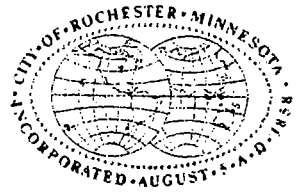




ROCHESTER

Minnesota



03/22/99

Ronald L. Sutton
Morton Buildings Inc.
2633 Highway 14 West
Rochester, MN 55901

DAVID A. KAPLER, Chief
Rochester Fire Department
201 4th Street SE, Room 10
Rochester, MN 55904-3726
(507) 285-8072
FAX #(507) 285-8256

RE: Braun Intertec
2637 Highway 14 West, HTE: 99-0879

CID/BIN: 43 762

With regard to the above noted plan reviewal, all construction must be in accordance with the Building Code. Additional requirements of the Rochester Fire Code are as follows:

1. Numbers or addresses, 4 inches in height or larger and of a contrasting color to their background, shall be placed on this building in such a position as to be visible and legible from the street or road fronting the property. Numbers or addresses shall also be provided above the main entrance of the building. RFC Section 901.4.4
2. Provide a 2A20BC, minimum, portable fire extinguisher near doors #1, #5 (between rooms #108 and #104), #2 (north end) and at the top of the stair area. RFC Section 1002.1
3. Submit a complete inventory statement of combustible, flammable and hazardous materials to be dispensed, used and/or stored at this project. Indicate container types and sizes and for uses indicate whether the system is open or closed. Indicate the total maximum limit of quantities stored and in use. Materials are to be classified as listed in Tables 8001.15-A and 8001.15-B.
4. Please describe and define the shop area. Will there be welding, cutting or hot work? Will this be a repair shop?

Please feel free to contact me with any questions you may have.

Sincerely,

Lt. Dennis Olson
Fire Prevention Bureau

cc: Randy Johnson, Building Safety Department



we pledge, we deliver

March 26, 1999

Morton Buildings, Inc.
2633 Hwy 14 West
Rochester, MN 55901

REFERENCE: Building Permit Application #99-879 for the Braun Intertec Morton Building at 2637 Hwy 14 West.

Our review of the referenced application is complete and our comments follow:

1. The property may be subject to the water availability fee, connection fees or assessments. The Assessments Manager (507-281-6004) at the Public Works Department determines the applicability of these fees.
2. Commercial/industrial buildings are required to have an appropriate backflow preventer. The Plumbing Inspector at the Building and Safety Department (507-281-6142) determines the proper type. If an irrigation system is planned it is to be metered separately.
3. The new building is to be wired for a remote reading water meter with the remote register located near the electric meter.

Please contact us at 507-280-1600 if you have questions.

Very truly yours,

Donn Richardson
Water

C: Doug Rovang, RPU
Mike Engle, RPU
✓ Dee Schemmel, Building & Safety
Gale Mount, Building & Safety, Plumbing
John Berg, Building & Safety, Electrical
Jim Loehr, Public Works Department
Lyle Felsch, Fire Prevention Bureau

March 17, 1999

Mr. Chuck Beck
Morton Buildings, Inc.
2633 Highway 14 West
Rochester, MN 55901

Project: **Braun Intertec**
2637 Highway 14 West
App. No. 99-879

Dear Mr. Beck:

Thank you for your submittal and permit application for the above referenced project. A plan review has been performed based on the following general information:

Occupancy Classification	B, S-1
Type of Construction	V-N

The plans and specifications appear to be in general conformance with the 1998 Minnesota State Building Code; however, please see the attached sheets for clarifications and/or corrections that are necessary. Respond to each item using the same numbering system and if required, provide two (2) copies of any plan and/or specification modifications and one (1) copy of any structural calculations.

We appreciate your cooperation in addressing the items outlined in this letter. Please call if you have any questions or concerns.

Sincerely,

Randy S. Johnson, P.E.
Plan Check Engineer

cc: Mr. Ronald Sutton, Morton Buildings
K & S Heating and Air Conditioning

NOTICE
THE PLANS MUST BE ON CONSTRUCTION SITE AT
ALL TIMES. CALL FOR ALL FINAL INSPECTIONS
BEFORE OCCUPANCY OF BUILDING.

#	SHEET	IDENTIFICATION	Clarification/Correction Req'd
---	-------	----------------	--------------------------------

GENERAL BUILDING ITEMS

- 1 B/6, C/7, F/8 ONE-HOUR FIRE-RESISTIVE EXTERIOR WALL
In fire-resistive exterior wall construction, the fire-resistive rating shall be maintained for such walls passing through the attic areas or other areas containing concealed spaces. The one-hour fire-resistive construction shall be continuous to the roof deck.
--UBC Sec. 709.3.1
- 2 MEZZANINE
A guardrail in accordance with the referenced code sections shall be provided along the edge of the mezzanine. Please verify and provide guardrail details that meet these requirements. Also, indicate the intended use of the mezzanine.
--UBC Sec. 509
- 3 G/8 STAIR HANDRAILS AND GUARDRAIL
All stairways shall be provided with handrails and guardrails in accordance with the referenced code sections. The handrail and guardrail details do not meet these requirements. Please verify and provide revised details.
--UBC Sec. 304.4, 311.4, 1003.3.3.6, 1003.3.3.7, 509, CABO/ANSI Sec. 4.3.10, 4.3.11
- 4 G/8 STAIR NOSINGS
The stair nosing shall be rounded in accordance with the referenced code section. Please verify.
--CABO/ANSI Sec. 4.9.3 (Lateral nosing can be secured by ~~rod~~ in accessible)
- 5 3 of 10, 4 of 10 WATER CLOSET CLEAR FLOOR SPACE REQUIREMENTS
A clear floor space for water closets shall be 48 inches in front of the water closet and 42 inches from the center line of the water closet on the side not adjacent to the wall. The lavatory appears to encroach into this required clear floor space. Please verify.
--M.R. 1340.1170 Subpart 1
- 6 3 of 10 FINISH MATERIALS
Walls within water closet compartments and walls within 2 feet of the front and sides of urinals shall be finished to a height of 4 feet with materials which are not adversely affected by moisture.
--UBC Sec. 807.1.2

Handwritten signature/initials

#	SHEET	IDENTIFICATION	Clarification/Correction Req'd
---	-------	----------------	--------------------------------

GENERAL BUILDING ITEMS (continued)

- 6 1 of 10 **ACCESSIBLE PARKING SPACE**
The parking spaces shown do not indicate an accessible parking space. Please verify that there is at least one van accessible parking space with an access aisle adjacent to the parking space in accordance with the referenced code sections.
--M.R. 1340.0100, 1994 UBC Sec. 1107, CABO/ANSI Sec. 4.6

Randy S. Johnson, P.E.
Plan Check Engineer

MECHANICAL ITEMS

- 7 **CERTIFICATION OF MECHANICAL PLANS**
The state registration and certification statute indicates that HVAC plans and specifications must be prepared by a professional (mechanical) engineer registered with the State of Minnesota. Please provide plans with the required certification.
--M.S. 326.02-326.15

Thomas Fix
Chief HVAC Inspector

ELECTRICAL REVIEW IS PENDING

INFORMATIONAL ITEMS

- 8 **OTHER CITY AND COUNTY DEPARTMENTS**
Comments from other city and/or county departments may be forthcoming.
- 9 **A.D.A. REQUIREMENTS**
Please note that compliance with present state laws and regulations regarding accessibility for disabled persons does not assure compliance with the Federal Americans with Disabilities Act (A.D.A.). Compliance with A.D.A. regulations is the responsibility of the owner and/or the owner's agents, and should be verified accordingly.
--Public Law 101-336, 28 CFR Part 36

**MORTON BUILDINGS, INC.**

252 W. Adams, P.O. Box 399 • Morton, Illinois 61550-0399

309/263-7474

FAX 309/266-9917

DATE March 22 FROM Ra STO: Randy Johnson - Rochester Mn Building & SafetyRE: Braun Interter

Please find revisions to the subject
job pursuant to your review of
March 17,

I have marked items modified
per your item numbers.

If you need additional changes please
let me know at your earliest.

**MORTON BUILDINGS, INC.**

Excellence — Since 1903

RONALD L. SUTTON, P.E.

Manager, Professional Group

252 West Adams Street
Morton, Illinois 61560

OF PAGES

14

(INCLUDING COVER)

OFFICE
(800) 263-7474

March 17, 1999

Mr. Chuck Beck
Morton Buildings, Inc.
2633 Highway 14 West
Rochester, MN 55901

Project: Braun Intertec
2637 Highway 14 West
App. No. 98-579

Dear Mr. Beck:

Thank you for your submittal and permit application for the above referenced project. A plan review has been performed based on the following general information:

Occupancy Classification	B, S-1
Type of Construction:	V-N

The plans and specifications appear to be in general conformance with the 1995 Minnesota State Building Code; however, please see the attached sheets for clarifications and/or corrections that are necessary. Respond to each item using the same numbering system and if required, provide two (2) copies of any plan and/or specification modifications and one (1) copy of any structural calculations.

We appreciate your cooperation in addressing the items outlined in this letter. Please call if you have any questions or concerns.

Sincerely,

Randy S. Johnson, P.E.
Plan Check Engineer

cc: Mr. Ronald Sutton, Morton Buildings
K & S Heating and Air Conditioning

88-26701

Project: Braun Intertec
2637 Highway 14 West
App. No. 99-879

~~March 18, 1999~~ March 18, 1999
Page 2

#	SHEET	IDENTIFICATION	Clarification/Correction Req'd
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GENERAL BUILDING ITEMS**1 B/G, C/7, F/8 ONE-HOUR FIRE-RESISTIVE EXTERIOR WALL**

In fire-resistive exterior wall construction, the fire-resistive rating shall be maintained for such walls passing through the attic areas or other areas containing concealed spaces. The one-hour fire-resistive construction shall be continuous to the roof deck.

-UBC Sec. 709.3.1

2 MEZZANINE

A guardrail in accordance with the referenced code sections shall be provided along the edge of the mezzanine. Please verify and provide guardrail details that meet these requirements. Also, indicate the intended use of the mezzanine.

-UBC Sec. 509

3 G/8 STAIR HANDRAILS AND GUARDRAIL

All stairways shall be provided with handrails and guardrails in accordance with the referenced code sections. The handrail and guardrail details do not meet these requirements. Please verify and provide revised details.

-UBC Sec. 304.4, 311.4, 1003.3.3.6, 1003.3.3.7, 509, CABO/ANSI Sec. 4.3.10, 4.3.11

4 G/8 STAIR NOSINGS

The stair nosing shall be rounded in accordance with the referenced code section. Please verify.

-CABO/ANSI Sec. 4.9.3

5 3 of 10, 4 of 10 WATER CLOSET CLEAR FLOOR SPACE REQUIREMENTS

A clear floor space for water closets shall be 48 inches in front of the water closet and 42 inches from the center line of the water closet on the side not adjacent to the wall. The lavatory appears to encroach into this required clear floor space. Please verify.

-M.R. 1340.1170 Subpart 1

6 3 of 10 FINISH MATERIALS

Walls within water closet compartments and walls within 2 feet of the front and sides of urinals shall be finished to a height of 4 feet with materials which are not adversely affected by moisture.

-UBC Sec. 807.1.2

3/99 06:28 FAX 507 287 2240

ROCH. BUILDING SAFETY

- MORTON BLDGS

0003

Project: Braun Intertec
2637 Highway 14 West
App. No. 99-879

88-2670 J
Thursday, March 18, 1999

Page 3

#	SHEET	IDENTIFICATION	Clarification/Correction Req'd
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GENERAL BUILDING ITEMS (continued)**6 1 of 10 ACCESSIBLE PARKING SPACE**

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-M.R. 1340.0100, 1994 UBC Sec. 1107, CABO/ANSI Sec. 4.5

Randy S. Johnson, P.E.
Plan Check Engineer

MECHANICAL ITEMS**7 CERTIFICATION OF MECHANICAL PLANS**

The state registration and certification statute indicates that HVAC plans and specifications must be prepared by a professional (mechanical) engineer registered with the State of Minnesota. Please provide plans with the required certification.
-M.S. 326.02-326.15

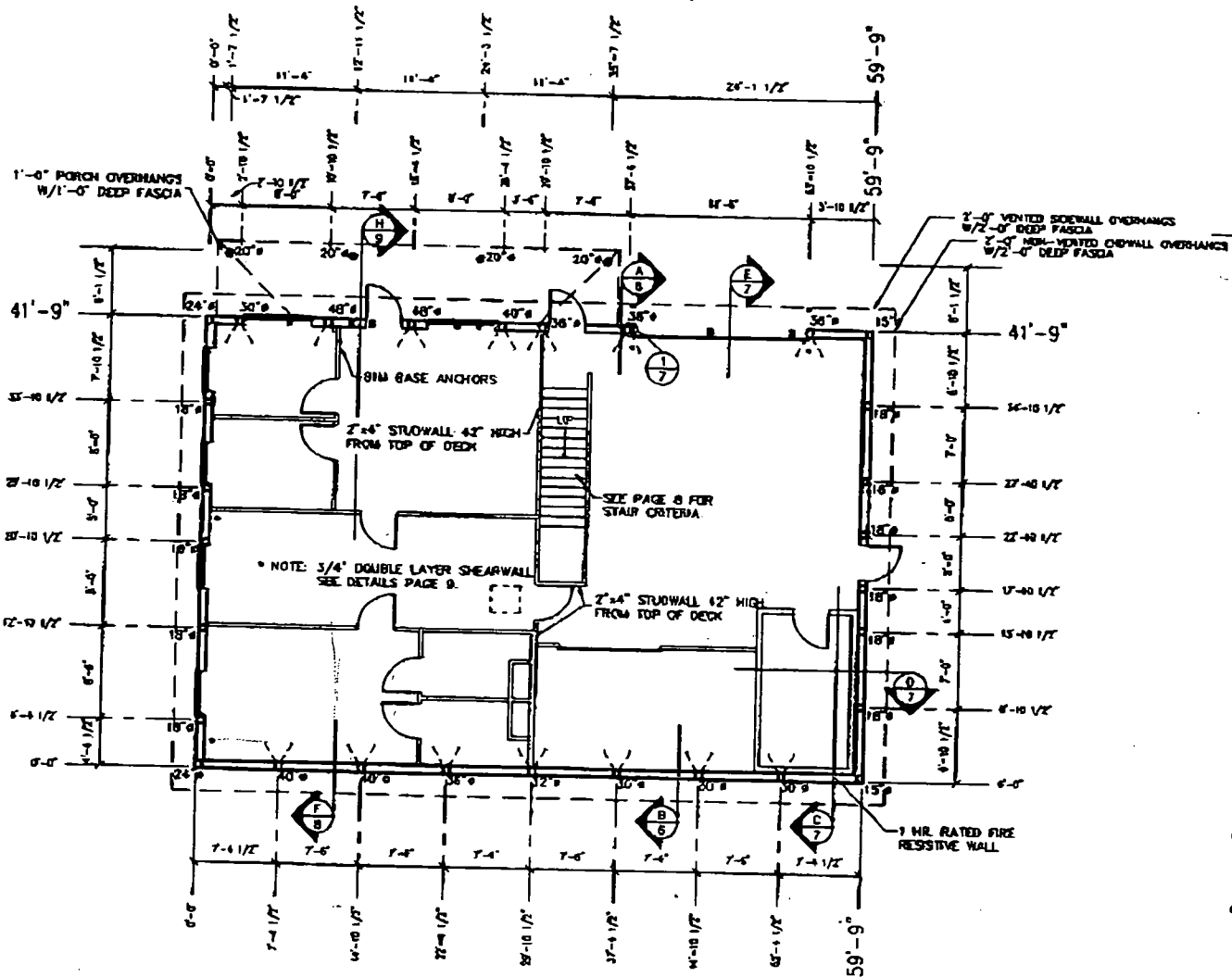
Thomas Fix
Chief HVAC Inspector

ELECTRICAL REVIEW IS PENDING**INFORMATIONAL ITEMS****8 OTHER CITY AND COUNTY DEPARTMENTS**

Comments from other city and/or county departments may be forthcoming.

9 A.D.A. REQUIREMENTS

Please note that compliance with present state laws and regulations regarding accessibility for disabled persons does not assure compliance with the Federal Americans with Disabilities Act (A.D.A.). Compliance with A.D.A. regulations is the responsibility of the owner and/or the owner's agents, and should be verified accordingly.
-Public Law 101-336, 28 CFR Part 36



COLUMN PLAN



COLUMN PLAN LEGEND

- 3'-2 1/2" LAMINATED COLUMN LOCATION
- 3'-2 1/2" LAMINATED COLUMN LOCATION
- HEADERED TRUSS LOCATION
- 30'-30" ATTIC ACCESS PANEL
- 15" DIA. FOOTING
8" THICK READY-MIX PAD. PLACE (1)50# BAGS OF SACKRETE AROUND COLUMNS WHEN SETTING.
- 18" DIA. FOOTING
8" THICK READY-MIX PAD. PLACE (2)50# BAGS OF SACKRETE PRE-MIXED W/WATER AROUND COLUMNS WHEN SETTING.
- 20" DIA. FOOTING
8" THICK READY-MIX PAD. PLACE (2)50# BAGS OF SACKRETE PRE-MIXED W/WATER AROUND COLUMNS WHEN SETTING.
- 24" DIA. FOOTING
10" THICK READY-MIX PAD. PLACE (4)50# BAGS OF SACKRETE PRE-MIXED W/WATER AROUND COLUMNS WHEN SETTING.
- 30" DIA. FOOTING
12" THICK READY-MIX PAD. PLACE (6)50# BAGS OF SACKRETE PRE-MIXED W/WATER AROUND COLUMNS WHEN SETTING.
- 36" DIA. FOOTING
14" THICK READY-MIX PAD. PLACE (11)50# BAGS OF SACKRETE PRE-MIXED W/WATER AROUND COLUMNS WHEN SETTING.
- 38" DIA. FOOTING
15" THICK READY-MIX PAD. PLACE (13)50# BAGS OF SACKRETE PRE-MIXED W/WATER AROUND COLUMNS WHEN SETTING.
- 40" DIA. FOOTING
16" THICK READY-MIX PAD. PLACE (15)50# BAGS OF SACKRETE PRE-MIXED W/WATER AROUND COLUMNS WHEN SETTING.
- 48" DIA. FOOTING
20" THICK READY-MIX PAD. PLACE (22)50# BAGS OF SACKRETE PRE-MIXED W/WATER AROUND COLUMNS WHEN SETTING.

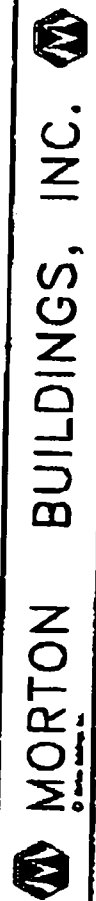


I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer and a member in good standing of the State of Minnesota.

Date 3-22-99 Reg. No. 12270



MORTON BUILDINGS REAL ESTATE DEVELOPMENT
ROCHESTER, MN



DRAWN BY:	MMF 287
DATE:	2-1-99
CHECKED BY:	
DATE:	
REVISED DATE:	
REVISED DATE:	
REVISED DATE:	
REVISED DATE:	

SCALE: AS NOTED
SHEET NO.
2 OF 10

103	LUNDOY CONFERENCE ROOM	20'-0" x 12'-6"	8'-0"	1/8" CONJ. VCT	2" VHTL	3/8" GYP BD. TAPE, PRIME & PAINTED	3/8" GYP BD. TAPE, PRIME & PAINTED
105	RESTROOM	5'-6" x 8'-6"	8'-0"	1/8" CONJ. VCT	2" VHTL	3/8" GYP BD. TAPE, PRIME & PAINTED	3/8" GYP BD. TAPE, PRIME & PAINTED
107	RESTROOM	5'-6" x 9'-6"	8'-0"	1/8" CONJ. VCT	2" VHTL	3/8" GYP BD. TAPE, PRIME & PAINTED	3/8" GYP BD. TAPE, PRIME & PAINTED
109	SHOP	29'-0" x 11'-0"	17'-0"	1/8" CONJ. VCT	2" VHTL	3/8" GYP BD. TAPE, PRIME & PAINTED	3/8" GYP BD. TAPE, PRIME & PAINTED
109	SOI. ROOM	20'-0" x 11'-0"	17'-0"	SEALED CONC.	STEEL TRIM	INTERIOR STEEL LINER	INTERIOR STEEL LINER
110	WET ROOM	9'-0" x 15'-0"	8'-0"	SEALED CONC.	STEEL TRIM	INTERIOR STEEL LINER	INTERIOR STEEL LINER
111				SEALED CONC.	STEEL TRIM	6" CONC. BLOCK	INTERIOR STEEL LINER

PART SHALL BE URETHANE BASE (POXY)
WITHIN 2'-0" ON TIME FRUIT & DEC. OF
THE WATER CLOSET TO A HEIGHT OF 4'-0"

#6

DOOR SCHEDULE

DOOR #	QTY	SIZE	STYLE	PRC. RATING	GLAZING	FRAME	TRIM	CLOSER	HARDWARE
1	1	3'-0" x 7'-0"	NARROW SLIT GLASS ENTRY	NO	TEMPERED GLASS	ANODIZED ALUMINUM	OAK COLONIAL CASING	YES	P2 PUSH/PULL W/ADAMS EXT. PADLOCK
2	2	3'-0" x 8'-0"	EMBOSSED STEEL M-92	NO	N/A	PRE-HUNG VERJALITE	PAINTED STEEL FRAME	YES	PASSAGE LEVER LOCKSET, DEADBOLT
3	4	3'-0" x 8'-0"	SOLID CORE OAK	NO	N/A	PRE-HUNG OAK	OAK COLONIAL CASING	NO	PASSAGE LEVER LOCKSET
4	2	3'-0" x 8'-0"	SOLID CORE OAK	NO	N/A	PRE-HUNG OAK	OAK COLONIAL CASING	NO	PRIVACY LEVER LOCKSET
5	2	3'-0" x 8'-0"	FLUSH STEEL M-1	NO	N/A	PRE-HUNG VERJALITE	PAINTED STEEL FRAME	NO	PASSAGE LEVER LOCKSET
6	1	16'-0" x 7'-0"	SECTIONAL OVERHEAD DOOR	NO	N/A	STD. HEADROOM TRACK	STEEL TRIM		ELECTRIC OPERATOR & (2) PAIR JAMB PROTECTORS
7	1	8'-0" x 7'-0"	DOOR-UP DOOR	NO	N/A	STEEL TRIM	STEEL TRIM		

WINDOW SCHEDULE

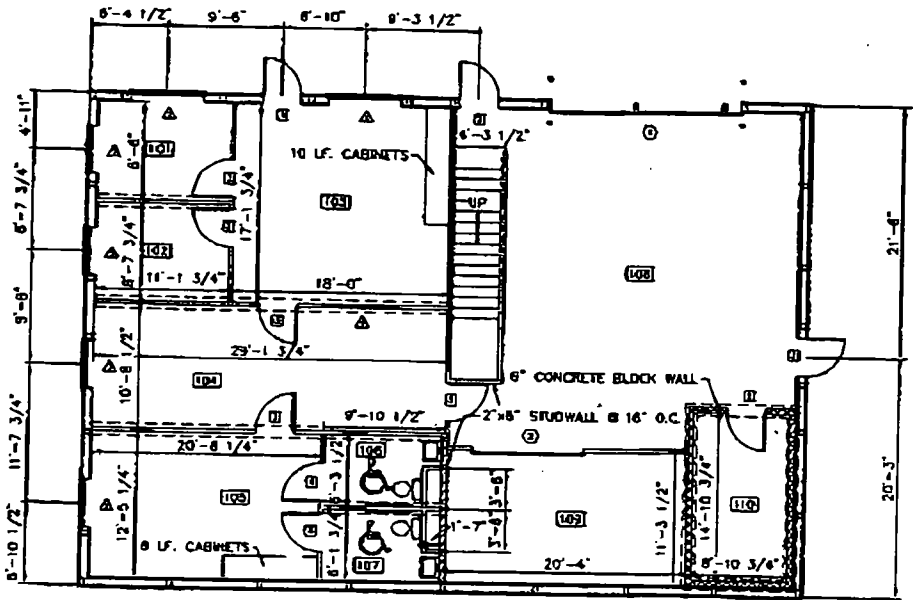
WINDOW #	QTY	SIZE	MANUF.	STYLE	CATALOG #	GLAZING	FRAME	TRIM
1	2	6'-0" x 4'-0"	PHENIX GLASS	PICTURE WINDOW	N/A	INSULSHIELD GLASS	ANODIZED ALUMINUM	OAK COLONIAL CASING
2	4	6'-0" x 4'-0"	PHENIX GLASS	PICTURE WINDOW	N/A	INSULSHIELD GLASS	ANODIZED ALUMINUM	OAK COLONIAL CASING
3	1	6'-0" x 4'-0"	PHENIX GLASS	PICTURE WINDOW	N/A	INSULSHIELD GLASS	ANODIZED ALUMINUM	OAK COLONIAL CASING

I hereby certify that this plan, specification, or report
as prepared by me or under my direct supervision and
that I am a duly Registered Professional Engineer under
the laws of the State of Minnesota.

Ronald L. Sullivan

DATE 3-22-99

Reg. No. 12270



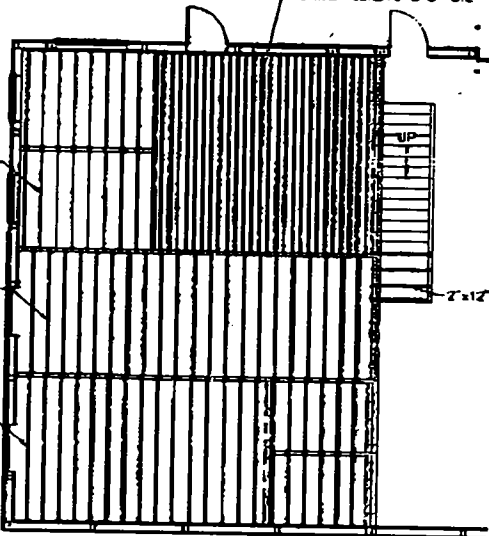
INTERIOR LAYOUT

SCALE: 1" = 4'-0"

2"x12" JOISTS @ 16" O.C.

2"x12" JOISTS @ 16" O.C.

2"x12" JOISTS @ 16" O.C.



JOIST LAYOUT

- NOTES: 1.) INTERIOR DIMENSIONS ARE TAKEN FROM INSIDE EDGE OF INTERIOR STRIPPING.
2.) INTERIOR STUDWALL DIMENSIONS ARE FROM CENTERLINE OF THE STUDWALL.
3.) EXTERIOR WINDOW & DOOR LOCATIONS ARE DIMENSIONED FROM THE EXTERIOR OF THE BUILDING COORDINATE TO THE CENTERLINE OF THE WINDOW OR DOOR UNIT.
4.) STUDWALLS ARE TO BE 2"x4"s @ 16" O.C. UNLESS SPECIFIED OTHERWISE.
5.) SEE PAGE 4 FOR HANDICAP DETAILS.



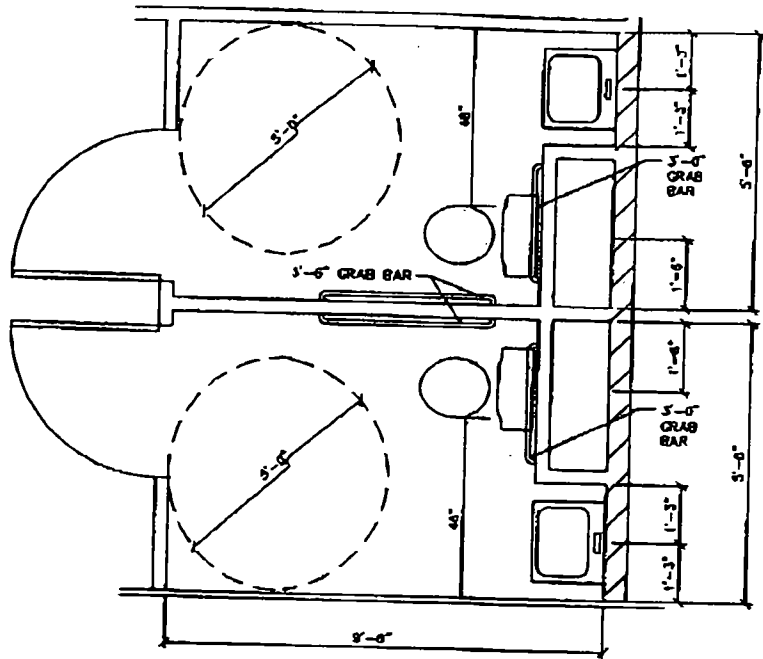
DRAWN BY:	WMF 887
DATE:	2-1-99
CHECKED BY:	
DATE:	
REVISION DATE:	
REVISION DATE:	
REVISION DATE:	

SCALE: AS NOTED
SHEET NO. 3 OF 10

MORTON BUILDINGS REAL ESTATE DEVELOPMENT

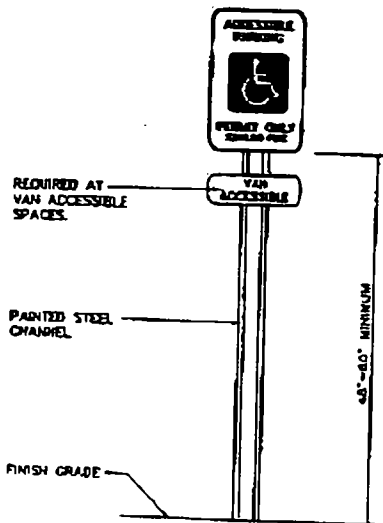
800-337-2240

MORTON BUILDINGS, INC.

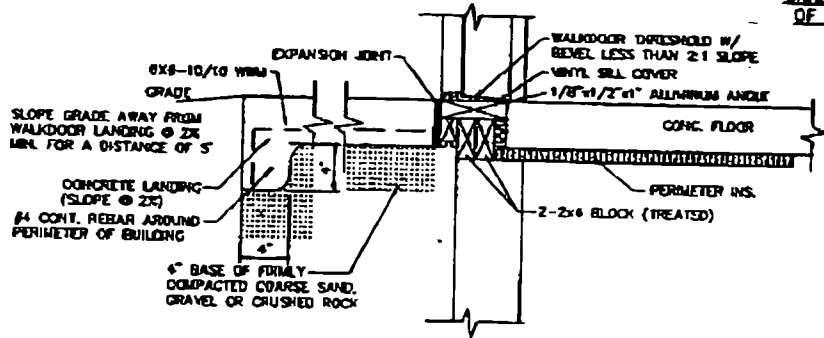


RESTROOM CLEARANCE LAYOUT

* NOTE
BARRIER FREE RESTROOMS SHALL BE IDENTIFIED WITH
INTERNATIONAL SYMBOL OF COMPLIANCE AS A TACTILE SIGN.
THE SYMBOL OF COMPLIANCE SHALL BE LOCATED BETWEEN
60" & 96" AFF. THE TACTILE SIGN SHALL BE MOUNTED 60"
AFF. ADJACENT TO THE LATCH SIDE OF THE DOOR.



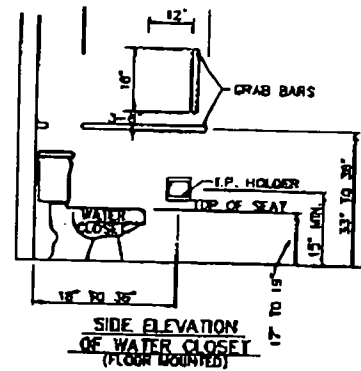
ACCESSIBLE PARKING SIGN



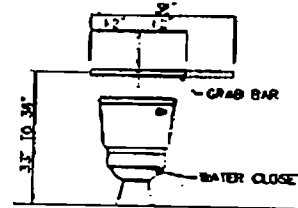
LANDING & THRESHOLD DETAIL FOR WALKDOOR

NOTES:
1.) ALL DOORS REQUIRED TO BE ACCESSIBLE
& SHALL BE PROVIDED WITH LEVER
HANDLES OR PUSH/PULL HARDWARE.
2.) ALL DETAILS SHALL CONFORM TO A117.1.
3.) ACCESSIBLE ROUTES SHALL BE BY HARD, FIRM
AND SLIP RESISTANT SURFACES AND SHALL HAVE
SLOPES OF LESS THAN 1:20.

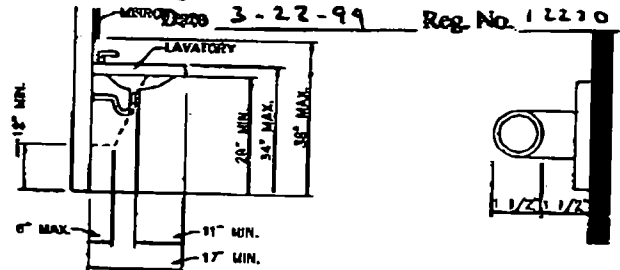
ACCESSIBILITY REQUIREMENTS



SIDE ELEVATION OF WATER CLOSET (FLOOR MOUNTED)

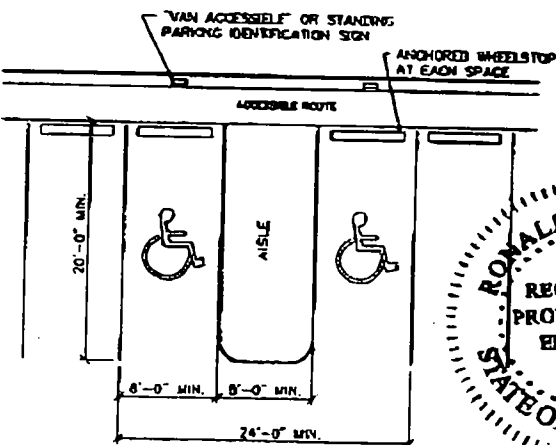


FRONT ELEVATION



SIDE ELEVATION OF LAVATORY

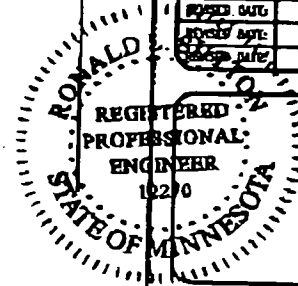
GRAB BAR SECTION



ACCESSIBLE PARKING SPACE DETAIL

* NOTE: ONE SPACE MAY BE OMITTED WHEN ONLY ONE STALL IS REQUIRED.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Ronald J. Sullivan
Date 3-22-99 Reg. No. 12270

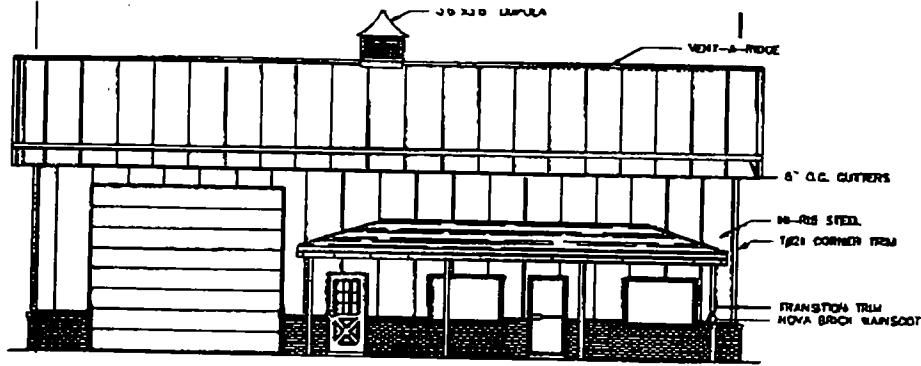


DRAWN BY:	MMF 027
DATE:	2-1-99
CHECKED BY:	
DATE:	
REVISED DATE:	
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REVISED DATE:	
REVISED DATE:	
REVISED DATE:	

SCALE:	AS NOTED
SHEET NO.	4 - 10

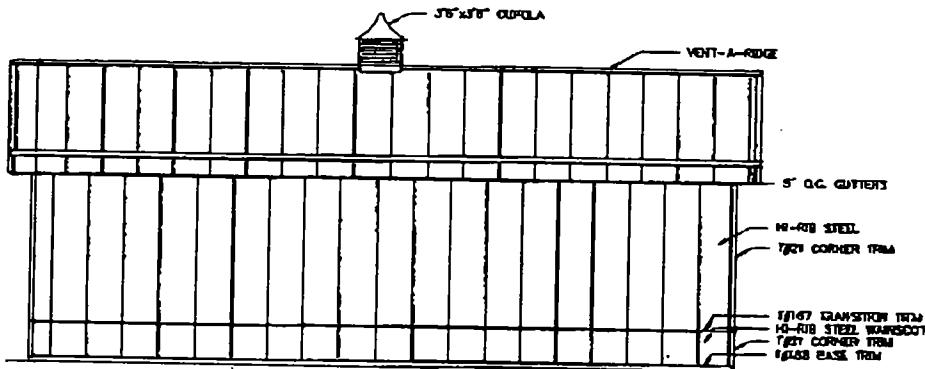
MORTON BUILDINGS REAL ESTATE DEVELOPMENT
ROCHESTER, MINN.

MORTON BUILDINGS, INC.
© 1998 Morton Buildings, Inc.



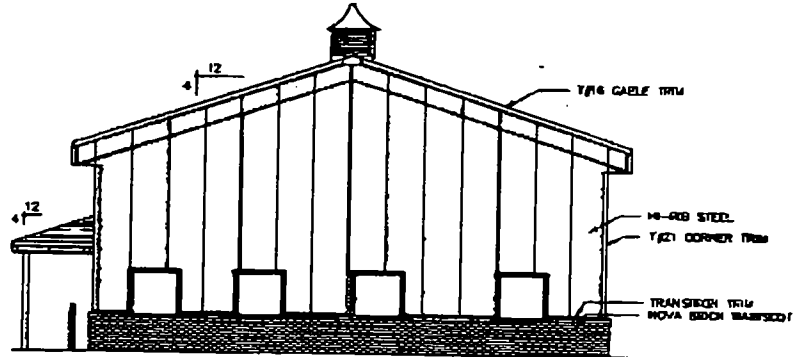
WEST ELEVATION

SCALE: 1" = 4' 0"



EAST ELEVATION

SCALE: 1" = 4' 0"

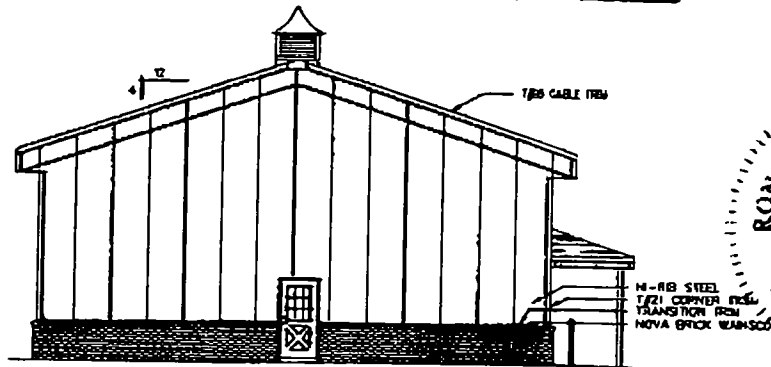


SOUTH ELEVATION

SCALE: 1" = 4' 0"

I hereby certify that this plan, specification, or report
as prepared by me or under my direct supervision
is a duly Registered Professional Engineer under
the laws of the state of Minnesota.
Ronald L. Schott

Date 3-22-99 Reg. No. 12270



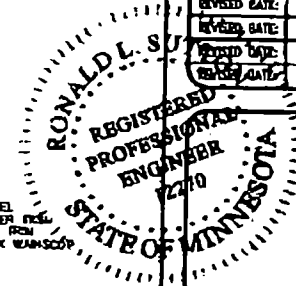
NORTH ELEVATION

SCALE: 1" = 4' 0"

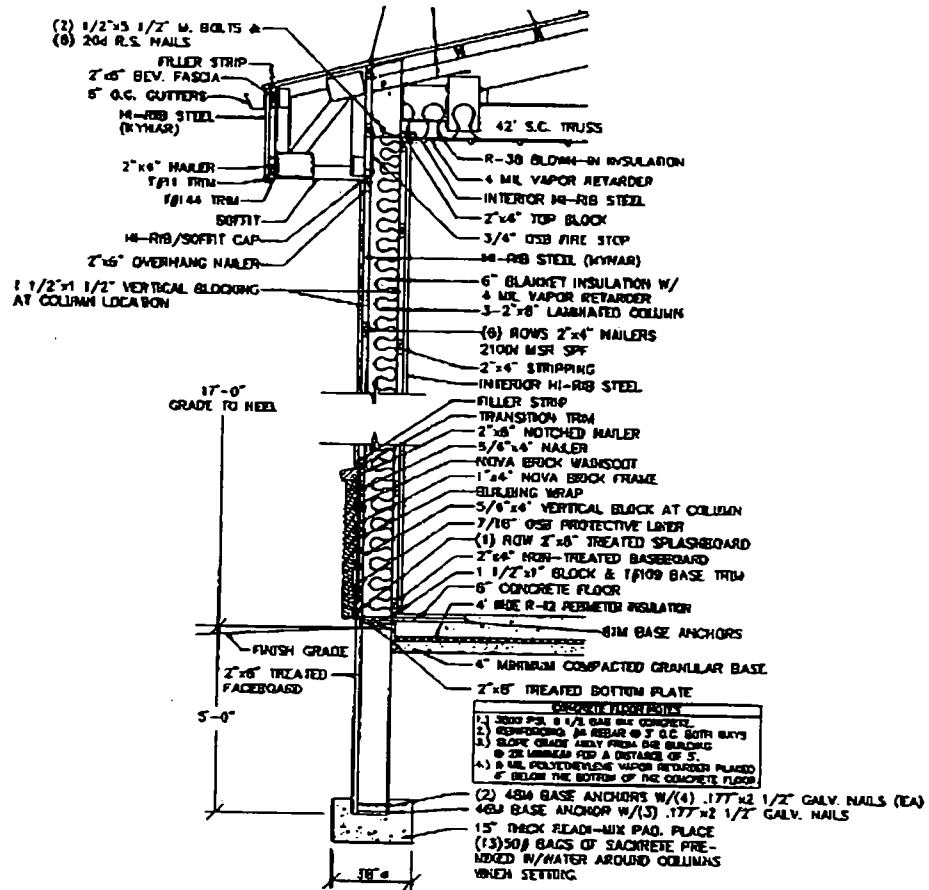
MORTON BUILDINGS REAL ESTATE DEVELOPMENT
ROCHESTER, MN

 MORTON BUILDINGS, INC.
© 1994 Morton, Inc.

DRAWN BY:	MDT 657
DATE:	2-1-99
CHECKED BY:	
DATE:	
REVIEW DATE:	
REVIEW DATE:	
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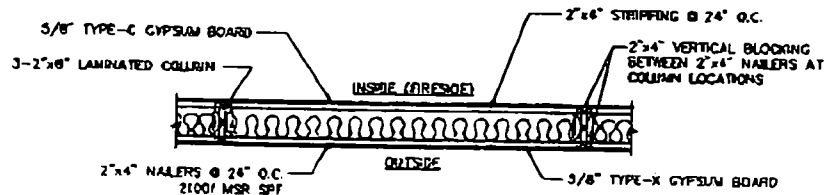


SCALE: AS NOTED
SHEET NO.
5 of 10



SIDEWALL SECTION A-A

80 M.P.H. (EXP. V) WIND LOAD SCALE: 1/2" = 1'-0"

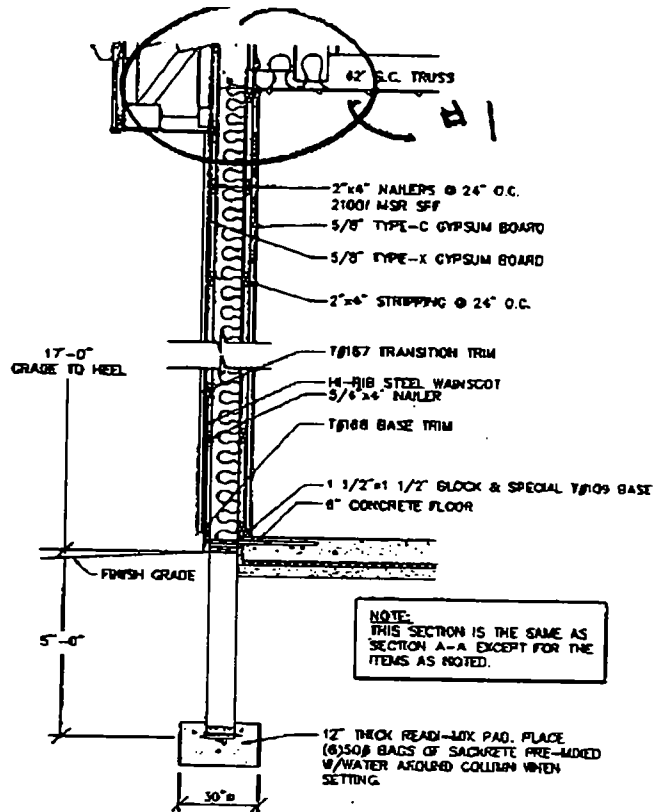


1 HOUR FIRE RATED WALL DETAIL

SCALE: 1/2" = 1'-0"

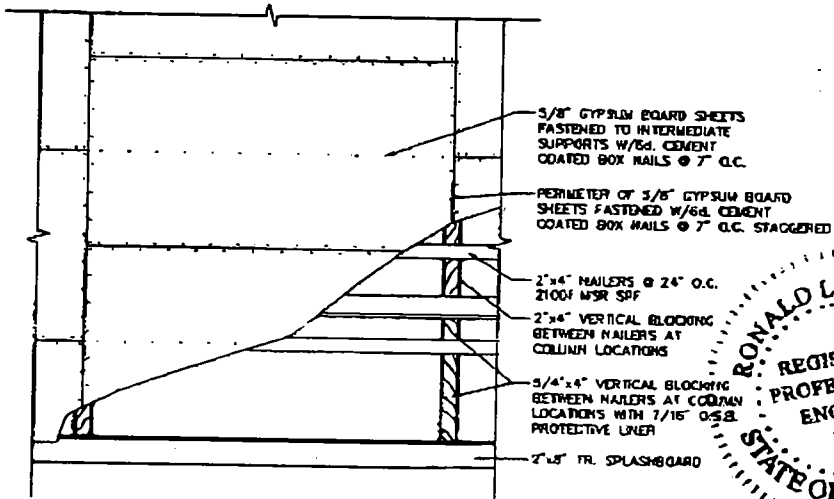
NOTES:

- 1) 1 HOUR FIRE RATED WALL IS DESIGNED IN ACCORDANCE WITH UL NO. U528.
- 2) ALL 3/8" GYPSUM PANEL EDGES TO BE BLOCKED WITH 2"x4" S AS SHOWN. NO FACING IS REQUIRED.



1 HR. FIRE RATED SIDEWALL SECTION B-B

80 M.P.H. (EXP. V) WIND LOAD (ALL NO. U528) SCALE: 1/2" = 1'-0"



1 HOUR FIRE RATED WALL NAILING DETAIL

SCALE: 1/2" = 1'-0"

11-11-99
is prepared by me or under my direct supervision in accordance with the laws of the state of Minnesota.

RONALD L. SUTHERLAND
REGISTERED PROFESSIONAL ENGINEER
1270
Desg 3-22-99 Reg. No. 12270

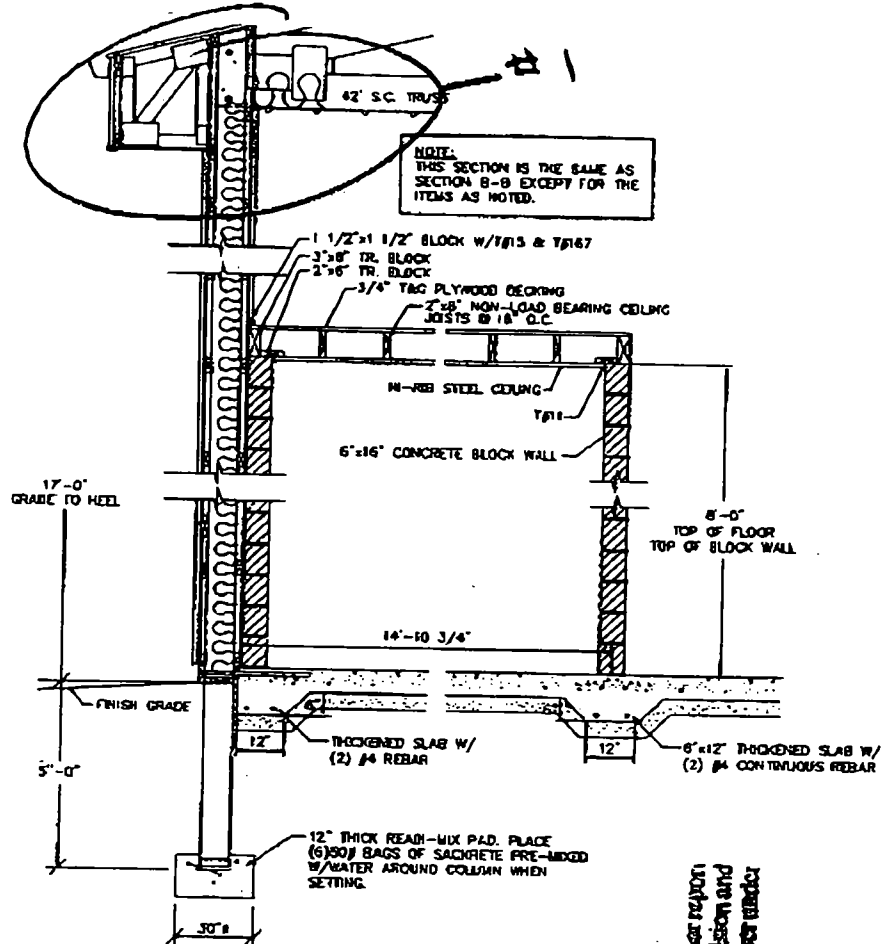
MORTON BUILDINGS REAL ESTATE DEVELOPMENT

ROCHESTER, MN.

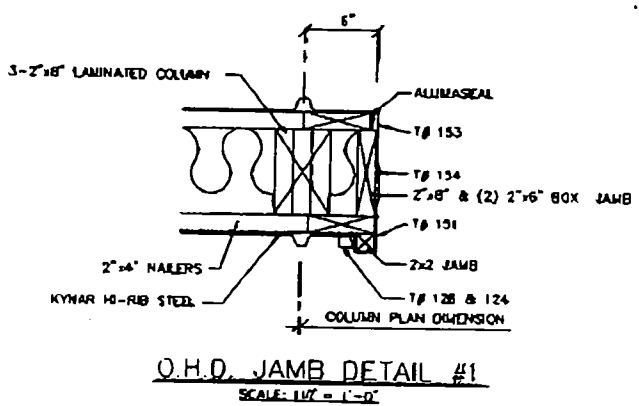
MORTON BUILDINGS, INC.

DRAWN BY:	MMF 687
DATE:	2-1-99
CHECKED BY:	
DATE:	
REVISED DATE:	
REVISED DATE:	
REVISED DATE:	
REVISED DATE:	

SCALE: AS NOTED
SHEET NO.
6 of 10

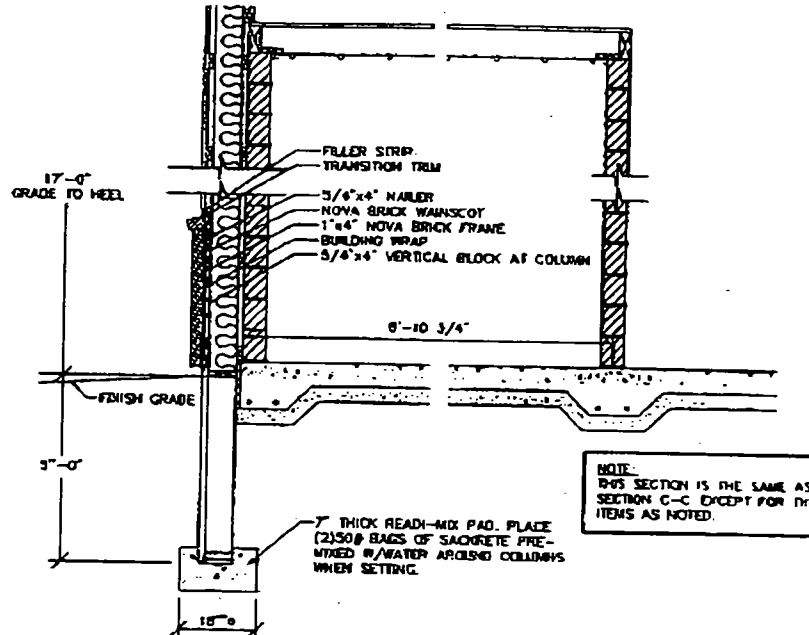


1 HR. FIRE RATED SIDEWALL SECTION C-C
80 M.P.H. (EXP. 'C') WIND LOAD (U.L. NO. 10326) SCALE: 1/2" = 1'-0"

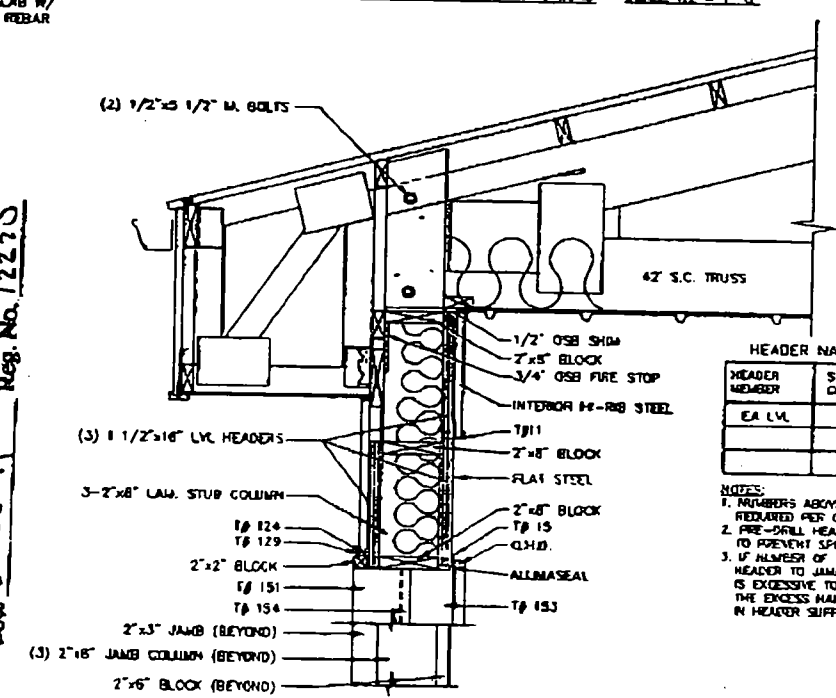


O.H.D. JAMB DETAIL #1
SCALE: 1/2" = 1'-0"

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
[Signature]
Date 3 - 22 - 99 Reg. No. 12270



ENDWALL SECTION D-D
80 M.P.H. (EXP. 'C') WIND LOAD SCALE: 1/2" = 1'-0"



O.H.D. HEADER SECTION E-E
SCALE: 1" = 1'-0"

HEADER NAILING SCHEDULE

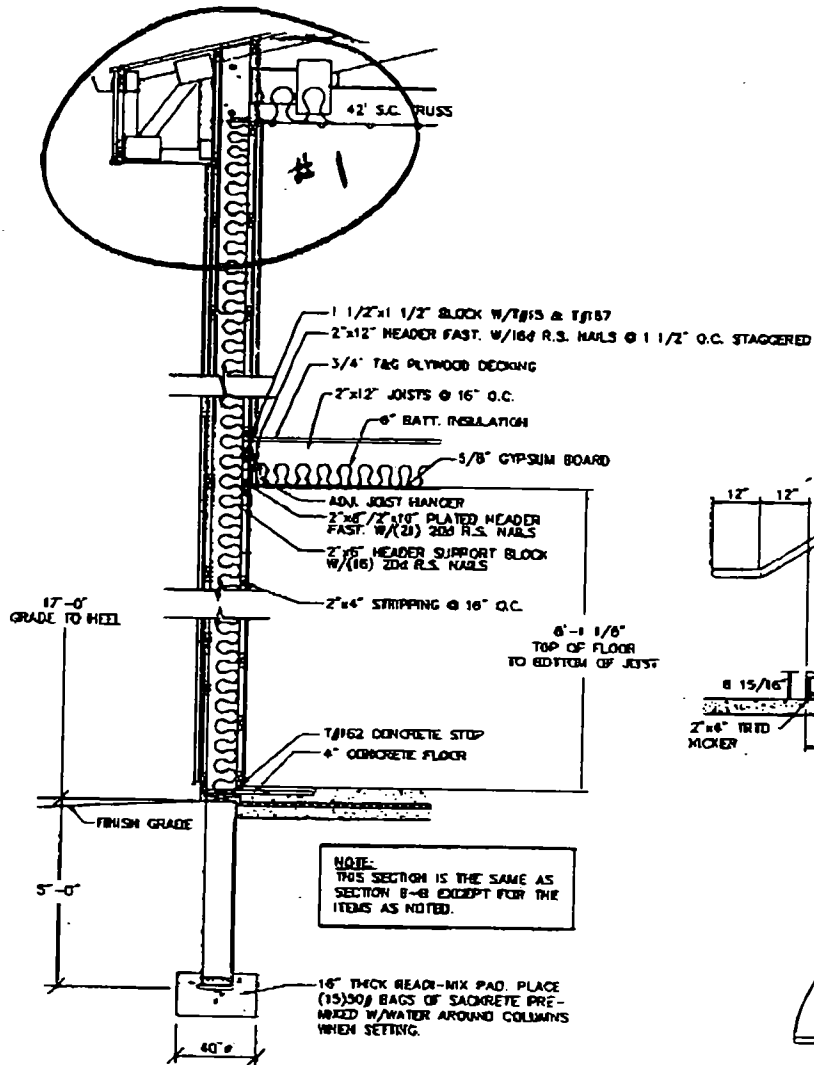
HEADER MEMBER	SRUB COLUMN	JAMB COLUMN
EA LVL	10	13

NOTES:
1. NUMBERS ABOVE ARE 20# R.S. NAILS REQUIRED FOR CONNECTION.
2. PRE-DRILL HEADERS AS REQUIRED TO PREVENT SPLITTING.
3. IF NUMBER OF NAILS REQUIRED FOR HEADER TO JAMB COLUMN CONNECTION IS EXCESSIVE TO CAUSE SPLITTING, THE EXCESS NAILS MAY BE INSTALLED IN HEADER SUPPORT BLOTTING.

DRAWN BY: LMF 887
DATE: 2-1-99
CHECKED BY:
DATE:
REVISED DATE:
REVISED DATE:
REVISED DATE:

STATE OF MINNESOTA
REGISTERED PROFESSIONAL ENGINEER
12270
SCALE: AS NOTED
SHEET NO. 7 of 10

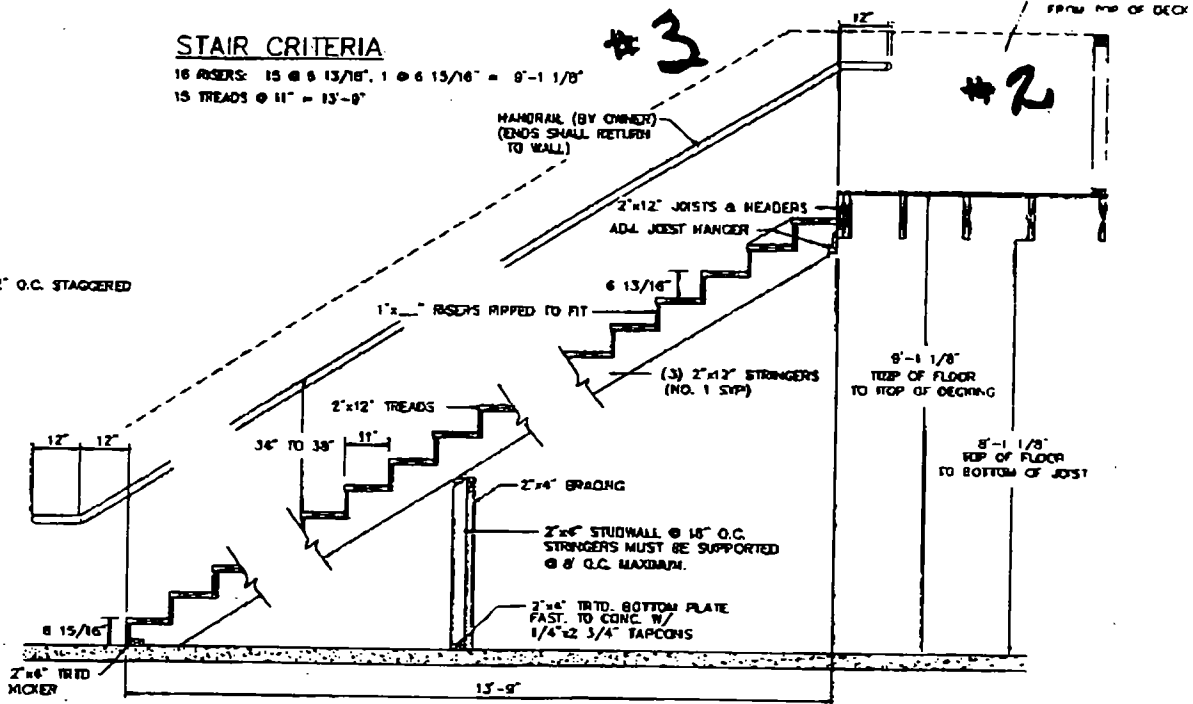
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1 HR. FIRE RATED SIDEWALL SECTION F-F
80 M.P.H. (EXP. "C") WIND LOAD (UL. NO. V528) SCALE: 1/2" = 1'-0"

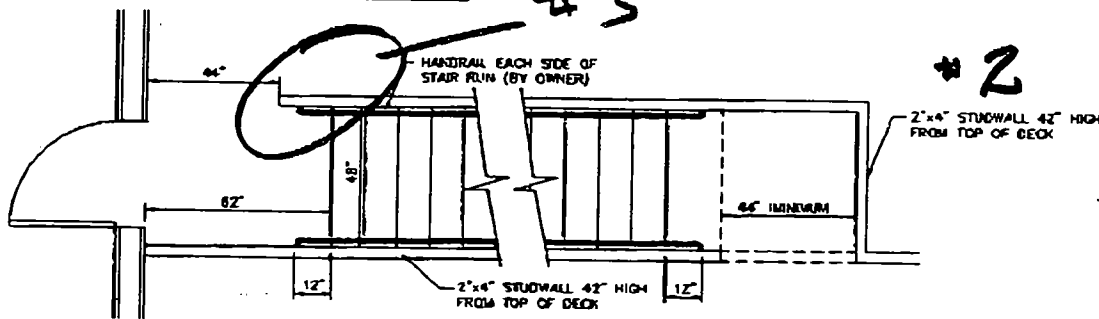
STAIR CRITERIA

16 RISERS: 15 @ 6 13/16", 1 @ 6 15/16" = 8'-1 1/8"
15 TREADS @ 11" = 15'-9"



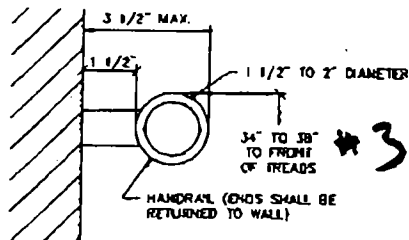
STAIR SECTION G-G

SCALE: 1/2" = 1'-0"



STAIR PLAN

SCALE: 1/2" = 1'-0"



HANDRAIL DETAIL

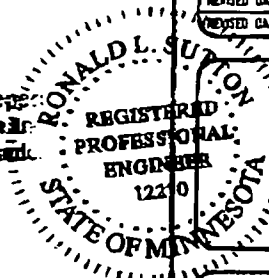
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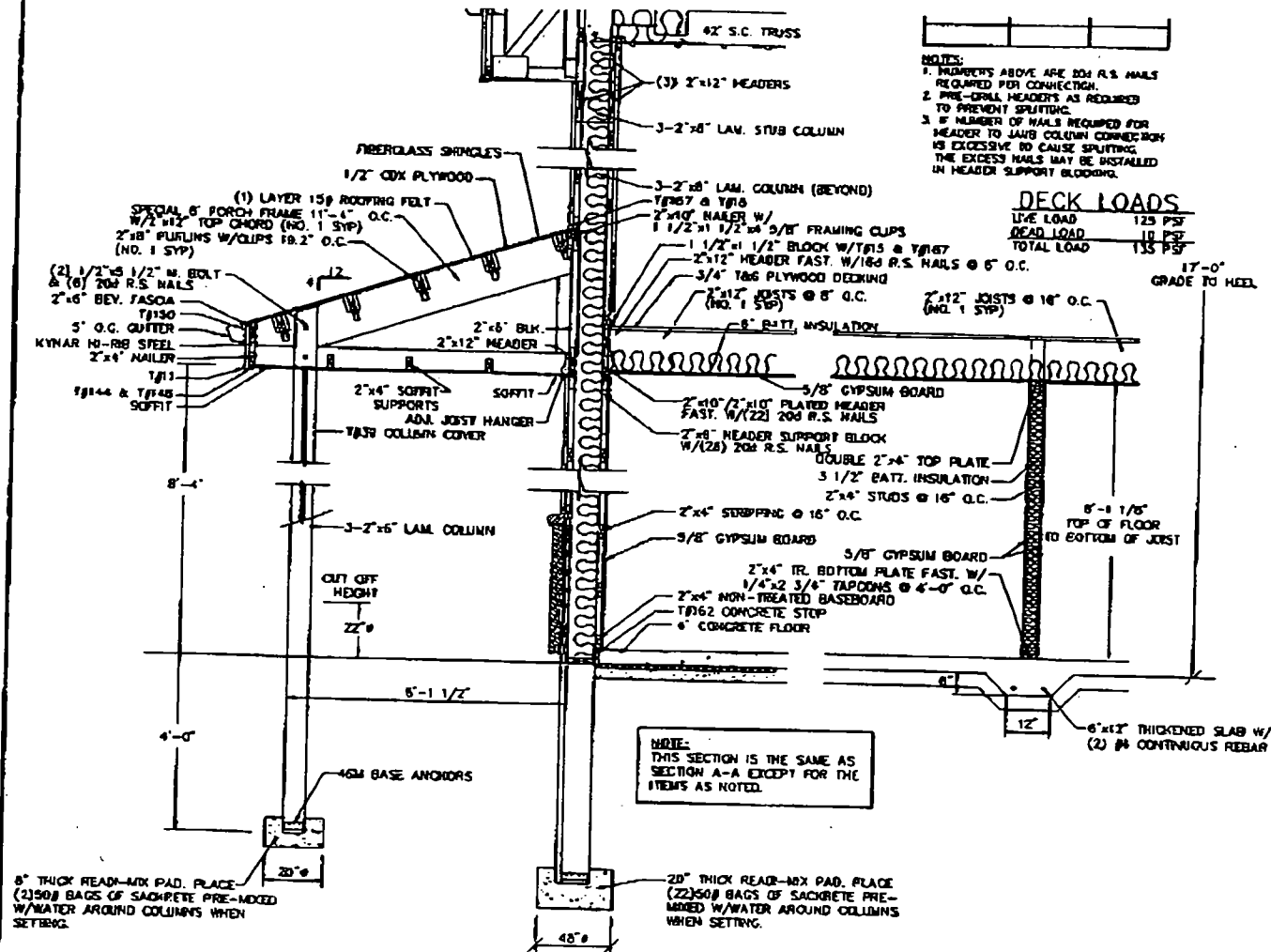
DRAWN BY:	LMF 887
DATE:	2-1-99
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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

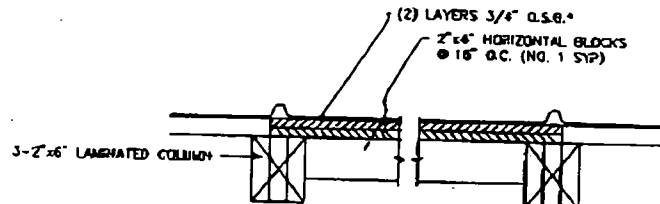
Date 3-22-99 Reg. No. 12270



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SHEET NO.
8 of 10



SIDEWALL SECTION H-H
80 M.P.H. (EXP. 'C') WIND LOAD
SCALE: 1/2" = 1'-0"



O.S.B. SHEARWALL DETAIL
SCALE: 1/2" = 1'-0"

- NOTES:
1. NUMBERS ABOVE ARE 20# R.S. NAILS REQUIRED PER CONNECTION.
 2. PRE-DRILL HEADERS AS REQUIRED TO PREVENT SPLITTING.
 3. IF NUMBER OF NAILS REQUIRED FOR HEADER TO JAMB COLUMN CONNECTION IS EXCESSIVE SO CAUSE SPLITTING, THE EXCESS NAILS MAY BE INSTALLED IN HEADER SUPPORT BLOCKING.

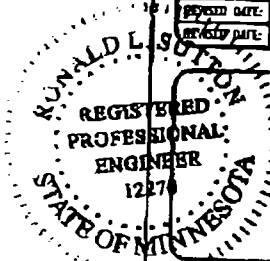
DECK LOADS

LIVE LOAD	125 PSF
DEAD LOAD	18 PSF
TOTAL LOAD	143 PSF

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

D-10 3-22-99 Reg. No. 12270

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DATE:	2-1-99
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REVISION DATE:	
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REVISION DATE:	



SCALE:	AS NOTED
SHEET NO.	9 OF 10

MORTON BUILDINGS, REAL ESTATE DEVELOPMENT
ROCHESTER, MN.

MORTON BUILDINGS, INC.
O. MORTON, PRES. & CEO.

EXPIRED DATE:	
RENEWED DATE:	
RECEIVED DATE:	

FOR: MORTON BUILDINGS REAL ESTATE DEVELOPMENT
ROCHESTER, MN 55901

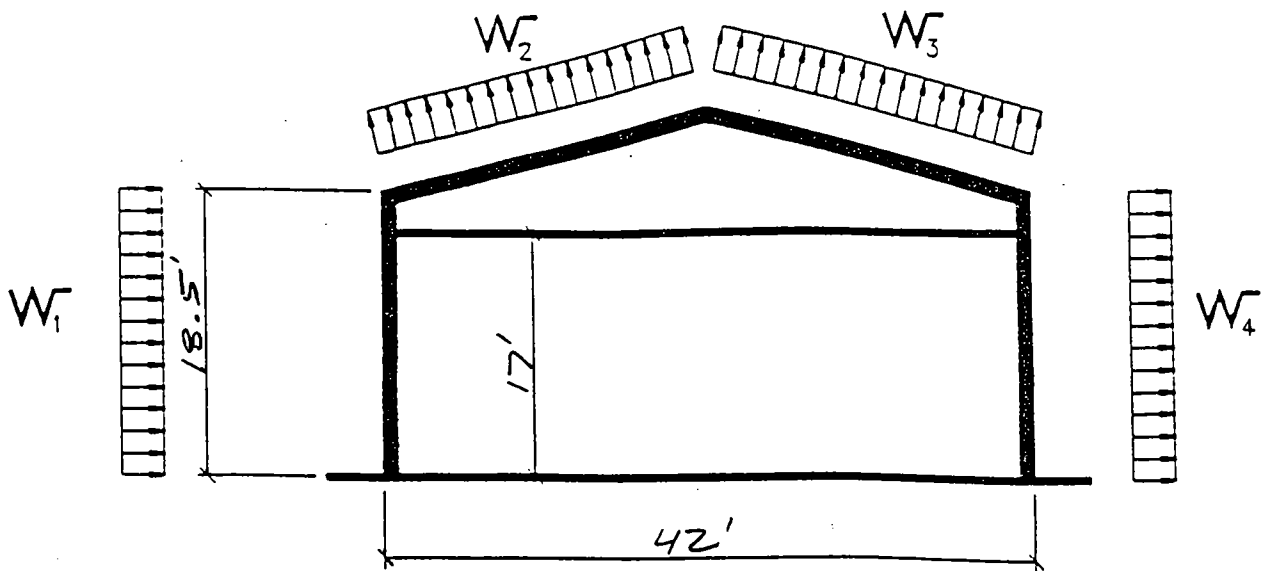
JOB#:88-2670

BUILDING USE: OFFICE / WAREHOUSE

BUILDING DESCRIPTION:	WIDTH.....	BW := 42 ft
	LENGTH.....	BL := 60 ft
	OVERHANG WIDTH.....	OW := 2 ft
	EAVE HEIGHT.....	EH := 18.5 ft
	ROOF SLOPE.....	RS := 4.0/12
	BAY SPACING.....	BS := 7.5 ft

DESIGN LOADS:	ROOF LIVE LOAD.....	LL := 30 psf
	DEAD LOAD.....	DL := 4 psf
	CEILING LOAD.....	CL := 3 psf
	WIND LOAD.....	80 MPH Exp C

COLUMN CALCULATION:

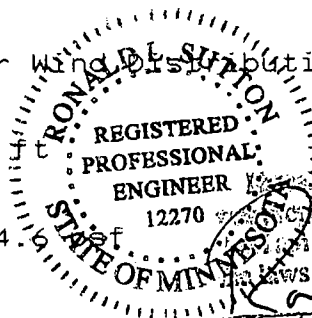


Shape coefficients (GC_p) for wind distribution are taken from "MBMA/1986" ICBO #4018

Mean Roof Height (H) = 22.0 ft
For 80 MPH, Exp. C

Velocity Pressure q := 14.6

END ZONE WIDTH = 20 ft



3-1-99 Reg. No. 12270

TRANSVERSE DIRECTION:

$$W = \frac{q(GC)}{p}$$

END ZONE DESIGN PRESSURE:

CASE I

W E11	:= q (.70)	W E11	= 10.22 psf
W E12	:= q (1.4)	W E12	= 20.44 psf
W E13	:= q (1.0)	W E13	= 14.6 psf
W E14	:= q (.95)	W E14	= 13.87 psf

CASE II

W E21	:= q (1.1)	W E21	= 16.06 psf
W E22	:= q (1.0)	W E22	= 14.6 psf
W E23	:= q (.60)	W E23	= 8.76 psf
W E24	:= q (.55)	W E24	= 8.03 psf

INTERIOR ZONE DESIGN PRESSURES

CASE I

W I11	:= q (.40)	W I11	= 5.84 psf
W I12	:= q (1.0)	W I12	= 14.6 psf
W I13	:= q (.75)	W I13	= 10.95 psf
W I14	:= q (.70)	W I14	= 10.22 psf

CASE II

W I21	:= q (.80)	W I21	= 11.68 psf
W I22	:= q (.60)	W I22	= 8.76 psf
W I23	:= q (.35)	W I23	= 5.11 psf
W I24	:= q (.30)	W I24	= 4.38 psf

DIAPHRAGM PROPERTIES/ (STITCH SCREWED) DIAPHRAGM:

Ultimate Shear:	177 lb/ft	275 lb/ft
Safety Factor:	2.5	2.5
Duration Factor:	1.33	1.33

Allowable Diaphragm Shear = $(177/2.5)(1.33) = 94.2$ lb/ftAllowable (Stitch) Diaphragm Shear = $(275/2.5)(1.33) = 146.3$ lb/ft

NORTH END ZONE LOADING:

$$\begin{aligned}
 W_{E1} &:= .375 \cdot W_{EH} & W_{E1} &= 111.416 \text{ plf} \\
 W_{E2} &:= W_{E22} \left[\frac{RS}{12} \frac{BW}{2} \right] & W_{E2} &= 102.2 \text{ plf} \\
 W_{E3} &:= W_{E23} \left[\frac{RS}{12} \frac{BW}{2} \right] & W_{E3} &= 61.32 \text{ plf} \\
 W_{E4} &:= .375 \cdot W_{EH} & W_{E4} &= 55.708 \text{ plf} \\
 NE &:= W_{E1} - W_{E2} + W_{E3} + W_{E4}
 \end{aligned}$$

NORTH END ZONE LOADING = $NE = 126.244$ plf

NORTH INTERIOR ZONE LOADING

$$\begin{aligned}
 W_{I1} &:= .375 \cdot W_{EH} & W_{I1} &= 81.03 \text{ plf} \\
 W_{I2} &:= W_{I22} \left[\frac{RS}{12} \frac{BW}{2} \right] & W_{I2} &= 61.32 \text{ plf} \\
 W_{I3} &:= W_{I23} \left[\frac{RS}{12} \frac{BW}{2} \right] & W_{I3} &= 35.77 \text{ plf} \\
 W_{I4} &:= .375 \cdot W_{EH} & W_{I4} &= 30.386 \text{ plf} \\
 NI &:= W_{I1} - W_{I2} + W_{I3} + W_{I4}
 \end{aligned}$$

NORTH INTERIOR ZONE LOADING = $NI = 85.866$ plf

SOUTH END ZONE LOADING:

$$\begin{aligned}
 W_{E1} &:= .77 W_{E21} \quad EH & W_{E1} &= 228.775 \text{ plf} \\
 W_{E2} &:= W_{E22} \cdot \begin{bmatrix} RS & BW \\ 12 & 2 \end{bmatrix} & W_{E2} &= 102.2 \text{ plf} \\
 W_{E3} &:= W_{E23} \cdot \begin{bmatrix} RS & BW \\ 12 & 2 \end{bmatrix} & W_{E3} &= 61.32 \text{ plf} \\
 W_{E4} &:= .77 W_{E24} \quad EH & W_{E4} &= 114.387 \text{ plf} \\
 SE &:= W_{E1} - W_{E2} + W_{E3} + W_{E4}
 \end{aligned}$$

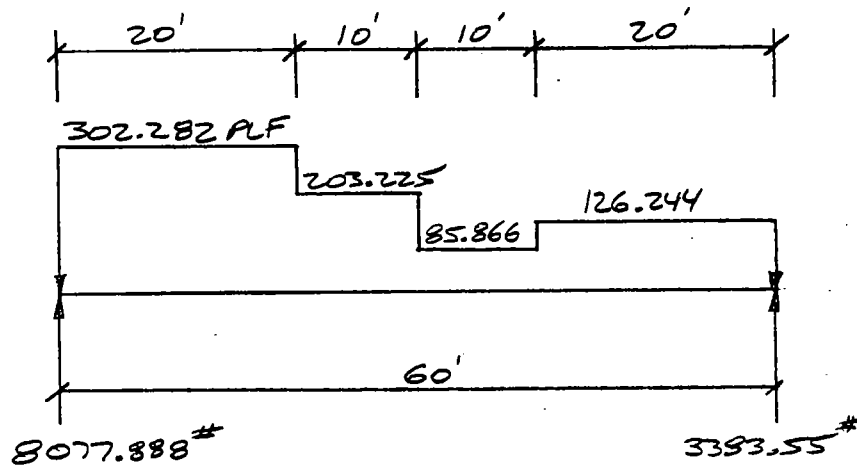
$$SOUTH \text{ END ZONE LOADING} = SE = 302.282 \text{ plf}$$

SOUTH INTERIOR ZONE LOADING

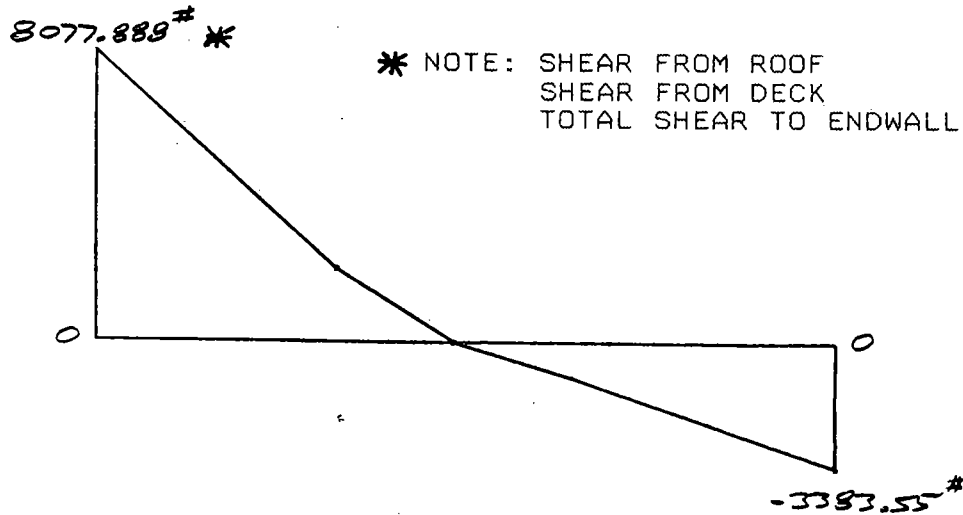
$$\begin{aligned}
 W_{I1} &:= .77 W_{I21} \quad EH & W_{I1} &= 166.382 \text{ plf} \\
 W_{I2} &:= W_{I22} \cdot \begin{bmatrix} RS & BW \\ 12 & 2 \end{bmatrix} & W_{I2} &= 61.32 \text{ plf} \\
 W_{I3} &:= W_{I23} \cdot \begin{bmatrix} RS & BW \\ 12 & 2 \end{bmatrix} & W_{I3} &= 35.77 \text{ plf} \\
 W_{I4} &:= .77 W_{I24} \quad EH & W_{I4} &= 62.393 \text{ plf} \\
 SI &:= W_{I1} - W_{I2} + W_{I3} + W_{I4}
 \end{aligned}$$

$$SOUTH \text{ INTERIOR ZONE LOADING} = SI = 203.225 \text{ plf}$$

WIND LOADING DIAGRAM:



SHEAR DIAGRAM:



$$TSSE := \frac{((40 \cdot \text{ft}) \cdot SE) + (BL - (40 \cdot \text{ft})) \cdot SI}{2}$$

TOTAL SHEAR TO SOUTH ENDWALL: TSSE = 8077.888 lb

$$TSNE := \frac{((40 \cdot \text{ft}) \cdot NE) + (BL - (40 \cdot \text{ft})) \cdot NI}{2}$$

TOTAL SHEAR TO NORTH ENDWALL: TSNE = 3383.55 lb

$$TSR := \frac{((40 \cdot \text{ft}) \cdot NE) + (BL - (40 \cdot \text{ft})) \cdot NI}{2}$$

TOTAL SHEAR TO ROOF: TSR = 3383.55 lb

$$RW := BW + OW \cdot 2$$

Note: Roof Width = RW = 46 ft

Therefore, Allowable Diaphragm Shear = (94.2 plf) RW = 4333.2 lb

COLUMN DESIGN CRITERIA:

Column analysis with Roof Diaphragm; therefore, columns are considered as propped cantilevers.

$$P := (LL + DL + CL) \cdot BS \cdot \frac{BW + OW}{2}$$

$$P = 6382.5 \cdot lb$$

Columns in End Zone (20 ft)

$$W := W \cdot BS$$

$$E21 \cdot \frac{2}{(W) \cdot EH}$$

$$M_a := \frac{8}{8}$$

$$M_a = 5153.002 \cdot ft \cdot lb$$

LOWEST SPLICE CUTOFF
X := 1.5 ft

$$M_b := \left[\frac{3}{8} \cdot (W) \cdot EH \cdot (EH - X) \right] - \frac{(W) \cdot (EH - X)^2}{2}$$

$$M_b = -3199.453 \cdot ft \cdot lb$$

END ZONE COLUMN:

$$P = P - \text{UPLIFT}$$

$$N$$

$$P_N := P - \left[W \cdot BS \cdot \left(\frac{BW}{2} + OW \right) \right]$$

3 - 2 x 8 Nail laminated column

$$A := 32.625 \cdot sqin \quad F_c = 1650 \cdot psi$$

$$S_b := 39.42 \cdot cuin \quad F_b := 1730 \cdot psi$$

$$1/d = 204/7.25 = 28.14 \quad SRF = 0.82 \quad F_c := 528.1 \cdot psi$$

$$\text{INTERACTION_VALUE} := \frac{P_N}{A \cdot F_c \cdot 1.33} + \frac{\left| \frac{M_a}{12} \right| \cdot \left[\frac{in}{ft} \right]}{S_b \cdot F_b \cdot 1.33}$$

$$\text{INTERACTION_VALUE} = 0.85$$

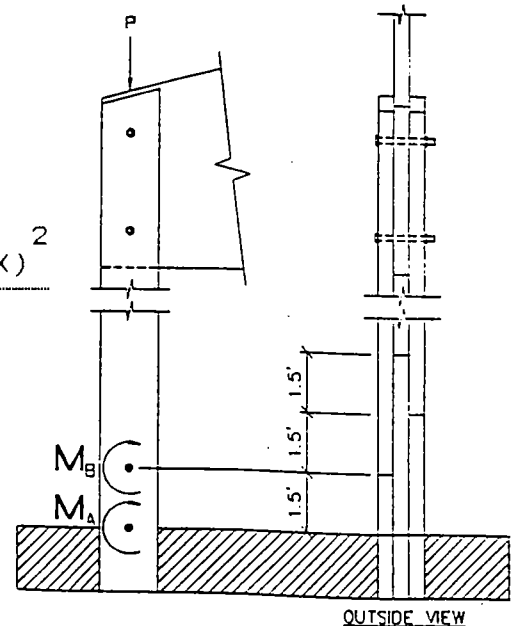
SPLICE CHECK (M)

$$A_b := 32.625 \cdot sqin \quad F_c = 1650 \cdot psi$$

$$S_b := 26.28 \cdot cuin \quad F_b := 1500 \cdot psi$$

$$\text{INTERACTION_VALUE} := \frac{P_N}{A \cdot F_c \cdot 1.33} + \frac{\left| \frac{M_b}{12} \right| \cdot \left[\frac{in}{ft} \right]}{S_b \cdot F_b \cdot 1.33}$$

$$\text{INTERACTION_VALUE} = 0.901$$



TRUSS TO COLUMN CONNECTION:

Truss is saddled between outside members of column and bearing on center member with (2) 1/2" Dia. through M. bolts & (8) 20d R.S. Nails

Connector Load = 3114.2 lb
 Roof Load at Column: P = 6382.5 lb
 Resulting Bearing Stress = 261.33 lb

SIDEWALL FOOTING:

30" Diameter Footing, 12" thick, Allowable soil bearing pressure = 1500 lb

Column Footing Load: P = 6382.5 lb

Area = 4.91 ft ² Act	Area = 4.26 ft ² Req'd
------------------------------------	--------------------------------------

CORNER FOOTING:

15" Diameter Footing, 4" thick, Allowable soil bearing pressure = 1500 lb

Column Footing Load: P = 1170.125 lb

Area = 1.23 ft ² Act	Area = 0.78 ft ² Req'd
------------------------------------	--------------------------------------

ENDWALL FOOTING:

18" Diameter Footing, 6" thick, Allowable soil bearing pressure = 1500 lb

Column Footing Load: P = 1755.1875

Area = 1.77 ft ² Act	Area = 1.17 ft ² Req'd
------------------------------------	--------------------------------------

PURLINS:

2 x 4 purlins, No. 2 SPF

$$F_b := 1509.4 \text{ psi}$$

Purlin spacing.....

$$PS := 24 \text{ in}$$

Roof sheeting load.....

$$SL := 0.9 \text{ psf}$$

Purlin dead load.....

$$PL := 1.1 \text{ psf}$$

$$TOTAL_LOAD := LL + SL + PL$$

$$TOTAL_LOAD = 32 \text{ psf}$$

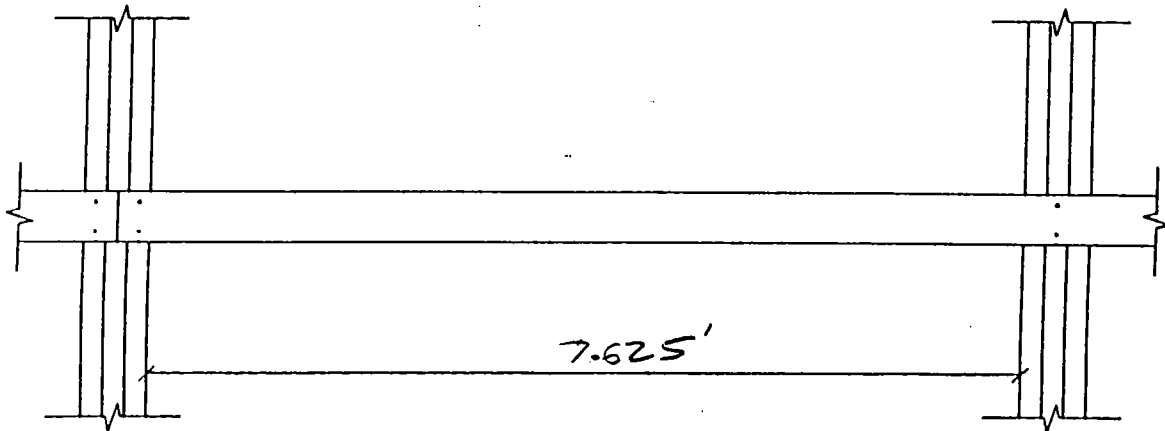
$$M_{MAX} := .1071 \text{ TOTAL_LOAD} \frac{PS^2}{12 \left[\frac{\text{in}}{\text{ft}} \right]} BS^2$$

$$M_{MAX} = 385.56 \text{ ftlb}$$

$$S_{REQD} := \frac{M_{MAX} \left[\frac{\text{in}}{\text{ft}} \right]}{F_b \cdot 1.15}$$

$$S_{REQD} = 2.665 \text{ cuin}$$

NAILERS:



2 x 4 nailers, 2100f MSR SPF $F_b := 2100 \text{ psi}$

Nailer spacing $NS := 26.5 \text{ in}$

Wind load $WL := q (1.4)$

$$M_{MAX} := \frac{WL \cdot \frac{NS}{12 \cdot \left[\frac{\text{in}}{\text{ft}} \right]} \cdot (8.0 \text{ ft} - .375 \text{ ft})^2}{8}$$

$$M_{MAX} = 328.046 \text{ ftlb}$$

$$S_{REQD} := \frac{M_{MAX} \cdot 12 \cdot \frac{\text{in}}{\text{ft}}}{F_b \cdot 1.10 \cdot 1.33}$$

$$S_{REQD} = 1.281 \text{ cuin}$$

EMBEDMENT:

Design Criteria: Restrained at ground with Base Anchor Straps
in concrete floor.

(From UBC 1807.7.2.2)

To find required embedment depth, solve simultaneous
equations below

Initial try:

$$\begin{aligned} d &:= 4 \text{ ft} & S_3 &:= 1600 \text{ psf} \\ hP &:= M_a & B &:= 0.711 \text{ ft} \end{aligned}$$

GIVEN

$$d^2 \approx \frac{4.25 \cdot hP}{S_3 \cdot B} \quad S_3 \approx 150 \cdot 2 \cdot 1.33 \cdot d \cdot \frac{1b}{cuft}$$

$$\begin{bmatrix} d \\ S_3 \end{bmatrix} := \text{FIND} \begin{bmatrix} d, S_3 \end{bmatrix}$$

COLUMN EMBEDMENT DEPTH = $d = 4.258 \text{ ft}$

$S_3 = 1698.929 \text{ psf}$ (Soil Classification #4)

BASE ANCHOR STRAP CHECK:

$$\text{SHEAR} := \frac{5 \cdot W_{E14} \cdot BS \cdot EH}{8}$$

Horizontal Shear at Grade =

$$\text{SHEAR} = 1202.789 \text{ lb}$$

Allowable Shear resisted by
two Base Anchor Straps:

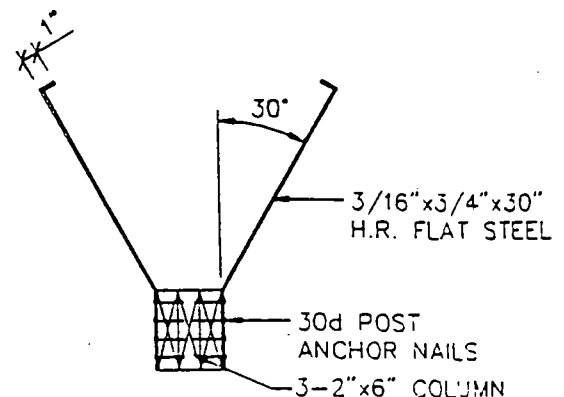
Consider 22,000 psi Steel

$$\text{Steel Area} = 0.105 \text{ in}^2$$

$$\text{Therefore Allowable Shear} = 4620 \text{ lb}$$

$$\begin{aligned} \text{Allowable Shear resisted by 8- 30d R.S. Nails:} \\ = 8(200)(1.33) = 2128 \text{ lb} \end{aligned}$$

$$\begin{aligned} \text{Allowable Withdrawl of Strap in Concrete:} \\ = (1.0 \text{ in})(.75 \text{ in})(2)(2000 \text{ psi}) = 3000 \text{ lb} \end{aligned}$$



16' x 14' OVERHEAD DOOR HEADER:

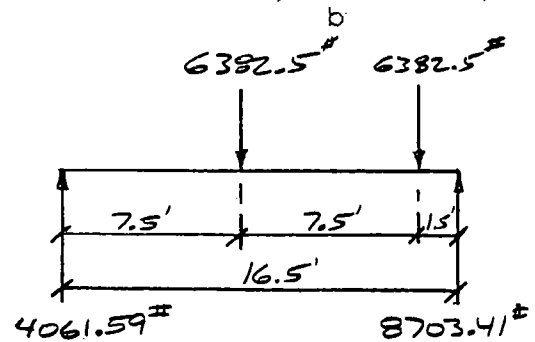
(3) 1 1/2" x 16" Laminated Veneer Lumber Header, $F = 2800$ psi

$$S = 192.0 \text{ in}^3$$

$$M_{\text{max}} = 30461.85 \text{ ftlb}$$

$$S_{\text{req}} = 113.52 \text{ in}^3$$

No. of Nails Req'd
20d R.S. Nails (201 lb/Nail)



Stub Column $P = 6382.50$ lb, 28 Nails Total

Jamb Column $R = 8703.42$ lb, 38 Nails Total

SOUTH JAMB FOOTING:

36" Diameter Footing, 14" thick, Allowable soil bearing pressure = 3000 psf

Column Footing Load: $P+R = 6382.5 \text{ lb} + 4061.58 \text{ lb} = 10444.08 \text{ lb}$

$$\text{Area}_{\text{Act}} = 7.07 \text{ ft}^2$$

$$\text{Area}_{\text{Req}} = 6.96 \text{ ft}^2$$

NORTH JAMB FOOTING:

34" Diameter Footing, 13" thick, Allowable soil bearing pressure = 3000 psf

Column Footing Load: $R = 8703.42 \text{ lb}$

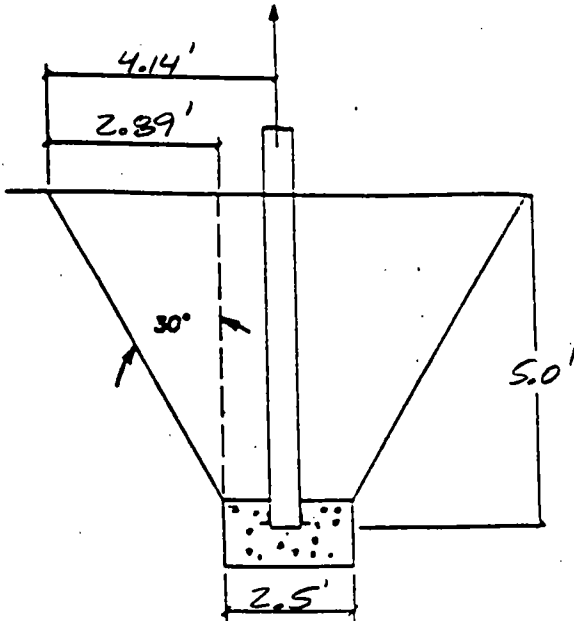
$$\text{Area}_{\text{Act}} = 6.31 \text{ ft}^2$$

$$\text{Area}_{\text{Req}} = 5.81 \text{ ft}^2$$

WIND LOAD UPLIFT:

$$\text{UPLIFT} := W \quad \text{BS} \quad \left[\frac{\text{BW}}{2} \right] + \text{OW}$$

$$\text{UPLIFT} = 3525.9 \text{ lb}$$



$$d := 5.0 \text{ ft} \quad R := 1.25 \text{ ft}$$

$$R_2 := d \cdot 0.577 + R_1$$

$$V := \frac{1}{3} \cdot 3.14 \cdot d \cdot \left[R_1^2 + R_2^2 + R_1 \cdot R_2 \right]$$

$$\text{SOIL VOLUME ABOVE FOOTING:}$$

$$V = 124.708 \text{ cuft}$$

$$\text{ALLOWABLE SOIL WEIGHT} = 100 \text{ lb/cuft}$$

$$\text{TSW} := V \cdot \left[\frac{\text{lb}}{\text{cuft}} \right]$$

$$\text{TOTAL SOIL WEIGHT} = \text{TSW} = 12470.759 \text{ lb}$$

$$\text{BDL} := (\text{DL} + \text{CL}) \cdot \text{BS} \cdot \left[\frac{\text{BW}}{2} \right] + \text{OW}$$

$$\text{BUILDING DEAD LOAD} = \text{BDL} = 1207.5 \text{ lb}$$

$$\text{TWF} := \text{TSW} + \text{BDL}$$

$$\text{TOTAL WEIGHT ON FOOTING} = \text{TWF} = 13678.259 \text{ lb}$$

(2) 48M BASE ANCHORS W/ (4)
 .177"x2-1/2" GALV. THREADED NAILS EACH
 AND (1) 46M BASE ANCHOR W/ (2)
 .177"x2-1/2" GALV. THREADED NAILS

COLUMN TO FOOTING CONNECTION:

$$\text{NET_UPLIFT} := \text{UPLIFT} - \text{BDL}$$

$$\text{NET_UPLIFT} = 2318.4 \text{ lb}$$

$$\text{No. OF NAILS REQUIRED TO RESIST UPLIFT} = 9$$

COLUMN TO TRUSS CONNECTION:

$$\text{UPLIFT RESISTANCE} = 3601.6 \text{ lb}$$

(CONNECTOR LOAD)

ENDWALL DIAPHRAGM SHEAR TRANSFER:

$$\text{Total Shear Transferred to South Endwall} = 8077.888 \text{ lb}$$

$$\text{Shear Load Resisted by Endwall siding(Hi-Rib Steel)} = 2449.2 \text{ lb}$$

$$5628.688 \text{ lb Shear Transfer is made through 2 layers of } 3/4" \text{ OSB}$$

$$\text{Shear load in OSB diaphragm} = 5628.688 \text{ lb} / 18.75 \text{ ft} = 300.2 \text{ lb/ft}$$

From attached Report No. NER-108, table No. V

$$\text{Allowable Shear} = 319.8 \text{ lb/ft} \quad (.82 \times 390) = 319.8 \text{ lb/ft}$$

FLOOR SYSTEM CALCULATIONS:

LIVE FLOOR LOAD = 125 PSF
 DEAD FLOOR LOAD = 10 PSF
 TOTAL FLOOR LOAD = 135 PSF

1) FLOOR JOISTS @ 17'-0" SPAN AREA:

2" x 12" No.1 SYP SPACED 8" O.C.

$$F_b = 1440 \text{ psi} \quad F_c = 565 \text{ psi} \quad S = 31.64 \text{ cuin}$$

$$M_{\max} = (135)(.67)(17) \left(\frac{c}{2} \right) = 3251.25 \text{ ftlb}$$

$$S_{\text{req}} = \frac{(3251.25)(12)}{1440} = 27.1 \text{ cuin}$$

2) FLOOR JOISTS @ 12'-3 1/2" SPAN AREA:

2" x 12" No.1 SYP SPACED 16" O.C.

$$F_b = 1440 \text{ psi} \quad F_c = 565 \text{ psi} \quad S = 31.64 \text{ cuin}$$

$$M_{\max} = (135)(1.33)(12.3) \left(\frac{c}{2} \right) = 3395.52 \text{ ftlb}$$

$$S_{\text{req}} = \frac{(3395.52)(12)}{1440} = 28.3 \text{ cuin}$$

a) JOIST TO HANGER CONNECTION:

$$\text{HANGER LOAD} = (135)(1.33)(12.3/2) = 1107 \text{ lb}$$

CONNECTION IS MADE W/ (8) 1-1/2" R.S. NAILS &
 BEARING ON 1-1/2" x 2" SEAT

$$\text{BEARING STRESS} = 1107 / (1.5)(2) = 369 \text{ psi}$$

b) HANGER TO HEADER CONNECTION:

CONNECTION IS MADE W/ (12) 1-1/2" R.S. NAILS

$$\text{ALLOWABLE LOAD} = (12)(137 \text{ lb/nail}) = 1644 \text{ lb}$$

c) BEARING ON 2" x 4" STUDWALL:

$$\text{BEARING LOAD} = (135)(1.33)(29.3/2) = 2630.41 \text{ lb}$$

$$\text{BEARING STRESS} = 2630.41 / (1.5)(3.5) = 501.03 \text{ psi}$$

3) 2" x 4" STUDWALL:

2" x 4" STUDS, 16" O.C., No.2 SPF

MAX STUD LENGTH = 7' 8-5/8"

$$A = 5.25 \text{ sqin} \quad F_c = 675 \text{ psi} \quad l/d = 95.5/3.5 = 27.29 \quad F'_c = 509.1 \text{ psi}$$

$$P = (135)(1.33)(29.3/2) = 2630.41 \text{ lb}$$

$$f_c = 2630.41/5.25 = 501.03 \text{ psi}$$

4) EXTERIOR WALL HEADER @ 17'-0" SPAN AREA:

2"x10"/2"x10" PLATED HEADER No.1 SYP

$$F_b = 1300 \text{ psi} \quad S_b = 81.28 \text{ cuin}$$

$$W = (17/2)(135) = 1147.5 \text{ plf}$$

$$M_{\text{max}} = (1147.5)(7.75^2/8) = 8615.22 \text{ ftlb}$$

$$S_{\text{req}} = (8615.22)(12)/1300 = 79.53 \text{ cuin}$$

No. of nails req'd (201 lb/nail)

$$(1147.5)(8.0)/201 = 46 \text{ nails total}$$

5) EXTERIOR WALL HEADER @ 12'-3 1/2" SPAN AREA:

2"x8"/2"x10" PLATED HEADER No.1 SYP

$$F_b = 1300 \text{ psi} \quad S_b = 64.65 \text{ cuin}$$

$$W = (12.3/2)(135) = 830.25 \text{ plf}$$

$$M_{\text{max}} = (830.25)(7.25^2/8) = 5455 \text{ ftlb}$$

$$S_{\text{req}} = (5455)(12)/1300 = 50.36 \text{ cuin}$$

No. of nails req'd (201 lb/nail)

$$(830.25)(7.5)/201 = 31 \text{ nails total}$$

JAMB FOOTINGS:

18" Diameter Footing, 7" thick, Allowable soil bearing pressure = 1500 psf

Column Footing Load: 2499 lb

Area_{Act} = 1.77 ft² Area_{Req} = 1.67 ft²

24" Diameter Footing, 10" thick, Allowable soil bearing pressure = 1500 psf

Column Footing Load: 4018 lb

Area_{Act} = 3.14 ft² Area_{Req} = 2.68 ft²

32" Diameter Footing, 12" thick, Allowable soil bearing pressure = 1500 psf

Column Footing Load: 7901 lb

Area_{Act} = 5.59 ft² Area_{Req} = 5.27 ft²

36" Diameter Footing, 14" thick, Allowable soil bearing pressure = 1500 psf

Column Footing Load: 10590 lb

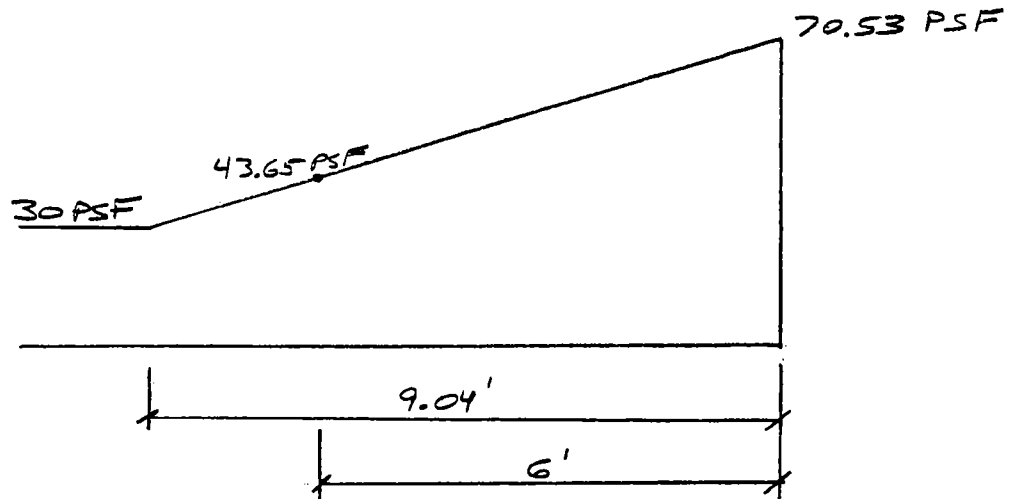
Area_{Act} = 7.07 ft² Area_{Req} = 7.06 ft²

40" Diameter Footing, 16" thick, Allowable soil bearing pressure = 1500 psf

Column Footing Load: 12610 lb

Area_{Act} = 8.73 ft² Area_{Req} = 8.41 ft²

SNOW DRIFT ON PORCH:



$$P_g = P_f = 30 \text{ psf} \quad W_b = 42 \text{ ft} \quad D = 17.9 \text{ lb/cuft}$$

$$h_d = 2.26 \text{ ft} \quad h_r = 6.25 \text{ ft} \quad h_b = 1.68 \text{ ft}$$

$$W_d = 9.04 \text{ ft} \quad P_m = 70.53 \text{ psf}$$

PORCH CALCULATIONS:

PORCH FRAME:

CHECK TOP CHORD AS RAFTER
 2" x 12" RAFTER No.1 SYP, $F_b = 1250$ psi, $S = 31.64$ in³

NOTE: UNSUPPORTED LENGTH = 5'-6 1/2"

LOAD = (66.1 psf)(11.33 ft) = 748.91 plf

$M_{max} = 2874.88$ ftlb $S_{reqd} = 24.00$ in³

PURLINS:

2" x 8" PURLINS 19.2" O.C. No.1 SYP, $F_b = 1750$ psi

$M_{max} = 1529.52$ ftlb $S_{reqd} = 9.12$ in³

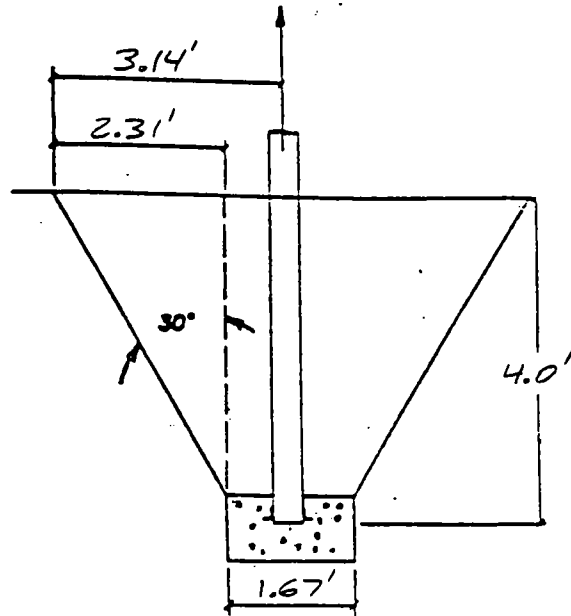
HEADER AT BUILDING:

2" x 12" HEADER No.1 SYP, $F_b = 1250$ psi, $S = 31.64$ in³

LOAD = 2475.54 lb

$M_{max} = 3630.8$ ftlb $S_{reqd} = 30.31$ in³

WIND LOAD UPLIFT:



$$\text{UPLIFT} := W_{E12} \left[\frac{BW}{2} \right] + OW$$

$$\text{UPLIFT} := 926.62 \text{ lb}$$

$$d := 4.0 \text{ ft} \quad R := 0.833 \text{ ft}$$

$$R_1 := d \cdot 0.577 + R_2$$

$$V := \frac{1}{3} \cdot 3.14 \cdot d \cdot \left[R_1^2 + R_2^2 + R_1 \cdot R_2 \right]$$

SOIL VOLUME ABOVE FOOTING:

$$V = 55.164 \text{ cuft}$$

ALLOWABLE SOIL WEIGHT = 100 lb/cuft

$$\text{TSW} := V \cdot \left[100 \frac{\text{lb}}{\text{cuft}} \right]$$

$$\text{TOTAL SOIL WEIGHT} = \text{TSW} = 5516.445 \text{ lb}$$

$$\text{BUILDING DEAD LOAD} = \text{BDL} := 408 \text{ lb}$$

$$\text{TWF} := \text{TSW} + \text{BDL}$$

$$\text{TOTAL WEIGHT ON FOOTING} = \text{TWF} = 5924.445 \text{ lb}$$

(2) BASE ANCHORS W/ (2) .177" x 2-1/2"
GALV. THREADED NAILS EACH

COLUMN TO FOOTING CONNECTION:

$$\text{NET_UPLIFT} := \text{UPLIFT} - \text{BDL}$$

$$\text{NET_UPLIFT} = 518.62 \text{ lb}$$

$$\text{No. OF NAILS REQUIRED TO RESIST UPLIFT} = 2$$

COLUMN TO PORCH FRAME CONNECTION:

CONNECTION IS MADE W/ (2) 1/2" M. BOLTS & (6) 20d R.S. NAILS

$$\text{UPLIFT RESISTANCE} = 3067 \text{ lb}$$

(CONNECTOR LOAD)

PORCH FRAME TO BUILDING CONNECTION:

$$\text{UPLIFT} = 518.62 \text{ lb}$$

CONNECTION IS MADE W/ (8) #9 x 1 SCREWS & (8) 1 1/2" R.S. NAILS

$$\text{UPLIFT RESISTANCE} = 2455.2 \text{ lb}$$

(CONNECTOR LOAD)

WINDOW HEADER:

(3) 2" x 12" No. 1 SYP, $F_b = 1440 \text{ psi}$

$S = 94.92 \text{ in}^3$

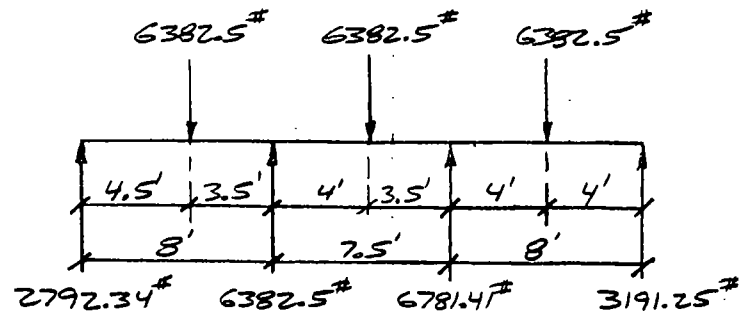
$M_{\text{max}} = 12765 \text{ ftlb}$

$S_{\text{req}} = 92.5 \text{ in}^3$

No. of Nails Req'd
20d R.S. Nails (201 lb/Nail)

Stub Column $P = 6382.5 \text{ lb}$, 28 Nails Total

Jamb Column $R = 6781.4 \text{ lb}$, 30 Nails Total



FOOTINGS:

30" Diameter Footing, 12" thick, Allowable soil bearing pressure = 1500 psf

Column Footing Load: 7404.17 lb

$\text{Area}_{\text{Act}} = 4.91 \text{ ft}^2$

$\text{Area}_{\text{Req}} = 4.94 \text{ ft}^2$

40" Diameter Footing, 16" thick, Allowable soil bearing pressure = 1500 psf

Column Footing Load: 11621 lb

$\text{Area}_{\text{Act}} = 8.73 \text{ ft}^2$

$\text{Area}_{\text{Req}} = 7.75 \text{ ft}^2$

48" Diameter Footing, 20" thick, Allowable soil bearing pressure = 1500 psf

Column Footing Load: 16821 lb

$\text{Area}_{\text{Act}} = 12.57 \text{ ft}^2$

$\text{Area}_{\text{Req}} = 11.22 \text{ ft}^2$

20" Diameter Footing, 8" thick, Allowable soil bearing
pressure = 1500 psf

Column Footing Load: 2589.9 lb

Area	=	2.18 ft ²	Area	=	1.73 ft ²
Act			Req		

LUMBER SPECIFICATIONS

Top Chord (3)	2X10	SYP	NO.1	KD19	1.7E6
Top Chord (1,2)	2X10	SYP	MSR	1950	1.5E6
Lower Chord	2X4/2X6	SYP	MSR	1950	1.5E6
Webs	2X4	SYP	NO.1	KD19	1.7E6

Req'd Truss Load - 37 psf at 7.5' OC. = 277.5 plf

LOADS

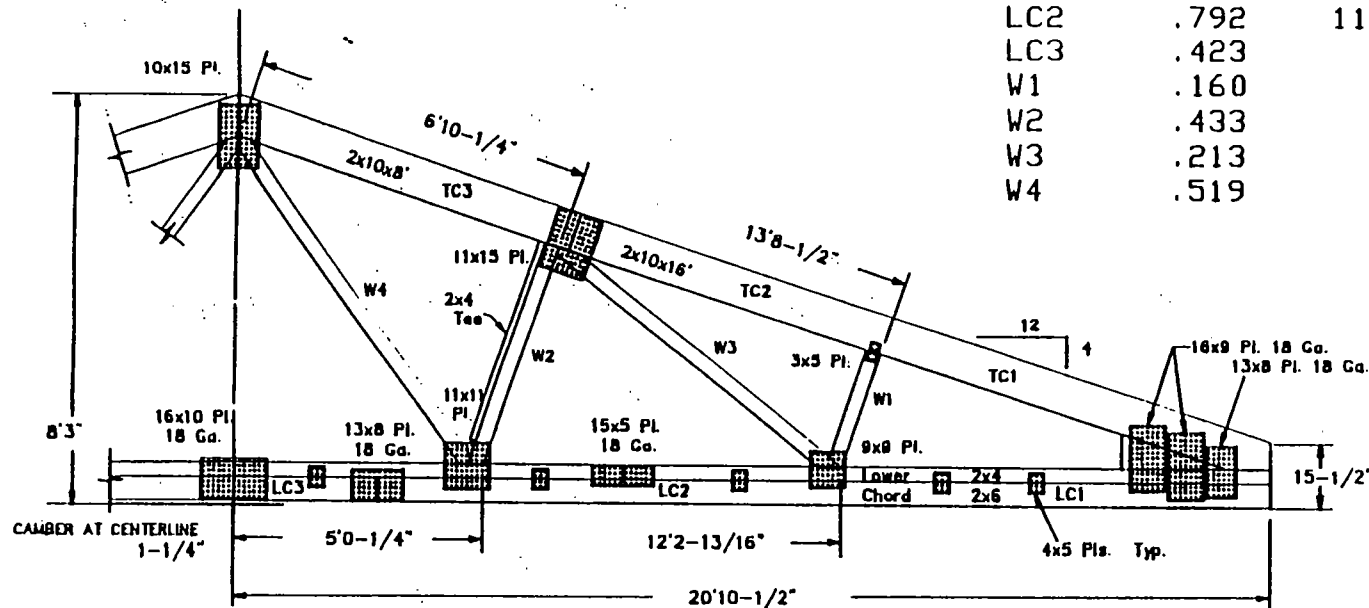
TCLL 30 psf Load duration factor = 1.15
 TCDL 4 psf
 LCDL 3 psf

TRUSS PLATE DATA - TPI

	20 GA.	18 GA.
Design Value	99 psi	108 psi
Tensile Value	421 pli	551 pli
Shear Value	294 pli	386 pli

MEMBER FORCE TABLE

Member	CSI	Member Forces		Member Stresses	
		Bending (in-lbs)	Axial (lbs)	Bending (psi)	Axial (psi)
TC1	.676	9669.	-13616.	452.0	-981.3
TC2	.770	14918.	-13184.	697.4	-950.2
TC3	.861	-13031.	-11579.	-609.2	-834.5
LC1	.858	11490.	12913.	567.4	956.5
LC2	.792	11490.	11514.	567.4	852.9
LC3	.423	452.	8826.	22.3	653.8
W1	.160	0.	-1273.	.0	-242.4
W2	.433	0.	-2756.	.0	-525.0
W3	.213	0.	1353.	.0	257.7
W4	.519	0.	3289.	.0	626.4



Truss Reaction: 6193.750 lbs.

TABLE NO. IV—ALLOWABLE SHEAR (POUNDS PER FOOT) FOR HORIZONTAL APA STRUCTURAL-USE PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS FIR, LARCH OR SOUTHERN PINE¹ FOR WIND OR SEISMIC LOADING

GRADE	COMMON NAIL SIZE	MINIMUM NAIL PENETRATION IN FRAMING (Inches)	MINIMUM NOMINAL PANEL THICKNESS (Inch)	MINIMUM NOMINAL WIDTH OF FRAMING MEMBER	BLOCKED DIAPHRAGMS				UNBLOCKED DIAPHRAGMS	
					Nail Spacing (in.) at Diaphragm Boundaries (All Cases) at Continuous Panel Edges Parallel to Load (Cases 3 and 4) ²				Nails Spaced 6" Max. at Supported Edges ²	
					Nail Spacing (in.) at Other Panel Edges				Case 1 (No Unblocked Edges or Continuous Joints Parallel to Load)	All Other Configurations (Cases 2, 3 and 4)
					6	4	2 1/2 ³	2 ³		
APA STRUCTURAL I ¹ RATED SHEATHING, STURD-I-FLOOR EXP 1 OR EXT	6d	1 1/4	3/16	2 3	185 210	250 280	375 420	420 475	165 185	125 140
	8d	1 1/2	1/4	2 3	270 300	360 400	530 600	600 675	240 265	180 200
	10d	1 3/4	15/32	2 3	320 360	425 480	640 720	730 820	285 320	215 240
APA RATED SHEATHING, STURD-I-FLOOR EXP 1, EXP 2 OR EXT; APA STRUCTURAL II RATED SHEATHING EXP 1 OR EXT	6d	1 1/4	3/16	2 3	170 190	225 250	335 380	380 430	150 170	110 125
			1/4	2 3	185 210	250 280	375 420	420 475	165 185	125 140
	8d	1 1/2	1/4	2 3	240 270	320 360	480 540	545 610	215 240	160 180
			7/16	2 3	255 285	340 380	505 570	575 645	230 255	170 190
			15/32	2 3	270 300	360 400	530 600	600 675	240 265	180 200
			15/32	2 3	290 325	385 430	575 650	655 735	255 290	190 215
	10d	1 3/4	15/32	2 3	320 360	425 480	640 720	730 820	285 320	215 240
			19/32	2 3	320 360	425 480	640 720	730 820	285 320	215 240

For framing of other species: (a) Find species group of lumber in NFPA National Design Specifications, (b) find shear value from table for nail size, and for Structural I panels (regardless of actual grade), (c) multiply value by 0.82 for Lumber Group III or 0.65 for Lumber Group IV.

Space nails 12 inches o.c. along intermediate framing members for roofs, and 10 inches o.c. for floors (6 inches o.c. when supports are spaced 48 inches o.c.).

Framing at panel edges shall be 3-inch nominal or wider and nails shall be staggered where nails are spaced 2 inches or 2 1/2 inches o.c., and where 10d nails having penetration into framing of more than 1 1/4 inches are spaced 3 inches o.c.

Exception: unless otherwise required, 2-inch nominal framing may be used where full nailing surface width is available and nails are staggered.

All veneer panel.

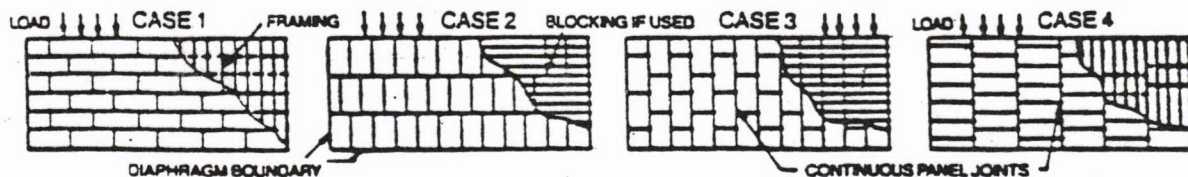


TABLE NO. V—ALLOWABLE SHEAR (POUNDS PER FOOT) FOR APA STRUCTURAL-USE PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS FIR, LARCH OR SOUTHERN PINE FOR WIND OR SEISMIC LOADING^{1 2 3}

PANEL GRADE	MINIMUM NOMINAL PANEL THICKNESS (Inch)	MINIMUM NAIL PENETRATION IN FRAMING (Inches)	PANELS APPLIED DIRECT TO FRAMING				PANELS APPLIED OVER 1/2" GYPSUM SHEATHING					
			Nail Size (Common or Galvanized Box)	Nail Spacing at Panel Edges (In.)				Nail Size (Common or Galvanized Box)	Nail Spacing at Panel Edges (In.)			
				6	4	3	2 ³		6	4	3	2 ³
APA STRUCTURAL I ¹⁶ RATED SHEATHING EXP 1 OR EXT	3/16	1 1/4	6d	200	300	390	510	8d	200	300	390	510
	1/4	1 1/2	8d	230 ⁴	360 ⁴	460 ⁴	610 ⁴	10d	280	430	550 ³	730
	7/16			255 ⁴	395 ⁴	505 ⁴	670 ⁴					
	15/32			280	430	550	730					
	15/32	1 3/4	10d	340	510	665 ³	870	—	—	—	—	
APA RATED SHEATHING EXP 1, EXP 2 OR EXT; APA STRUCTURAL II RATED SHEATHING EXP 1 OR EXT	3/16	1 1/4	6d	180	270	350	450	8d	180	270	350	450
	1/4			200	300	390	510		200	300	390	510
	3/8	1 1/2	8d	220 ⁴	320 ⁴	410 ⁴	530 ⁴	10d	260	380	490 ³	640
	7/16			240 ⁴	350 ⁴	450 ⁴	585 ⁴					
	15/32			260	380	490	640					
	15/32	1 3/4	10d	310	460	600 ³	770	—	—	—	—	
	19/32			340	510	665 ³	870					

For framing of other species: (a) Find species group of lumber in the NFPA National Design Specifications, (b) find shear value from table for nail size, and for STRUCTURAL I panels (regardless of actual grade), (c) multiply this value by 0.82 for Lumber Group III or 0.65 for Lumber Group IV.

All panel edges backed with 2-inch nominal or wider framing. Install panels either horizontally or vertically. Space nails 6 inches o.c. along intermediate framing members for 3/4-inch and 1/2-inch panels installed on studs spaced 24 inches o.c. For other conditions and panel thicknesses, space nails 12 inches o.c. on intermediate supports.

Framing at panel edges shall be 3-inch nominal or wider and nails shall be staggered where nails are spaced 2 inches o.c., and where 10d nails having penetration into framing of more than 1 1/4 inches are spaced 3 inches o.c.

Exception: Unless otherwise required, 2-inch nominal framing may be used where full nailing surface width is available and nails are staggered.

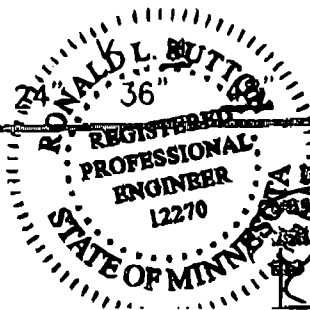
Shears may be increased to values shown for 15/32-inch sheathing with same nailing, provided (1) studs are spaced a maximum of 16 inches o.c. or (2) if panels are applied with long dimension across studs.

The values are for short-time loads due to wind or earthquake and must be reduced by 25 percent for normal loading.

All veneer panel.

BRAUN Intertec

Energy Compliance Recap		MBI REAL ESTATE	
Prescriptive		ZONE II	
	Design	Requirement	
Fenestration Properties			
Gross Wall Area (GWA)	<u>3468</u>		
Window Area (WA)	<u>112</u>		
Window-wall-ratio (WA/GWA)	<u>3.2%</u>	$\leq$	<u>18%</u>
Window U-value	<u>0.5</u>	$\leq$	<u>0.60</u>
Window SCx	<u>0.8</u>		
Wall Design	Design	Requirement	
U-value	<u>0.07</u>	$\leq$	<u>0.07</u>
Heat Capacity	<u>$\leq$ NA</u>		
U-values	Design	Requirement	
Roof	<u>0.025</u>	$\leq$	<u>0.045</u>
Walls adjacent to unconditioned space	<u>NA</u>	$\leq$	<u> </u>
Floors over unconditioned space	<u>NA</u>	$\leq$	<u> </u>
R-values	Design	Requirement	
Walls below grade	<u>NA</u>	$\geq$	<u> </u>
Slab-on-grade	<u>12</u>	$\geq$	<u>10</u>



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

Ronald L. Butcher

Minnesota Energy Code Lighting Standards

PRESCRIPTIVE PROCEDURE

Interior Lighting Power Allowance (ILPA)

Job Name: <i>Broad Inter Tec</i>	Site Address: <i>2641 Hwy 14 West</i>	Date: <i>3-10-99</i>
Person completing form: <i>Allen Helder</i>	Title: <i>VP</i>	Company: <i>Broad Electric</i>

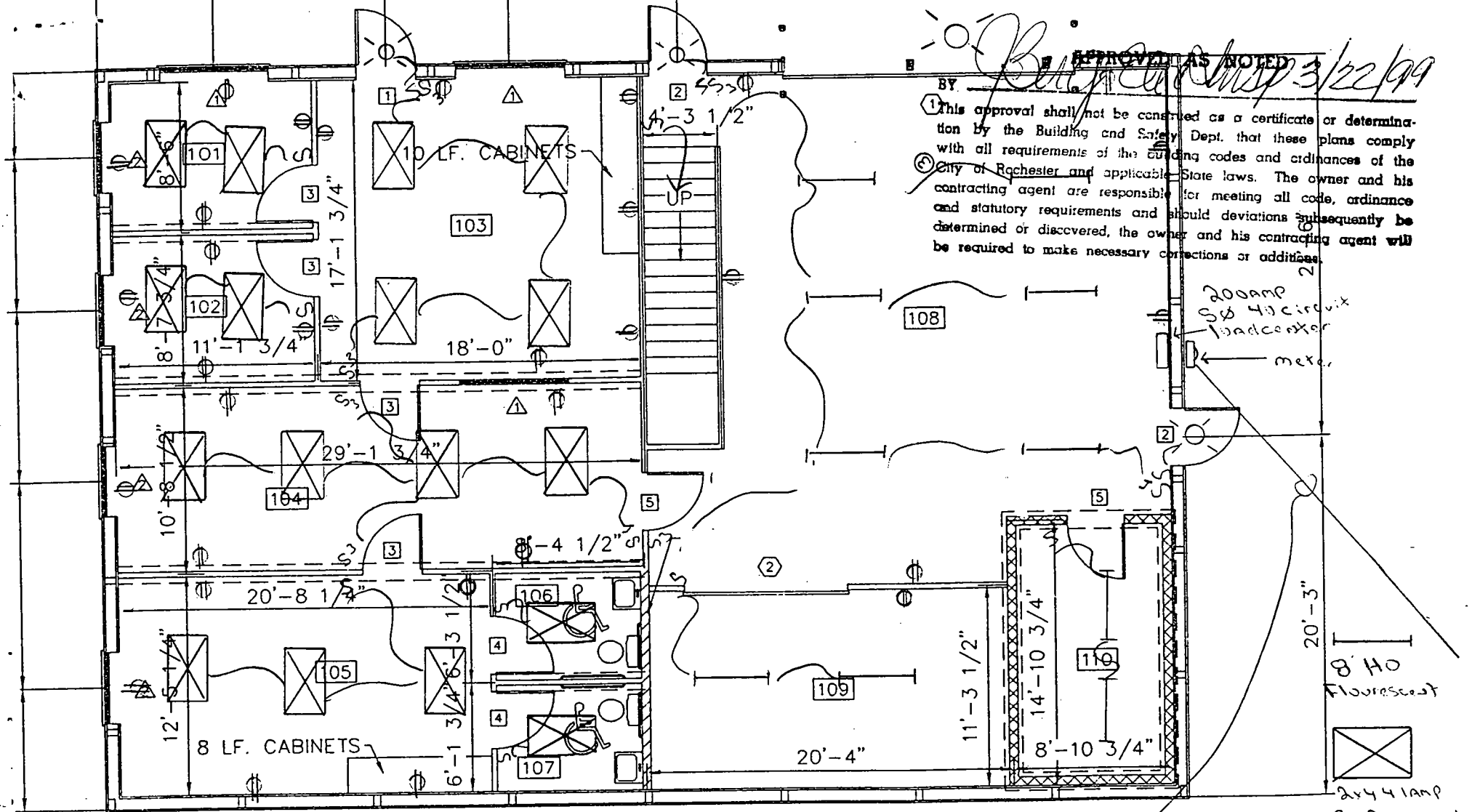
Interior Lighting Power Allowance (ILPA) calculation

Primary area:	Gross Lighted Area (sq ft) (GLA)	x	Unit Lighting Power Allowance (ULPA)	=	Interior Lighting Power Allowance (ILPA)
1. <i>Office Areas</i>	<i>2604</i>	<i>x</i>	<i>1.34</i>	<i>=</i>	<i>3489</i>
Secondary areas (10% or greater of lighted area)					
1.		<i>x</i>		<i>=</i>	
2.		<i>x</i>		<i>=</i>	
3.		<i>x</i>		<i>=</i>	
Total ILPA:					<i>3489</i>

Connected Lighting Power (CLP) calculation

Area Description	Fixture description (ballast & lamp)	Fixture Watts (W)	x	# of fixtures of this type (N)	=	Connected Lighting Power (CLP)
<i>General Office Areas</i>	<i>T-12 32 watt 4 lamp</i>	<i>118</i>	<i>x</i>	<i>17</i>	<i>=</i>	<i>2006</i>
<i>Storage Areas</i>	<i>F96 T12 1 ballast</i>	<i>95</i>	<i>x</i>	<i>10</i>	<i>=</i>	<i>950</i>
			<i>x</i>		<i>=</i>	
			<i>x</i>		<i>=</i>	
			<i>x</i>		<i>=</i>	
			<i>x</i>		<i>=</i>	
			<i>x</i>		<i>=</i>	
			<i>x</i>		<i>=</i>	
			<i>x</i>		<i>=</i>	
			<i>x</i>		<i>=</i>	
			<i>x</i>		<i>=</i>	
Total CLP:						<i>2956</i>

Total CLP must be less than or equal to total ILPA



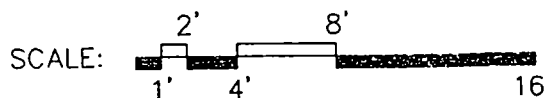
APPROVED AS NOTED
BY *B. J. Carter* 3/22/99

1 This approval shall not be construed as a certificate or determination by the Building and Safety Dept. that these plans comply with all requirements of the Building codes and ordinances of the City of Rochester and applicable State laws. The owner and his contracting agent are responsible for meeting all code, ordinance and statutory requirements and should deviations subsequently be determined or discovered, the owner and his contracting agent will be required to make necessary corrections or additions.

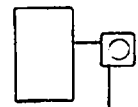
Accord Electric Inc
CA# 00127

[Signature]

INTERIOR LAYOUT



200amp
SB Panel
120/240V



2" PVC w 3" 250
mem AI

Braun Interlec
2641 Hwy 14 West

E-1

2x4 41amp
Surface mount
Flourescent
70Watt HPS
Wall Pack