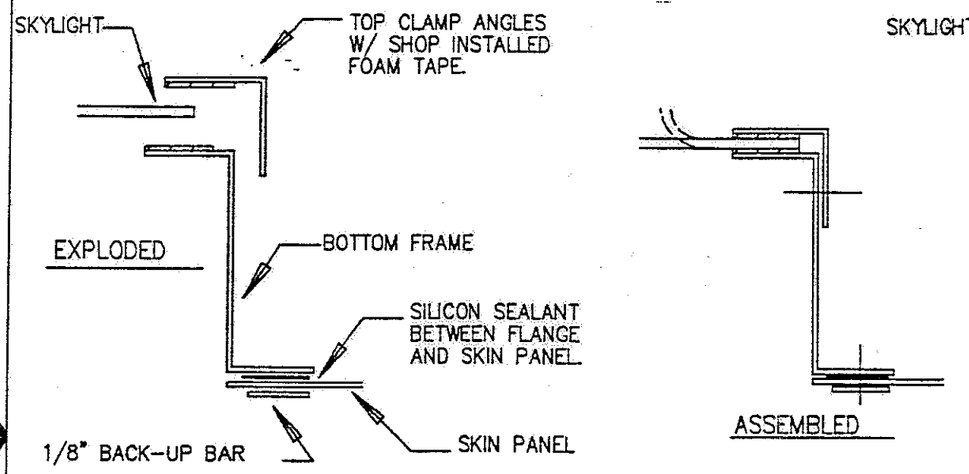
36", 48", or 60" SQUARE
FLAT WITH BRACING OR
DOMED *

* 60" NOT AVAILABLE DOMED

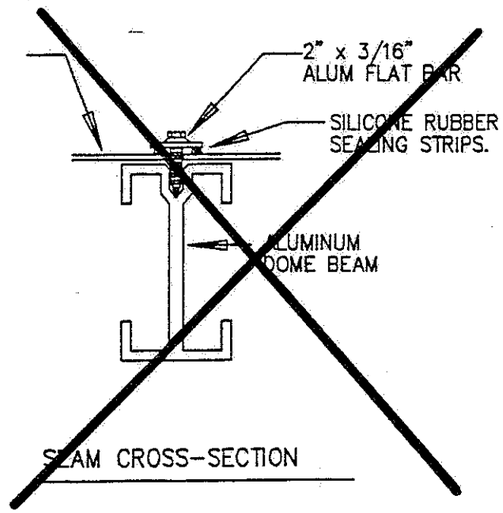


36", 48", or 60" DIAMOND
FLAT W/ BRACING OR DOMED *

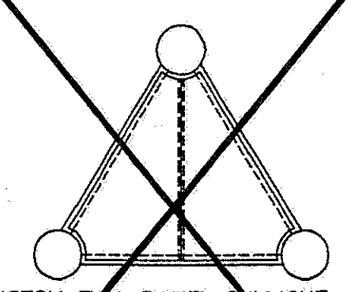
* 60" NOT AVAILABLE DOMED



SKYLIGHT FRAME CROSS-SECTIONS



SEAM CROSS-SECTION



CUSTOM FULL PANEL SKYLIGHT
WITH SEAM
REPLACES ENTIRE SKIN PANEL
FLAT ONLY

NOTE: NOT ALL DOME PANEL GEOMETRIES WILL ALLOW USE OF ALL SKYLIGHTS, PARTICULARLY THE LARGER DESIGNS. SELECTION, ORIENTATION, AND PLACEMENT WILL DEPEND ON THE GEOMETRY OF THE STRUCTURAL SUPPORT FRAMING.

APPROXIMATE OPEN AREAS
IN SQUARE FEET

36"	60° TRIANGLE	4.2
36"	RIGHT TRIANGLE	5.9
48"	RIGHT TRIANGLE	6.9
48"	SQUARE	14.7
48"	DIAMOND	14.7
51"	RIGHT TRIANGLE	12.1
68"	RIGHT TRIANGLE	21.8
60"	60° TRIANGLE	10.2
85"	60° TRIANGLE	20.9

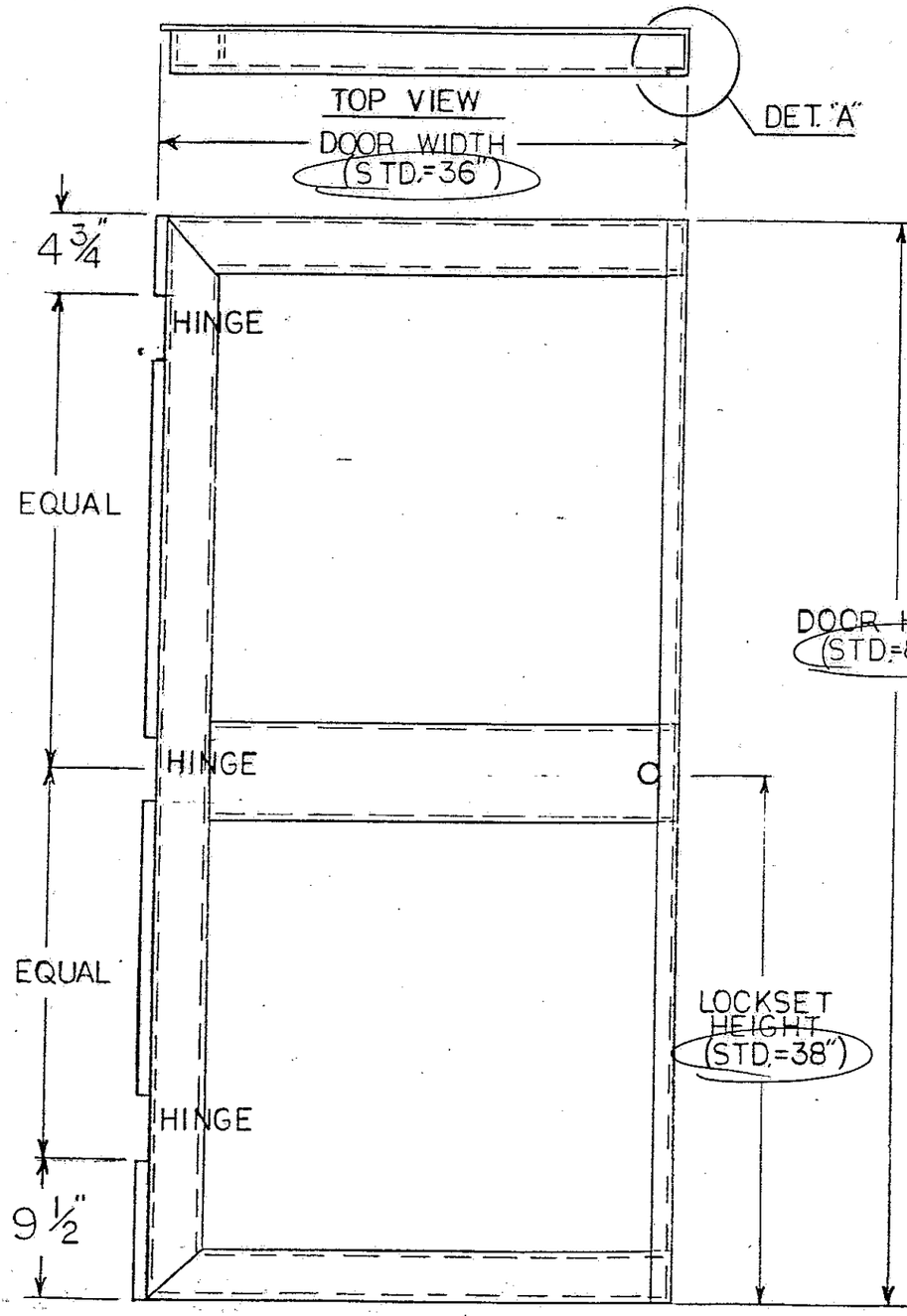
CUSTOM FULL PANEL AREA
WILL VARY IN ACCORDANCE
WITH DOME GEOMETRY.
(GENERALLY 25 to 35 sq. ft.)

NOTE THAT TRIANGULAR SKYLIGHTS MAY BE INSTALLED POINT UP OR POINT DOWN, DEPENDING UPON SKYLIGHT PLACEMENT AND THE GEOMETRY OF THE DOME.

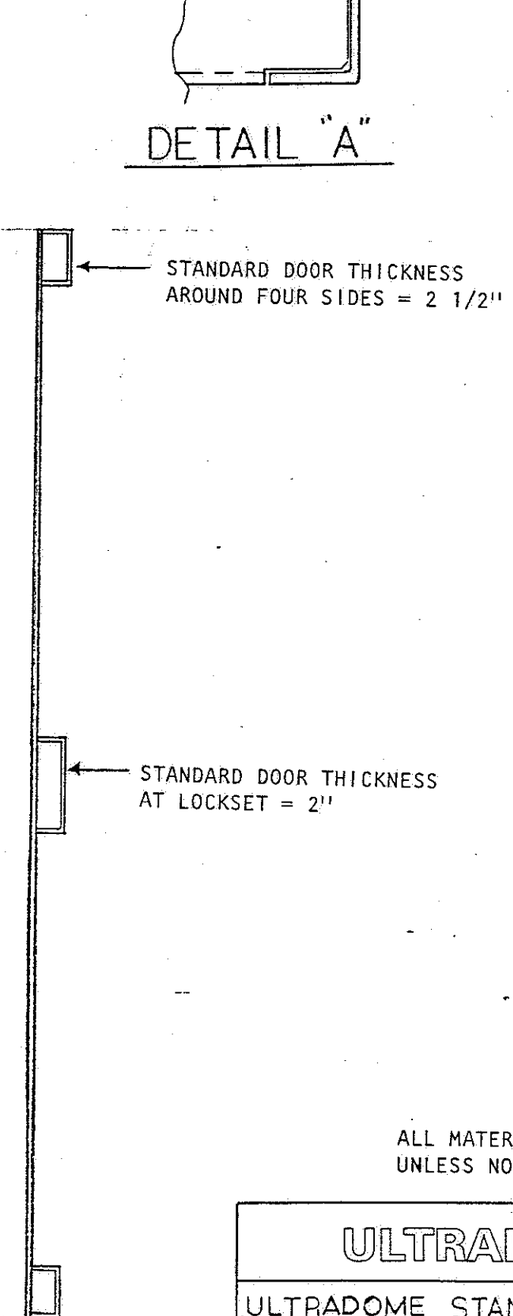
ULTRAFLOTE CORPORATION

TYPICAL SKYLIGHT DETAILS

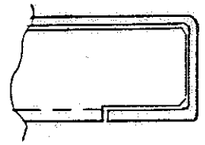
BY	DATE	REVISED	DWG. NO.
DFG	3/7/89	4/19/90	52450



BACK VIEW



SECTION AT
DOOR CENTERLINE



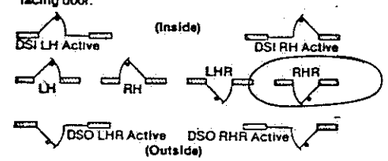
DETAIL "A"

STANDARD LOCKSET EDGE
2 1/2" x 1/8" x 1 1/2"
FORMED CHANNEL INTREGAL
WITH THE 1/8" FACE PANEL.

STANDARD REINFORCING
TOP, BOTTOM & HINGE SIDE:
4" x 1/8" x 2 3/8" FORMED
CHANNELS.
AT LOCKSET:
5 1/2" x 1/8" x 1 7/8"
FORMED CHANNEL.

HANDING INFORMATION

Hand all doors by standing outside on key side - facing door.

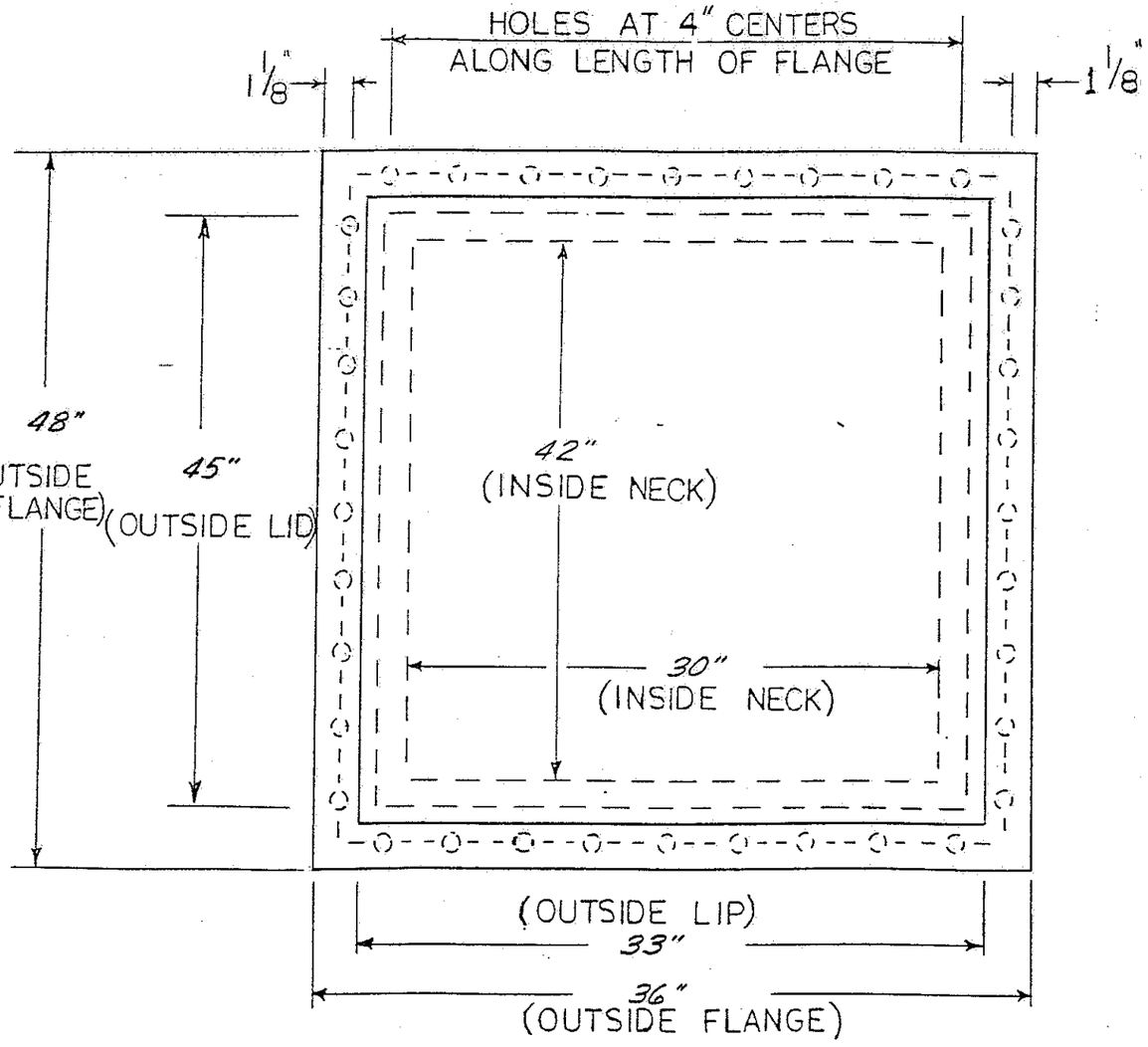


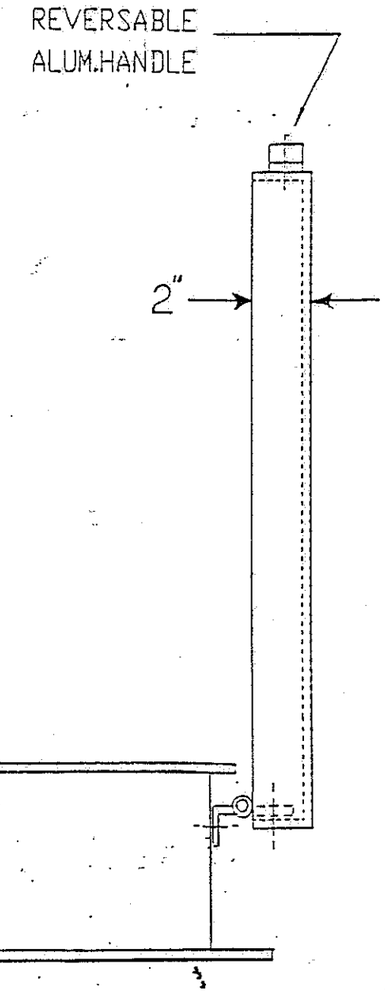
ALL MATERIAL 1/8" 5052-H32 ALUMINUM,
UNLESS NOTED.

ULTRAFLOTE CORPORATION

ULTRADOME STANDARD INDUSTRIAL STRENGTH
OPEN BACK WELDED PLATE DOOR

BY DE	DATE 10-3-88	REV. 2-17-89	DWG. NO. 82530





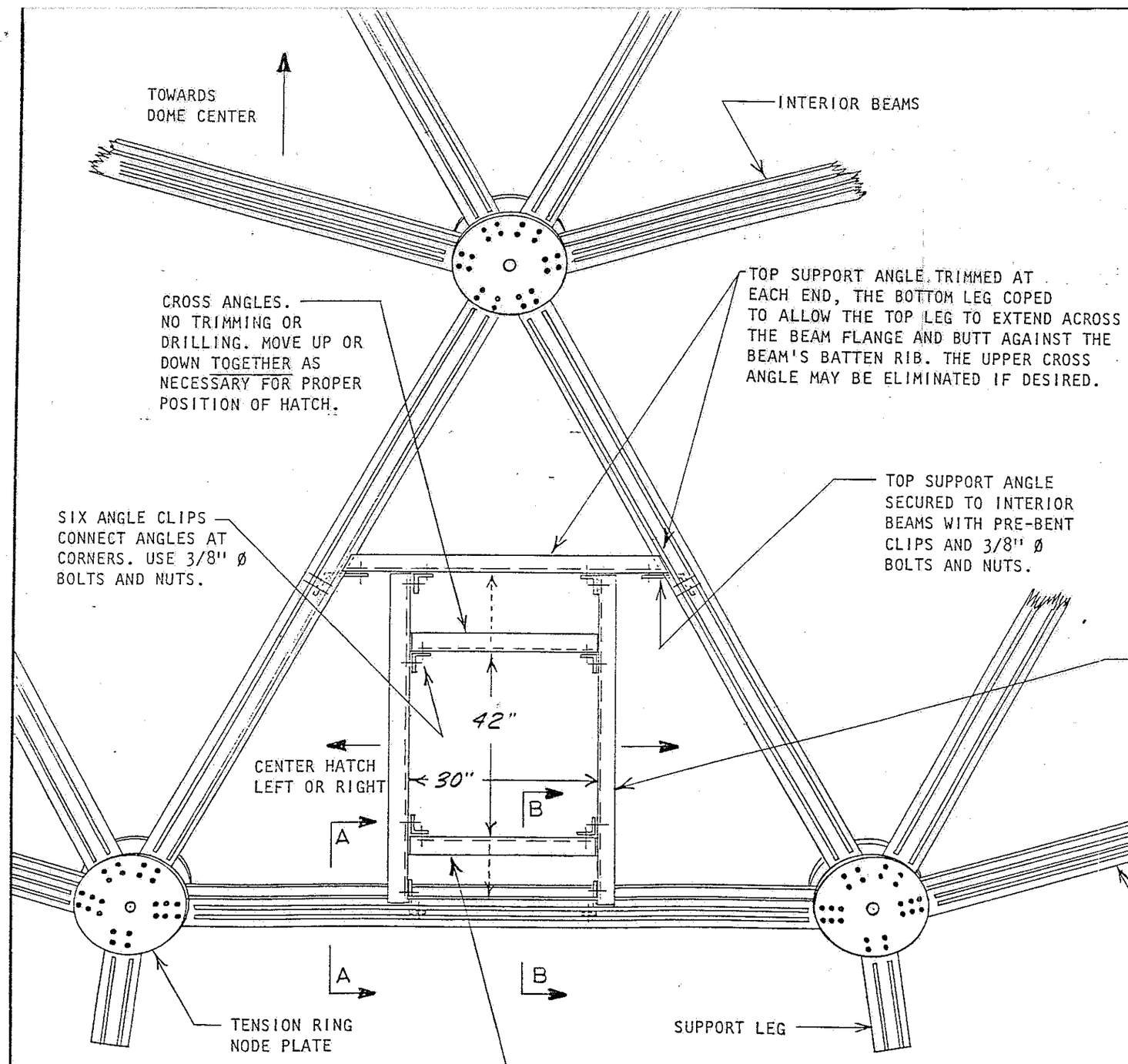
NOTE:
LID AND FRAME SHALL BE 1/8" THK.

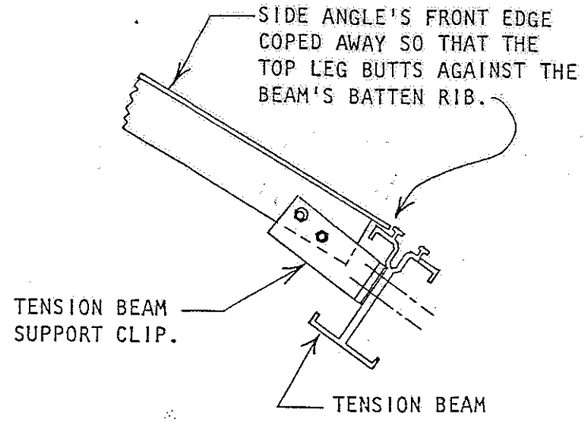
HINGE, HANDLES & LATCHES, NOT SHOWN - LOCATION VARIABLE
SEE DWG 74001 FOR DETAILS

ULTRAFLOTE CORPORATION

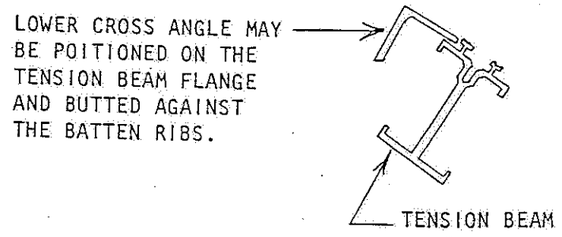
ACCESS HATCH DETAILS

BY	DATE	REV.	DWG. NO.
DE	5-4-89	8-30-90	61070-1G





SECTION A-A



SECTION B-B

ULTRAFLOTE CORPORATION

ACCESS HATCH BRACE ANGLE ASSEMBLY

BATTEN DOMES

BY DGB	DATE 11-11-86	REV. 8-30-90	DWG. NO. 61070-1H