

COMPILED FOR THE EXCLUSIVE USE OF:

Date: 08/19/15

Facility Owner: City of Albuquerque

Contact: Mark Motsko

Dept.:

Mailing Address: PO Box 1293

City/State/Zip: Albuquerque, NM 87102

Telephone:

Project Name: CIP-Salt Dome Bldg. Phase 2

Project No.: 15-701-2

☒ DOCUMENTATION CONTAINED WITHIN:☒ Permit☒ Certificate of Occupancy☒ QualPRO® Final Inspection Report☒ FB Project Warranty☐ Punch List☒ As-Built Plans☒ Inspections/Testing Results☐ FB Owner Training Sign Off☒ Project Photos☐ QualPRO® Fixture Schedule☒ QualPRO® Finish Schedule☒ Warranties/Operations & Maintenance
Product Data☐ HVAC/Mechanical☐ Access Control System☐ Fire/Security System☐ Communication/Network☐ Plumbing/Boilers☒ Lighting/Electrical☐ Roofing☐ Appliances/Furnishings☐ Doors/Hardware☒ Other: Concrete, Metal Building☐ Misc.: _____

FacilityBUILD, Inc. provides the enclosed information to the customer as part of its QualPRO proprietary quality assurance program.

ProDOC® is our project documentation system that records important project information for the protection and convenience of the facility customer.

To obtain any documents in addition to this close-out manual, simply direct your request to the administrative staff at (505) 828-0060.

We appreciate this opportunity to have been of service, and look forward to working with your organization on future construction projects.


FacilityBUILD Inc.

8-19-15
Date

August 19, 2015

City of Albuquerque
Mr. Mark Motsko
P.O. Box 1293
Albuquerque, NM 87102

RE: CIP-Salt Dome Bldg.-Phase 2

Dear Mr. Motsko,

Thank you for the opportunity to be a part of the team for your recent project. It has been a pleasure working with the City of Albuquerque and we look forward to working with you again on future projects.

Please find enclosed the following:

Project Closeout Documents

- 12 Month Construction Warranty
- FacilityBUILD Final Inspection Report
- Building Permit w/Inspections
- Inspection Tags
- Metal Building Special Inspection
- Fire Final Inspection
- Certificate of Occupancy
- QualPro Finish Schedule
- Manuals and Product Information
- Project Photos
- As-Built Plans

Again, thank you for this opportunity; FacilityBUILD, Inc. appreciates and values your business. If you have any questions or need further information please do not hesitate to call me at the office.

Sincerely,



Sarah Connelly
Project Expeditor



Project:

CIP-Salt Dome Bldg.-Phase 2

Project No.:

15-701-2

Owner:

City of Albuquerque
PO Box 1293
Albuquerque, NM 87102

General Contractor:

FacilityBUILD, Inc.
5904 Florence Ave NE
Albuquerque, NM 87113

Design Builder:

FacilityBUILD, Inc.
5904 Florence Ave NE
Albuquerque, NM 87113

Table of Contents

FacilityBUILD Inc.

- 12 Month Construction Warranty
- QualPro Final Inspection Report
- Building Permit w/Inspections
- Inspection Tags
- Metal Building Special Inspection
- Fire Final Inspection
- Certificate of Occupancy
- QualPro Finish Schedule
- Project Photos - at back of binder
- As-Built Plans - at back of binder

Warranties, Manuals and Product Information

- Contreras Construction Corp. (Concrete)
- All Steel Inc. (Metal Building)
- Broken Arrow Electric (Lighting)



FacilityBUILD

12 MONTH CONSTRUCTION WARRANTY

FacilityBUILD, Inc. warrants, to the original Purchaser, that quality materials and equipment will be furnished and work will conform to industry standards.

The Warranty excludes patch and repair work or defective workmanship resulting from third party repairs/modifications to work originally completed by FacilityBUILD, Inc. Nor does it cover damage caused by abuse, improper or insufficient maintenance, improper operation, or normal wear and tear.

In no event will FacilityBUILD, Inc. be liable to the purchaser or anyone else, including third-party beneficiaries, for any consequential, incidental, special or indirect damages, including lost revenue and profits, that result in anyway connected with defective materials, equipment or workmanship covered under this warranty.

During the term of the Warranty, FacilityBUILD's obligation shall be limited to furnishing repairs to any failed parts or poor workmanship that FacilityBUILD agrees to be defective upon examination.

The Warranty coverage begins on the inspection date as provided on the FacilityBUILD QualPRO® final inspection report or the FacilityBUILD, Inc. invoice date for the services provided.

Project: CIP-Salt Dome Bldg.-Phase 2 Customer: City of Albuquerque

Warranty Begins: 07/16/15 FacilityBUILD, Inc. President: Daniel Gay

Customer Name JIP % Philip Romo		Job Information	FB Job Number 5701-2	Customer Order No.
Address 1820 Commercial Dr. N.E			Facility Name Salt Dome Building	
City Albuq.	State N.Mex		Facility Location Phase # 2	
Phone Number 857-8053	Zip 87102		Building-Area-Room Number	
	Fax Number			

Work Completed As per Plans Provided by Gracer Stafford Dated June 20, 14 Sheets G001, G002, G003, S001, S101, A101, A101, A201, A301, E101, E102, & E104	Project Completion Briefing Checklist(s)
	☒ Work area left clean & neat. ☒ Job walk-thru with owner representative explaining/reviewing all work completed. ☒ Keys and any owner provided items returned. ☒ Note and explain any work deviation/changes from what was proposed/planned. ☒ Product manufacturer/distributor information presented to owner's representative. ☒ Product/curing instructions. ☒ Note any uncompleted work that cannot be completed and why: ☒ Areas of concern:
I have carefully quality checked the scope of work and deem it complete and ready for inspection. Signed: <u>Luis J. San</u> Date: 6-30-15 FacilityBUILD Representative	

Customer Auth. Representative	Comments Needs Light Sensor Switch
	I acknowledge that items checked on the project completion-briefing checklist have been reviewed with me by my FacilityBUILD representative to my satisfaction. I have inspected the job-site and work completed. All work contracted has been performed in an acceptable manner in accordance with the proposal/agreement and/or contract/specifications, other than noted above. Signed: <u>[Signature]</u> Date: 7/15/15 Owner or Authorized Representative

PERMITS EXPIRE IF INSPECTIONS ARE NOT REQUESTED EVERY SIX MONTHS.



CITY OF ALBUQUERQUE

Planning Department
Building Safety Division
Building Section

INSPECTION NOTICE

PHONE (505) 924-3320 OR (505) 924-3368

POST IN A CONSPICUOUS PLACE ON THE JOB.

PERMIT NO. 201491705 DATE: 1-27-15

ADDRESS: 1815 Broadway Blvd NE

OWNER: City of Albuquerque DMO

CONTRACTOR: Edgely Build Inc

☒ COMMERCIAL

☐ RESIDENTIAL

☒ NEW BUILDING

☐ TENANT IMPROVEMENT

☐ SHELL ONLY

☐ ALTERATION **1 2 3**

☐ ADDITION

☐ REPAIR

☐ OTHER Good Sub Storage

Separate permits ARE REQUIRED for mechanical, electrical and plumbing.

INSPECTION APPROVALS ARE REQUIRED BEFORE ANY OF THE
FOLLOWING ARE COVERED OR CONCEALED:

Foundation

Plumbing

Foundation Insulation

Mechanical

(Interior Bearing Wall Footing if required)

Electrical

Frame

(Seismic if required)

Frame Insulation

Exterior Lath

Wallboard

(Firewalls, shear walls & fire stop systems if required)

Final (After completion & before occupancy)

NOTE: A CERTIFICATE OF OCCUPANCY:

- IS REQUIRED FOR ALL BUILDINGS OR STRUCTURES BEFORE USE OR OCCUPANCY.
- WILL NOT BE ISSUED FOR ANY TENANT IMPROVEMENT UNTIL THE SHELL CERTIFICATE OF COMPLETION HAS BEEN ISSUED.
- A REQUEST SHALL BE MADE AFTER FINAL APPROVALS HAVE BEEN OBTAINED FROM ALL DIVISIONS INVOLVED.
- WILL BE ISSUED ON FINAL INSPECTION FOR R-3 OCCUPANCIES. (IRC OCCUPANCIES).

Commercial Certificate of Occupancy (505) 924-3368

NOTE: FINAL INSPECTIONS ARE REQUIRED ON ALL PERMITTED WORK
WHETHER A CERTIFICATE OF OCCUPANCY IS REQUIRED OR NOT.

CERTIFICATE OF OCCUPANCY REQUIRED?

~~YES~~

NO

SIGNATURE _____

☒☐

SHELL CERTIFICATE OF COMPLETION REQUIRED?

YES

~~NO~~

SIGNATURE _____

☐☒

APPROVALS FOR CERTIFICATE OF OCCUPANCY
INSPECTOR'S SIGNATURE AND DATE REQUIRED

ZONING _____

DATE: _____ (505) 924-3837

ENVIRONMENTAL HEALTH —

CHPD _____

DATE: _____ (505) 924-3623

ENVIRONMENTAL HEALTH -

ESD _____

DATE: _____ (505) 768-2633

SOLID WASTE _____

DATE: _____ (505) 681-2766

TRANSPORTATION DEVELOPMENT

DATE: _____ (505) 924-3982

HYDROLOGY _____

DATE: _____ (505) 924-3982

BUILDING CODE *Alan M. Hutz*

DATE: *6-18-15* (505) 924-3320

FIRE *Eric Monahan*

DATE: *6/29/15* (505) 924-3611

PLUMBING _____

DATE: _____ (505) 924-3310

MECHANICAL _____

DATE: _____ (505) 924-3310

ELECTRICAL _____

DATE: _____ (505) 924-3305

BOILER _____

DATE: _____ (505) 924-3325

ELEVATOR _____

DATE: _____ (505) 924-3325

CODE ADMINISTRATION DIVISION
CITY OF ALBUQUERQUE, P.O. BOX 1293
BUILDING SECTION

Location 1815 Broadway Blvd NE

Type of Inspection Footings Stem wall

Date 4/3, 20 15

Approved B Hopkins
Inspector

FORM B-19

P111202

CITY OF ALBUQUERQUE
BUILDING & SAFETY DIVISION
ROUGH-IN
ELECTRICAL INSPECTION

PERMIT # 5261915

ADDRESS 1815 Broadway

INSPECTOR JRP

DATE 4/7, 20 15

PHONE 924-3311

P111209

DO NOT REMOVE

CITY OF ALBUQUERQUE
BUILDING & SAFETY DIVISION
ROUGH-IN
ELECTRICAL INSPECTION

PERMIT # 5241915

ADDRESS 1815 Broadway

INSPECTOR JRP

DATE 4/9, 20 15

PHONE 924-3311

P111209

DO NOT REMOVE

CODE ADMINISTRATION DIVISION
CITY OF ALBUQUERQUE, P.O. BOX 1293
BUILDING SECTION

Location 1815 Broadway Blvd NE

Type of Inspection Frame TDP 3

Date 5/28, 20 15

Approved B Hopkins
Inspector

FORM B-19

P111202

CODE ADMINISTRATION DIVISION
CITY OF ALBUQUERQUE, P.O. BOX 1293

5261915 ELECTRIC SECTION

Location

1815 Broadway

Type of Inspection

Final

Date

6/17/15

Approved

J. P. Haddad

Inspector

FORM B-21

P111200



**Western
Technologies
Inc.**

The Quality People
Since 1955

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488 • fax 821-2963

**SPECIAL INSPECTION
REPORT - COMPLIANCE**

C

Client TCL RUMBING & UTILITY

Report No. 2-45 Page 1 of 1

Permit No. 201491765

Job No. 32445A132

Project SALT STORAGE BUILDING PHASE 2

Event / Invoice No. 45

Location 1815 BROADWAY BLVD, NE ALBU, NM

Authorized By P. ROPLO Date 5-27-15

Prime Contractor FACILITY BUILD

Superintendent LUIS SENA

Scope HIGH STRENGTH BOLT REVIEW

Code(s) AISC, 2009 13C

Special Inspection By WT/T. HOWARD Date 5-27-15

Arrived This Site: _____ Left This Site: _____

COMPLIANCE REPORT

☐ FOUNDATIONS ☐ REINFORCING STEEL ☐ CONCRETE ☐ MASONRY ☒ STRUCTURAL STEEL ☐ FIREPROOFING ☐ NONDESTRUCTIVE TESTING ☒ OTHER

THE FOLLOWING WORK, IS TO THE BEST OF MY KNOWLEDGE, IN COMPLIANCE WITH THE APPROVED PLANS
AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE REFERENCED CODE(S):

OBSERVATIONS / ACTION TAKEN:

HIGH-STRENGTH BOLT REVIEW PER VP BUILDING PRINTS ON-SITE
FOR SALT STORAGE BUILDING PHASE 2.

A-325 IN FRAME CROSS SECTION @ LINE 5 1-3 ARE IN COMPLIANCE
WITH MANUFACTURE INSTALLATION AND NUMBER OF BOLTS ALONG
WITH SIZE AND LENGTH. ALL SECONDARY CONNECTIONS WITH A 325
ARE ALSO IN COMPLIANCE WITH MANUFACTURE INSTALLATION.
(SEE REPORT ON HIGH STRENGTH BOLT OBSERVATION) + TESTING
THIS DATE FOR FURTHER INFO).

T. Howard
ELC:TH/CWI 5/27/15

APPLICABLE MATERIAL(S) CERTIFICATION REVIEW:

EQUIPMENT USED IN THIS INSPECTION

EQUIPMENT ID. NO.(S)

White - File; Yellow - Processing For Final Report; Pink - Preliminary Field Copy, Subject To Review

Copies To:

THE SPECIAL INSPECTION SERVICES REPORTED HEREIN WERE PERFORMED
IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY
AND RELATE ONLY TO THE CONDITION(S) OBSERVED AT THE TIME AND
PLACE STATED HEREIN. THE DETERMINATION OF COMPLIANCE IS BASED
ON THE APPROVED PLANS AND SPECIFICATIONS, AND THE INSPECTOR'S
JUDGMENT AS APPLIED UNDER THE BUILDING CODE AUTHORITY HAVING
JURISDICTION. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY
OR REPRESENTATION, EXPRESSED OR IMPLIED.



Western Technologies Inc.

The Quality People
Since 1955

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113-1670
(505) 823 • fax 798-7664

REPORT ON HIGH STRENGTH BOLT OBSERVATION & TESTING

Client TLC LEASE INCORPORATED

Job No. 8247A-2 Page 1 of 1

5000 SOUTH NE

Event / Invoice No. 45

ALBUQUERQUE, NM 87107

Authorized By P. RAY Date 5-29-15

Observations Made By JOHN HOWARD ICC-MI, CWT

Project SALT STORAGE BUILDING PHASE 2 Time 0700

Location 1815 BRADWAY BLVD, NE ALBUQ, NM

Contractor / Superintendent ALL STEEL INC. Field Copy Rec'd (initial)

JOB SPECIFICATION: ☐ UBC ☒ AISC ☐ OTHER		INSPECTION PROCEDURE: ☐ PRE-INSTALLATION ☒ DELAYED VERIFICATION								
INSTALLATION PROCEDURE: ☐ TURN OF THE NUT ☐ CALIBRATED WRENCH ☐ DIRECT TENSION INDICATOR ☒ ALTERNATE INSTALLATION <u>PRE-TENSION, SNAG TIGHT</u>		TIGHTENING TOOL: ☐ TORQUE WRENCH ☐ SPUD WRENCH ☒ IMPACT WRENCH								
BOLT (MFG. <u>N/A</u>): ☒ ASTM A325 ☒ TYPE 1 ☒ PLAIN ☐ ASTM A490 ☐ TYPE 2 ☒ GALVANIZED ☐ TYPE 3		WASHER (MFG. <u>N/A</u>): ☐ ASTM F436 ☐ CIRCULAR ☐ SQUARE BEVELED ☐ LOAD INDICATOR								
BOLT DIAMETER, IN. <u>1/2" 3/4"</u>		BOLT LENGTH, IN. <u>1 1/2" 2 1/2"</u>								
INSPECTION TORQUE WRENCH (MFG. <u>N/A</u>): TYPE _____, SERIAL NO. _____ CAPACITY, FT.-LB. _____, MULTIPLIER FACTOR _____		TENSION MEASURING DEVICE <u>N/A</u>: SERIAL NO. _____ JOB INSPECTION TORQUE VALUE, FT.-LB. _____								
COLUMN LINE / LEVEL	CONNECTION	OBSERVATION								REMARKS
		IN SPEC. / CODE	NOT IN SPEC. / CODE	LOOSE BOLTS	MISSING BOLTS	ELONGATED HOLES	TORCH CUT HOLES	INACCESSIBLE	OTHER	
FRAME CROSS SECTION @ LINE 1/A-E	COLUMN-BEAM	✓								4-CONNECTIONS
	BEAM-BEAM	✓								1-CONNECTION
FRAME CROSS SECTION @ LINE 2/A-E	COLUMN-BEAM	✓								2-CONNECTIONS
	BEAM-BEAM	✓								1-CONNECTION
FRAME CROSS SECTION @ LINE 3/A-E	COLUMN-BEAM	✓								3-CONNECTIONS
	BEAM-BEAM	✓								1-CONNECTION
PERLINS / ROOF	ALL @ ROOF	✓								

White - File; Yellow - Processing For Final Report; Pink - Preliminary Field Copy, Subject To Review

Copies To:

John W. Howard
ICC-MI, CWT
5/29/15

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OBSERVED OR SAMPLE(S) TESTED AT THE TIME AND PLACE STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OR MATERIALS SUBMITTED BY OTHERS.

Please Post in a Conspicuous Location on the Premises



**CITY OF ALBUQUERQUE
FIRE DEPARTMENT**

Fire Prevention Bureau
724 Silver SW
Albuquerque, NM 87102
(505) 764-6300

INSPECTION CERTIFICATE



COA STREET MAINTENANCE
1815 BROADWAY BLVD NE
ALBUQUERQUE, NM 87102-_____

Inspection No: 4320-14
Inspector: PLANS CHECKING
Occupancy Class: U

INSPECTION CATEGORIES

<u>Code</u>	<u>For the Period</u>	<u>Description</u>
IFC	08/13/2014 -	International Fire Code 2009

INSPECTION(S) PERFORMED

<u>Inspection Date</u>	<u>Inspection Type</u>	<u>Note</u>
✓ 08/13/2014	PLANS REVIEW	PLANS REJECTED FOR A 1,935 SQ/FT NEW STORAGE BUILDING.
✓ 08/20/2014	PLANS RE-REVIEWED	plans re-reviewed and approved
✓ 06/24/2015	New Construction Fees 1501 - 3000 sq ft	INSPECTION FOR FINAL.
✓ 06/24/2015	CORRESPONDENCE	NO VIOLATIONS FOUND ATT. FIRE FINAL ISSUED.
✓ 06/24/2015	FIRE FINAL	BP# 201491765. R. SUAZO.

08:09 \$



ALBUQUERQUE FIRE DEPARTMENT
FIRE MARSHAL'S OFFICE / PLANS CHECKING
600 2nd St. 8TH Floor NW. Albuquerque, NM 87102
505-924-3611 Fax: 505-924-3619

☐ FIRE TEMPORARY
☒ FIRE FINAL COMPLETE
☐ FIRE INSPECTION ONLY

OCCUPANCY CLASSIFICATION

☐ A1 ☐ A5 ☐ F2 ☐ H4 ☐ I3 ☐ R2 ☐ S2
☐ A2 ☐ B ☐ H1 ☐ H5 ☐ I4 ☐ R3 ☐ U
☐ A3 ☐ E ☐ H2 ☐ I1 ☐ M ☐ R4
☐ A4 ☐ F1 ☐ H3 ☐ I2 ☐ R1 ☐ S1

☒ PERMIT CASE NO.: 432014
☐ FIRE SPRINKLER NO.: _____
☐ FIRE ALARM NO.: _____
☐ FIRE SUPPRESSION SYSTEM: _____

BUILDING PERMIT NO: 2014-1765

DATE: 062415

BUSINESS: COH SHIT STORAGE BLDG

ADDRESS: 1515 BROADWAY BLD NE ZIP: _____ PHONE NO: _____

CONDITIONS SURROUNDING AND ARRANGEMENTS TO BE IN ACCORDANCE WITH THE FIRE PREVENTION CODE REGULATIONS.

I.F.C. _____ STANDARD _____ SECTION _____

LIST OF VIOLATIONS: N.D. VIOLATIONS FOUND ATT. FIRE FINAL ISSUED

☐ SQUARE FOOTAGE: 173547 ☐ OCCUPANT LOAD: _____ ☐ PHASE PROJECT: _____

☐ PERMIT REQUIRED: _____

BILL PERMIT TO (Business Name): _____

STREET ADDRESS: _____

CITY _____ STATE: _____ ZIP: _____ PHONE _____

THIS IS AN OFFICIAL NOTIFICATION TO CORRECT THE ABOVE NOTED VIOLATION(S) IMMEDIATELY. A REINSPECTION WILL BE MADE ON OR ABOUT _____

FAILURE TO COMPLY WITH ANY ORDERS ISSUED CAN RESULT IN LEGAL ACTION BEING TAKEN AGAINST ANY VIOLATOR IN ANY COURT OF JURISDICTION, BY ISSUING CITATIONS OR BY ORDERING THE CLOSURE OF SUCH OCCUPANCY UNTIL COMPLIANCE IS ACHIEVED, OR BY ANY OTHER LEGAL PROCESS.

BILL TO (Contractor Name): FACILITY BUILD 828 0060

BILLING STREET ADDRESS: 5904 FLORENCE AVE NE

CITY Alb STATE: NM ZIP: 87113

ACKNOWLEDGED BY: LOUIE CAMPUS JR. SIGNATURE: [Signature]
(PRINT NAME)

TITLE: SUPERINTENDENT PHONE: (505) 934-4610

INSPECTOR: RICHARD SUTTO SIGNATURE: [Signature]
(PRINT NAME)

Certificate of Occupancy

City of Albuquerque
Planning Department
Building Safety Division

This Certificate, issued pursuant to the requirements of Section 115.3 of the Albuquerque Uniform Administrative Code, certifies that at the time of issuance this structure was in compliance with the above code and other technical codes and city ordinances regulating building construction or use.

Building Address 1815 Broadway Blvd NE, Phase 2

Zip 87102

Portion of Building Salt Storage Building

Use Classification Commercial Project

Bldg. Permit No. 201491765

Occupancy Group U

Type of Construction VB

Land Use Zone SU2 HM

Owner of Building City of Albuquerque DMD

Address: 5901 Pino Ave NE Albuquerque NM 87103



By: Camille Cordova

Date: June 29, 2015

V Land Clark
Chief Building Official

IBC Code Year: 2009

POST IN A CONSPICUOUS PLACE

MAXIMUM OCCUPANT LOAD: N/A

Project Name CIP-Salt Dome Bldg.-Phase 2

Job Number 15-701-2

Customer City of Albuquerque

PM Robert Pino

Metal
Building

Color Selection	Color Selection	Color Selection	Color Selection	Color Selection	Color Selection
Walls	Trim	Roof	Description	Description	Description
Cool Sierra Tan	Cool Straw Gold	Galvalume			
Manufacturer	Manufacturer	Manufacturer	Manufacturer	Manufacturer	Manufacturer
Varco Pruden	Varco Pruden	Varco Pruden			
Item / Number	Item / Number	Item / Number	Item / Number	Item / Number	Item / Number
N/A	N/A	N/A			
Description	Description	Description	Description	Description	Description
Manufacturer	Manufacturer	Manufacturer	Manufacturer	Manufacturer	Manufacturer
Item / Number	Item / Number	Item / Number	Item / Number	Item / Number	Item / Number
Description	Description	Description	Description	Description	Description
Manufacturer	Manufacturer	Manufacturer	Manufacturer	Manufacturer	Manufacturer
Item / Number	Item / Number	Item / Number	Item / Number	Item / Number	Item / Number

Concrete

May 4, 2015

Facility Build
5904 Florence Road NE
Albuquerque, NM 87113

Job No.:3-50403

REPORT OF CONCRETE SPECIMENS	
PROJECT:	City Yard at Mcknight and Commercial PO#F44375
LOCATION OF SAMPLE:	Footings
SLUMP(ASTM C-143):	2.5"
ENTRAINED AIR (ASTM C-231, TYPE B)	4.5%
YIELD (CU.YDS.):	Batched: 10.0 Calc: 9.9
WATER/CEMENT RATIO:*	.43
UNIT WEIGHT:(ASTM C-138)	140.9 lbs/ft³
CEMENT FACTOR:*	379.6 lbs/yds³
SUPPLIER:	Duke City, Truck # 0318, Ticket # 409379
CONCRETE CODE:	RGE30AB8V
SAMPLED BY:	Geo-test, Inc
DATE MOLDED:	4/06/15
DELIVERED:	4/0715
28 DAY DESIGN STRENGTH (psi)	3000

COMPRESSIVE STRENGTH OF CONCRETE SPECIMENS (ASTM C-39)								
Specimen No.	Specimen Diameter (in)	Specimen Area	Date Tested	Age Days	Total Load (lbs)	Compressive Strength (psi)	28-Day Design Strength	Type Fracture
50403-01	4.00	12.57	4/13/15	7	40780	3240	3000	3
50403-02	4.00	12.57	5/04/15	28	52560	4180	3000	3
50403-03	4.00	12.57	5/04/15	28	52380	4170	3000	3
50403-04	4.00	12.57	5/04/15	28	52810	4200	3000	3

Concrete Temperature: 73°F
Ambient Temperature: 65°F
Water Added: 8 Gal

*All Calculations Based on Delivery Ticket Information

Respectfully Submitted:

GEO-TEST, INC.


David Olsen, Supervising Laboratory Tech

cc: rpino@facilitybuild.com
lcamos@facilitybuild.com

TB/cb

GEO-TEST, INC.
3204 RICHARDS LANE
SANTA FE,
NEW MEXICO
87507
(505) 471-1101
FAX (505) 471-2245

8528 CALLE ALAMEDA
ALBUQUERQUE,
NEW MEXICO
87113
(505) 857-0933
FAX (505) 857-0803

2805-A LAS VEGAS CT
LAS CRUCES,
NEW MEXICO
76007
(505) 526-6260
FAX (505) 526-1660

April 14, 2015

**Facility Build
5904 Florence Road NE
Albuquerque, NM 87113**
Job No.:3-50403
REPORT OF CONCRETE SPECIMENS

PROJECT:	City Yard at Mcknight and Commercial
LOCATION OF SAMPLE:	Footings
SLUMP(ASTM C-143):	2.5"
ENTRAINED AIR (ASTM C-231, TYPE B)	4.5%
YIELD (CU.YDS.):	Batched: 10.0 Calc: 9.9
WATER/CEMENT RATIO:*	.43
UNIT WEIGHT:(ASTM C-138)	140.9 lbs/ft³
CEMENT FACTOR:*	379.6 lbs/yds³
SUPPLIER:	Duke City, Truck # 0318, Ticket # 409379
CONCRETE CODE:	RGE30AB8V
SAMPLED BY:	Geo-test, Inc
DATE MOLDED:	4/06/15
DELIVERED:	4/07/15
28 DAY DESIGN STRENGTH (psi)	3000

COMPRESSIVE STRENGTH OF CONCRETE SPECIMENS (ASTM C-39)

Specimen No.	Specimen Diameter (in)	Specimen Area	Date Tested	Age Days	Total Load (lbs)	Compressive Strength (psi)	28-Day Design Strength	Type Fracture
50403-01	4.00	12.57	4/13/15	7	40780	3240	3000	3
50403-02	4.00	12.57	5/04/15	28				
50403-03	4.00	12.57	5/04/15	28				
50403-04	4.00	12.57	5/04/15	28				

 Concrete Temperature: 73°F
 Ambient Temperature: 65°F
 Water Added: 8 Gal

*All Calculations Based on Delivery Ticket Information

Respectfully Submitted:

GEO-TEST, INC.


David Olsen, Supervising Laboratory Tech

 cc: rpino@facilitybuild.com
lcamos@facilitybuild.com

TB/cb

 GEO-TEST, INC.
 3204 RICHARDS LANE
 SANTA FE,
 NEW MEXICO
 87507
 (505) 471-1101
 FAX (505) 471-2245

 8528 CALLE ALAMEDA
 ALBUQUERQUE,
 NEW MEXICO
 87113
 (505) 857-0933
 FAX (505) 857-0803

 2805-A LAS VEGAS CT
 LAS CRUCES,
 NEW MEXICO
 76007
 (505) 526-6260
 FAX (505) 526-1660

FB Job # 15-701-2
CIP-Salt Dome Building Phase 2
Submittal #3-Contreras Construction-Concrete



February 11, 2015

Contreras Construction Company
127 General Somerville SE
Albuquerque, New Mexico, 87123

RE: Salt Storage

Vulcan Materials Company proposes the following concrete mix design for the above Project.

Mix ID 1# RC09432 City of Albuquerque, 3000 ¾" Aggregate, AE

(Please order by mix code)

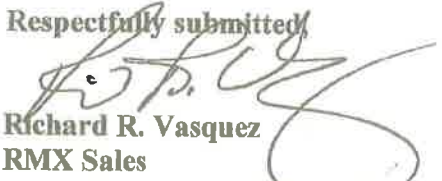
The proposed mix designs will meet the specified strength when handled, placed, and tested in accordance with current ASTM and ACI Standards and Recommended Practices.

We request the inclusion of Vulcan Materials Company on the distribution list for all concrete test cylinders from the selected testing laboratory from the owner or the general contractor, in accordance with ASTM C-94 and ACI 318.

Unless Vulcan Materials Company is notified in writing, we will assume that the proposed mix designs and various parameters presented above are accepted and approved for the referenced project.

We trust this information meets with your approval. If Vulcan Materials Company can be of further assistance please do not hesitate to call the undersigned below.

Respectfully submitted,


Richard R. Vasquez
RMX Sales
1500 N Renaissance Blvd. NE Ste. B
Albuquerque, NM 87107
(505) 328-2383

Enclosures: Mix Designs
Product Information

Vulcan Materials Company
1500 N. Renaissance Blvd NE, Ste B, Albuquerque, NM 87107
Office: (505) 343-7800 Fax: (505) 343-7686

FacilityBUILD

SUBMITTAL REVIEW

- ☒ Approval
- ☐ Approved As Noted
- ☐ Resubmit see comments
- ☐ Rejected

General Contractors review is for general performance with the design concept and contract documents. Markings or comments shall not be construed as relieving the Subcontractor from compliance with the project plans and specifications, nor departure therefrom. The Subcontractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication process, for technique to assembly, and for performing his work in a safe manner.

By:  Date: 3/5/15

CITY OF ALBUQUERQUE

Department of Municipal Development

Michael J. Riordan, P.E., Director



February 19, 2014

LAFARGE North America Inc - Western U.S. Region
1500 N Renaissance Blvd NE
Albuquerque, NM 87107

Attention: Andrew Graham, Sales Manager

Subject: Review and Evaluation of Request for Authorization of a Portland Cement Concrete Design Mixes Submittal, January 21, 2014, WTI Ref. No.: 3244JK027, January 21, 2014, and, Aggregate(s) Sampled January 13, 2014

CODES	DESCRIPTION/APPLICATION	f'_c @
		28 days, psi
RMXC09432.14	Exterior Concrete	3,000
RMXC09433.14	Pavements, and Structures	4,000
RMXC09434.14	Slip Form	3,000
RMXC09435.14	Sanitary Sewer (SAS) Structures	4,000
RMXC09437.14	Hydraulic Structures	3,500
RMXC09433HE.14	High Early Release (@7 days)	4,000

Sir:

NM 87103

www.cabq.gov

The City of Albuquerque Department of Municipal Development Street Maintenance Division has reviewed and evaluated the subject Portland cement concrete design mix submittal for annual authorization for use in 2013-2014. The review and evaluation were conducted to verify compliance with the City of Albuquerque Standard Specifications for Public Works Construction, 1986 Edition, Updates 1-8. Compliance will qualify the submittal for authorization for use on City and City related projects for a period of fourteen (14) months from the date of reference aggregate sampling assuming (1) no change of materials and/or suppliers, (2) the specific design mix(s) complies with a specific contract plans and specifications, and (3) it is produced at a ready mix concrete plant and delivered in transit mix and/or trucks certified to comply with the requirements of SECTION 101, Portland Cement Concrete, of the above specifications. Written certification shall be available at the plant and on the trucks for inspection, and submitted to the ENGINEER, upon request.

The submittal review identified the proposed design mixes proportioned with ASTM C33 Placitas Pit AG3178 #67 coarse, and AG21069 Blended Washed Concrete Sand fine aggregates, GCC Rio Grande, Tijeras, NM Type I-III-A portland cement, Salt River Materials 4 Corners, NM Class F fly ash, Grace Zyla 610, Mid-Range water-reducing admixture, Grace ADVA 195, High-Range water-reducing admixture, and Grace Terapave air entraining admixtures.

The evaluation of the submittal determined it reasonably complied with the specification with any noted edits.

Based on this review and evaluation, the submittal complies with the specification with noted exceptions and edits. Resubmittal is not required. The submittal is authorized for a period of 14 months from the earliest sample date, January 13, 2014, to March 13, 2015, for use on City and City related projects. *Accelerating, retarding, and color admixtures are not authorized for use in the design mixes included in this submittal.*

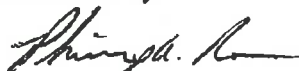
The review and evaluation are only to verify compliance with the design and specification concepts of the City of Albuquerque Standard Specifications for Public Works Construction, 1986 Edition, Updates 1-8. It shall not be construed as relieving the Contractor of the full responsibility of providing materials, equipment, and the work required either by a specific contract or contract plans, and/or specification:

a) the proper fitting and construction of the work; b) accuracy and completeness of the submittal; c) selecting the fabrication and fabrication techniques of construction; and, d) performing the work in a safe manner.

This authorization does not relieve the CONTRACTOR of the responsibility to provide the submittal for use on a specific project for authorization by the ENGINEER. The submittal should include copies of this authorization, and the authorized design mix(es) submittal.

The CONTRACT for a specific project may differ from the standard specifications and this submittal may not comply. It is the responsibility of the CONTRACTOR to provide submittals and materials that comply with project specifications.

Authorized by:



Phillip A. Romo, PE
Pavement & Materials Engineer

Copies: Wilfred A. Gallegos, PE, Deputy Director, Municipal Development
Bryan K. Wolfe, P.E., Planning Department City Engineer
File

Attachment: 1

RECOMMENDED BATCH PORPORTIONS			
For Use in Sections 340, 346, 420,510, 511, 602, 701, 800,& 1500			
Exterior Concrete			
Product	Cubic Yard Weights (lbs)	Specific Gravity(SSD)	Volume (c.f)
Portland Cement	470	3.150	2.391
Fly Ash	157	2.000	1.258
Water	262 (31.5 Gallons)	1.000	4.199
Coarse Aggregate #1	1700	2.594	10.503
Fine Aggregate	1135	2.584	7.039
Batch Weight Total	3724		
Admixtures (ozs.)			
Air Entrainment	9 *		1.620
Water Reducer	25 *		
Total Volume			27.01

Product Sources		Product Properties	
		Specific Gravity	Absorption, %
Cement	Rio Grande Portland(Tijeras)	3.15	
Type	ASTM C 150, Type II		
Fly Ash	Phoenix Cemen(4 Corners)	2.00	
Class	ASTM C 618, Class F		
Coarse Aggregate, #67	ASTM C 33, (Placitas Pit)	2.594	1.0
Fine Aggregate	ASTM C 33, (Placitas Pit)	2.584	0.6
Air Entrainment	ASTM C 260, WR Grace AT-60		
Water Reducer	ASTM 494, WR Grace Zyla 610		

Anticipated Mix Properties			
Target Properties		Specification	
Slump (ASTM C 143), inches	4	4" Maximum	
Air Content (ASTM C 231), %	6.0	4.5% - 7.5%	
Unit Weight (ASTM C 138), lbs./c.f.	137.9		
Cement Content, pound/c.y.	470	470 Minimum	
Water/Cementitious Ratio	0.42	0.45 Maximum	
Compressive Strength, psi (ASTM C 39)		f _c = 3000 psi	
7 day(trial mix data)	3870		
28 day(trial mix data)	4710		

* Adjustments may be required due to variations in temperature and slump





September 8, 2014

**Vulcan Materials
Tijeras Type I-II Low Alkali, Tijeras, New Mexico Plant**

COMPLIANCE AFFIDAVIT

The Type I-II LA, as manufactured by GCC, at the Tijeras, New Mexico facility is warranted to conform at the time of shipment to current ASTM Specification C-150.

No other warranty is made or to be implied.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Mark R. Lukkarila', is written over a horizontal line.

**Mark R. Lukkarila
Technical Services Director
GCC
(720) 934-6049**

600 S. Cherry St., 10th Floor, Glendale, CO 80248 (303) 739-5900

GCC of America
 130 Rampart Way, Ste. 205 Denver, CO 80230
 Sales (800) 738-5900 Customer Service (800) CALL GCC



Plant: Tijeras
 PO Box 100
 Tijeras, NM 87059
 Contact: Jay S. Schreffler/Guillermo Delgado
 Phone: (505) 286-8086/(505) 286-8027

Cement Type: I-III(MH), Low Alkali
 Date: 8-Jan-14
 Production Period: 11/1/13-11/30/13
 Silo: AVERAGE

STANDARD REQUIREMENTS ASTM C 150-11/AASHTO M 85

CHEMICAL		
Item	Spec. Limit	Test Result
SiO ₂ (%)	A	20.3
Al ₂ O ₃ (%)	8.0 max	4.1
Fe ₂ O ₃ (%)	6.0 max	3.1
CaO (%)	A	84.3
MgO (%)	6.0 max	2.2
SO ₃ (%)	3.0 max	2.9
Ignition Loss (%)	3.0 max	2.2
Na ₂ O (%)	A	0.28
K ₂ O (%)	A	0.43
Equivalent Alkalies (%)	B	0.67
Insoluble Residue (%)	0.75 max	0.28
CO ₂ (%)	A	1.0
Limestone (%)	5.0 max	2.8
CaCO ₃ in Limestone (%)	70 min	94
Potential Compounds (%)		
C ₃ S	A	67
C ₂ S	A	7
C ₃ A	8 max	6
C ₄ AF	A	9
C ₃ S + 4.75 C ₃ A	100 max	93

PHYSICAL			
Item		Spec. Limit	Test Result
Air content of mortar (volume %)		12 max	8
Blaine fineness (m ² /kg)		260 min.	407
		430 max.	
Autoclave expansion (%)		0.60 max.	0.03
False set (%)		50 min.	89
Compressive strength (MPa)			MPa psi
1 day, Minimum MPa (psi)		A	18 2580
3 day, Minimum MPa (psi)		12 (1740)	30 4280
7 day, Minimum MPa (psi)		19 (2730)	36 5080
28 day, Minimum MPa (psi)		A	42 6120
Time of setting, Vicat (minutes)			
Initial	Not less than	45	116
Initial	Not more than	375	
PROCESS ADDITION (If Applicable)			
Pozzolan Type:	N/A	Potential Compounds (%)	
SiO ₂ (%)	N/A	C ₃ S	N/A
Al ₂ O ₃ (%)	N/A	C ₂ S	N/A
Fe ₂ O ₃ (%)	N/A	C ₃ A	N/A
CaO (%)	N/A	C ₄ AF	N/A
SO ₃ (%)	N/A		

A Not applicable.

B Limit not specified by purchaser. Test result for information only.

GCC of America Portland Cement is warranted to conform at the time of shipment with ASTM C-150/AASHTO 85. No other warranty is made or implied. Having no control over the use of its cements, GCC of America does not guarantee finished work. GCC is not responsible for any additives not stated in the Certificate of Compliance. GCC of America certifies that the data described above under "Process Addition" represents the materials in the cement manufactured during the production period indicated.

We certify that the above described cement at the time of shipment meets the chemical and physical requirements of ASTM C 150-09 and AASHTO M 85-09.

Signature: Jay Schreffler

Title: Plant Chemist



September 10, 2014

Vulcan Materials
5006 Industrial Park Loop NE
Albuquerque, NM 87124

PRODUCT: Four Corners Class F Fly Ash from Fruitland, New Mexico

This letter serves as certification that all **Four Corners Class F Fly Ash** (pozzolan) sold by Salt River Materials Group - Phoenix Cement Company to Vulcan Materials meets the requirements of the latest revision of ASTM Specification C618 for Class F Fly Ash (pozzolan).

We appreciate your interest in our product. If we can provide additional information or technical assistance, please contact us.

Respectfully,

A handwritten signature in cursive script that reads "Jeff Hearne".

Jeff Hearne
Director of Quality Assurance



Lafarge North America Inc.
PO Box 94420
Albuquerque, NM 87199-4420

PHOENIX CEMENT

Product: ASTM C618 Class F, Four Corners Fly Ash
AASHTO M295

2-26-14 POZZOLAN TEST REPORT Clt#: 86531

Lot: 6299 **Results** **Specifications**

Chemical Analysis (C311 / C114 / D4326)

Silicon Dioxide, SiO ₂	59.29 %	---	
Aluminum Oxide, Al ₂ O ₃	23.25 %	---	
Ferric Oxide, Fe ₂ O ₃	4.83 %	---	
SiO ₂ + Al ₂ O ₃ + Fe ₂ O ₃	87.37 %	70.00	Min
Calcium Oxide, CaO	2.04 %	---	
Magnesium Oxide, MgO	1.42 %	---	
Sulfur Trioxide, SO ₃	0.17 %	5.00	Max
Moisture Content	0.04 %	3.00	Max
Loss on Ignition	0.38 %	5.00	Max
Available Alkalis as Na ₂ O Equivalent	0.34 %	---	
Total Alkalis (%Na ₂ O + 0.658% K ₂ O)	1.88 %	---	
R Factor (%CaO -5) / (%FeO)	-0.61 %	---	

Physical Analysis

Fineness, amount retained on #325 sieve, % (C430)	23.10	34.00	Max
variation, points from average	1.34	5.00	Max
Density, g/cm ³ (C188)	1.96	---	
Variation from average, %	0.02	5.00	Max
Strength Activity Index with Portland Cement (C311 / C109)	78.39	---	
at 7 days, % of cement control	81.93	75.00	Min
at 28 days, % of cement control			
Water Requirement (C311)	96.69	105.00	Max
% of cement control			
Soundness, autoclave expansion (C311 / C151) or contraction, %	-0.03	0.80	Max

All tests have been made in strict accordance with the current standards of the American Society for Testing and Materials covering the type of material specified.

Lee Gorby
Lee Gorby, Quality Assurance Manager
01 MAY 2014



Clarkdale Cement Plant
601 N. Cement Plant Rd
Clarkdale, AZ 86324
Phone: 928-634-2261
Fax: 928-634-3543

19th Ave. Terminal
1802 W. Lower Buckeye Rd
Phoenix, AZ 85007
Phone: 602-253-9149
Fax: 602-253-9160

Lower Buckeye Terminal
1941 W. Lower Buckeye Rd
Phoenix, AZ 85007
Phone: 602-258-7798
Fax: 602-525-3362

21st Ave. Terminal
1325 N. 21st Ave.
Phoenix, AZ 85009
Phone: 602-254-3824
Fax: 602-254-3825

54th Ave. Terminal
5402 W. Buchanan St.
Phoenix, AZ 85043

Dobson Storage
9595 E. McKellips Rd.
Scottsdale, AZ 85250
Phone: 480-990-7847

Cholla Fly Ash Plant
4801 Frontage Rd.
Joseph City, AZ 86032
Phone: 928-288-1661
Fax: 928-288-1663

Four Corners Fly Ash Plant
End of County Road 6675
Fruitland, NM 87416
Phone: 505-598-8657
Fax: 505-598-8633

San Juan Fly Ash Plant
End of County Road 6800
Waterflow, NM 87421
Phone: 505-598-7546
Fax: 505-598-7547

Escalante Fly Ash Plant
County Road 19
Prewitt, NM 87405
Phone: 505-285-4590
Fax: 505-285-4667

Gallup Transfer Terminal
900 N 9th St.
Gallup, NM 87301



Product Quality Assurance Department
3700 Singer, Suite C Albuquerque, NM 87109

REPORT of AGGREGATE PHYSICAL PROPERTIES

Material: 3/4" Crushed, Size 67 Blend
Period: 07/07/14 - 07/07/15
Source Pit: Placitas
Product Code: 26062
Agency Specification: ASTM C 33 & D 448, Size # 67

Project No: 14001
Lab No.: A1403-0069
Sample Date: 07-Jul-14
Report Date: 27-Aug-14
Reviewed by: *[Signature]*

Product Description: Crushed, washed, graded, coarse aggregate.

SIEVE ANALYSIS			TEST RESULTS				
ASTM C136		C 33 & D 448	Standard	PHYSICAL PROPERTIES	Results	Specification	Lab of Record
Sieve Size	Accum. % Passing	Specifications	ASTM C 29	Unit Weight & Voids	Unit Weight, lbs./cu.ft.= Voids, %= Rodded	97.6 38.4	Lafarge 07-Jul-14
450 mm (18")			ASTM C 127	Coarse Specific Gravity & Absorption	Bulk Specific Gravity (dry)=	2.545	Lafarge 07-Jul-14
375 mm (15")					Bulk Specific Gravity, SSD=	2.581	
300 mm (12")					Apparent Specific Gravity=	2.639	
250 mm (10")					Absorption, %=	1.4	
225 mm (9")							
200 mm (8")			ASTM C 128	Fine Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
150 mm (6")					Bulk Specific Gravity, SSD=		
125 mm (5")			ASTM D 2419	Sand Equivalent	Apparent Specific Gravity=		
100 mm (4")					Absorption, %=		
75.0 mm (3")			ASTM D 4791	Flat & Elongated	Sand Equivalent, %=		Lafarge 07-Jul-14
63.0 mm (2-1/2")							
50.0 mm (2")			ASTM C 131	L. A. Abrasion	Flat & Elongated, %= Ratio=	5 3:1	Lafarge 07-Jul-14
37.5 mm (1-1/2")							
25.0 mm (1")	100	100	ASTM C 535	L. A. Abrasion	Small Coarse Loss, %= Grading/ Revs.=	23 B / 500	Lafarge 07-Jul-14
19.0 mm (3/4")	89	90-100					
12.5 mm (1/2")	42		ASTM C 88	Soundness	Large Coarse Loss, %= Grading/ Revs.=		
9.5 mm (3/8")	20	20-55					
6.3 mm (1/4")							
4.75 mm (No. 4)	3	0-10	ASTM C 142	Clay/Friable Particles	Coarse Soundness Loss, %= Magnesium No. of Cycles=	5.6 5	Lafarge 07-Jul-14
2.35 mm (No. 8)	2	0-5			Fine Soundness Loss, %= Magnesium No. of Cycles=		
2.00 mm (No. 10)			AASHTO TP58-99	Micro-Deval			
1.18 mm (No. 16)					% Loss: Grading:		
0.600 mm (No. 30)			ASTM C 123	Lightweight Pieces	Coarse Aggregate, %= Fine Aggregate, %=	0.0 max 2.0	Lafarge 07-Jul-14
0.425 mm (No. 40)							
0.300 mm (No. 50)			ASTM D 1557	NMDOT Aggregate Index	Coarse Aggregate, %= Fine Aggregate, %=	0.1 max. 0.5	Lafarge 07-Jul-14
0.180 mm (No. 80)							
0.150 mm (No. 100)			ASTM D 4318	Compaction Modified Effort	Coarse Aggregate, %= Optimum Moisture, %= Max. Density, lbs./cu.ft.=	11.6 max. 25	Lafarge 07-Jul-14
0.075 mm (No. 200)	1.3						
ASTM C117			ASTM D 1557	Liquid Limit, Plastic Limit & Plasticity Index	Optimum Moisture, %= Max. Density, lbs./cu.ft.=		
Moisture Content, %							
ASTM C568			ASTM D 1557	Compaction Modified Effort	Optimum Moisture, %= Max. Density, lbs./cu.ft.=		
Fractured Face, %	54	50 min					
2 faces			ASTM D 1557	Compaction Modified Effort	Optimum Moisture, %= Max. Density, lbs./cu.ft.=		
Fineness Modulus (FM)							



Product Quality Assurance Department
3700 Singer, Suite C Albuquerque, NM 87109

REPORT of AGGREGATE PHYSICAL PROPERTIES

Material: Washed Concrete Sand
Period: 07/07/14 - 07/07/15
Source Pit: Placitas
Product Code: 31822
Agency Specification: ASTM C33, Fine Aggregate
Product Description: Natural, washed, graded, fine aggregate.

Project No: 14001
Lab No: A1403-0061
Sample Date: 07-Jul-14
Report Date: 18-Aug-14
Reviewed by: *[Signature]*

SIEVE ANALYSIS			TEST RESULTS				
ASTM C136	ASTM C33		Standard	PHYSICAL PROPERTIES	Results	Specification	Lab of Record
Sieve Size	Accum. % Passing	Specifications					
450 mm (18")			ASTM C 29	Unit Weight & Voids	Unit Weight, lbs./cu.ft.=	102.6	Lafarge 07-Jul-14
375 mm (15")					Voids, %=	35.8	
300 mm (12")					Rodded		
250 mm (10")			ASTM C 127	Coarse Specific Gravity & Absorption	Bulk Specific Gravity (dry)=		
225 mm (9")					Bulk Specific Gravity, SSD=		
200 mm (8")					Apparent Specific Gravity=		
150 mm (6")			ASTM C 128	Fine Specific Gravity & Absorption	Absorption, %=		Lafarge 07-Jul-14
125 mm (5")					Bulk Specific Gravity (dry)=	2.565	
100 mm (4")					Bulk Specific Gravity, SSD=	2.593	
75.0 mm (3")			ASTM D 2419	Sand Equivalent	Apparent Specific Gravity=	2.611	Lafarge 07-Jul-14
63.0 mm (2-1/2")					Absorption, %=	0.7	
50.0 mm (2")					Sand Equivalent, %=	84	
37.5 mm (1-1/2")			ASTM D 4791	Flat & Elongated			Lafarge 07-Jul-14
25.0 mm (1")					Flat & Elongated, %=		
19.0 mm (3/4")					Ratio=		
12.5 mm (1/2")			ASTM C 131	L. A. Abrasion	Small Coarse Loss, %=		
9.5 mm (3/8")	100	100			Grading/ Rvs.=		
6.3 mm (1/4")							
4.75mm (No. 4)	98	95-100	ASTM C 837	Methylene Blue	Methylene Blue Value mg/g =	2.0	Lafarge 05-Aug-14
2.36 mm (No. 8)	81	80-100					
2.00 mm (No. 10)							
1.18mm (No.16)	66	50-85	ASTM C 88	Soundness	Coarse Soundness Loss, %=		Lafarge 07-Jul-14
0.600 mm (No.30)	49	25-60			Magnesium No. of Cycles=		
0.425mm (No. 40)					Fine Soundness Loss, %=	7.5	
0.300mm (No. 50)	21	5-30	ASTM C 142	Clay/Friable Particles	Magnesium No. of Cycles=	5	Lafarge 07-Jul-14
0.180mm (No. 80)					Coarse Aggregate, %=		
0.150mm (No.100)	6	0-10			Fine Aggregate, %=	0.8	
0.075mm (No. 200)	1.7	0-3	ASTM C 40	Organic Impurities		max. 3.0	Lafarge 07-Jul-14
ASTM C117			ASTM C 123	Lightweight Pieces	Fine Aggregate, %=	LTS	Lafarge 07-Jul-14
Moisture Content, %					Coarse Aggregate, %=		
ASTM C555					Fine Aggregate, %=	0.2	
Fractured Face, %			ASTM C 1252	Fine Aggregate Angularity	Uncompacted Voids, %=	max. 0.5	Lafarge 07-Jul-14
2 faces					Method A		
Finesness Modulus (FM)	2.79		ASTM D 1557	Compaction Modified Effort	Optimum Moisture, %=		Lafarge 07-Jul-14
ASTM C136					Max. Density, lbs./cu.ft.=		
			ASTM D 4318	Liquid Limit, Plastic Limit & Plasticity Index	Liquid Limit=	NV	Lafarge 07-Jul-14
					Plastic Limit=	NV	
					Plasticity Index=	NP	

Note:



W.R. Grace
62 Whittemore Avenue
Cambridge, MA 02140-1692
T 617-876-1400
grace.com/construction

Date: 9/5/2014

Roy Ballard
Vulcan Materials Company
1500 N. Renaissance Blvd. NE
Albuquerque, NEW MEXICO 87107

Project Name: Various
Product Selected: Daravair® AT60

This is to certify that **Daravair AT60**, a **Air Entraining Agent**, as manufactured and supplied by Grace Construction Products, W.R. Grace & Co. - Conn., is formulated to comply with the Specifications for Chemical Admixtures for Concrete, ASTM: **C260**; AASHTO: **M154**.

Daravair AT60 does not contain calcium chloride or chloride containing compounds as a functional ingredient. Chloride ions may be present in trace amounts contributed from the process water used in manufacturing.

The foregoing is in addition to and not in substitution for our standard Conditions of Sale attached.

A handwritten signature in cursive script, reading "G. Terry Harris".

G. Terry Harris
Manager of Technical Services, North America Concrete



W.R. Grace
62 Whittemore Avenue
Cambridge, MA 02140-1692
T 617-876-1400
grace.com/construction

Date: 9/5/2014

Roy Ballard
Vulcan Materials Company
1500 N. Renaissance Blvd. NE
Albuquerque, NEW MEXICO 87107

Project Name: Various
Product Selected: ZYLA® 610

This is to certify that **ZYLA 610**, a **Water Reducer**, as manufactured and supplied by Grace Construction Products, W.R. Grace & Co. - Conn., is formulated to comply with the Specifications for Chemical Admixtures for Concrete, ASTM: **C494, Type A, D, AASHTO: M194, Type A, D.**

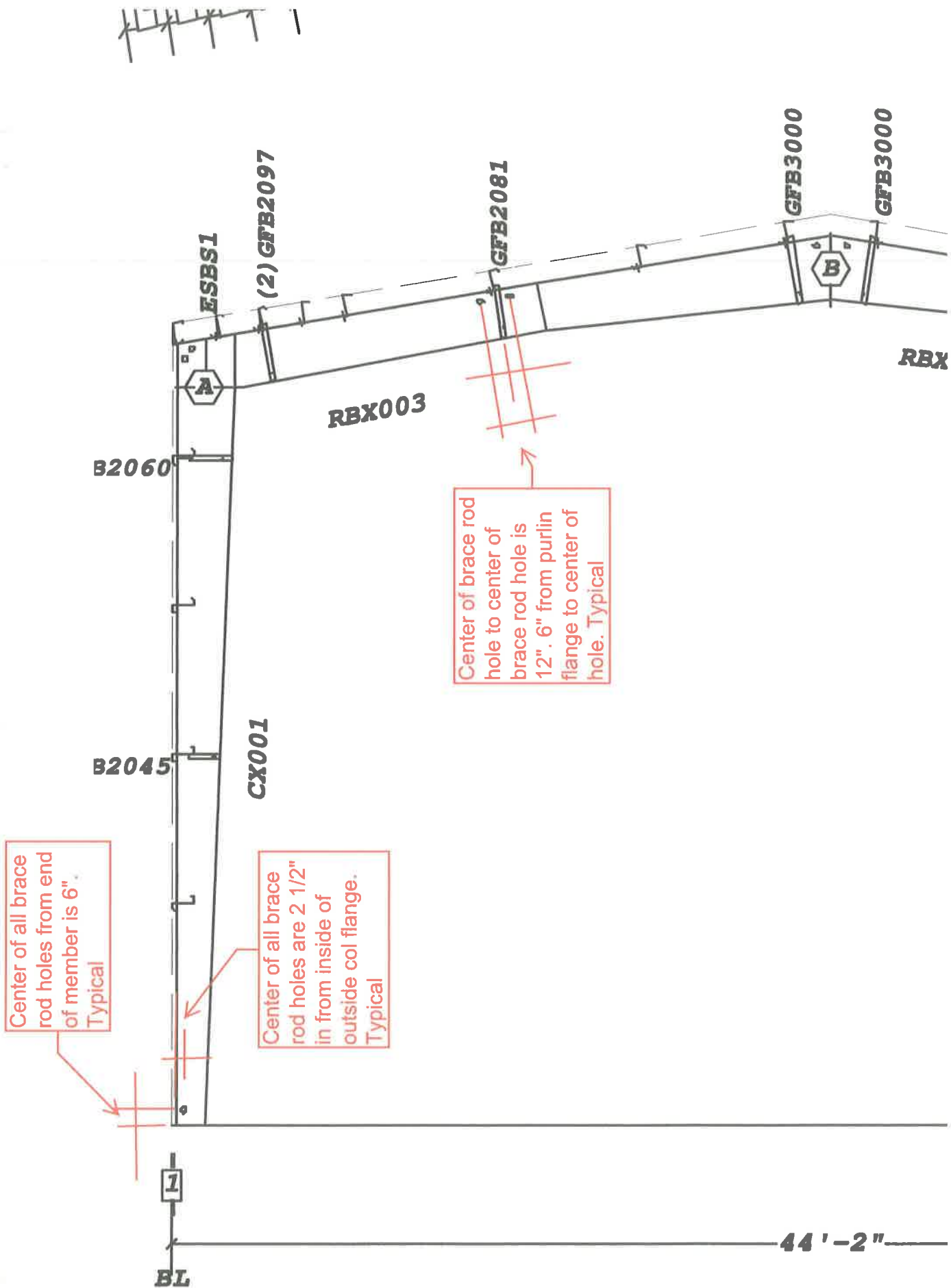
ZYLA 610 does not contain calcium chloride or chloride containing compounds as a functional ingredient. Chloride ions may be present in trace amounts contributed from the process water used in manufacturing.

The foregoing is in addition to and not in substitution for our standard Conditions of Sale attached.

A handwritten signature in cursive script, reading "G. Terry Harris".

G. Terry Harris
Manager of Technical Services, North America Concrete

Metal Building



FRAME CROSS SECTION AT F



VP Buildings

3200 Players Club Circle
Memphis, TN 38125-8843

STRUCTURAL DESIGN DATA

Project: Facility Build COA Salt Storage

Name: FT Fac Bld COA Salt

Builder PO #:

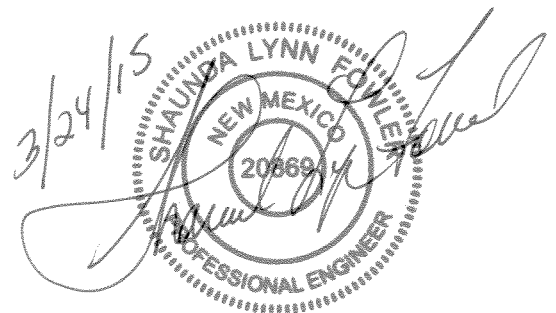
Jobsite: 1815 Broadway Blvd. NE

City, State: Albuquerque, New Mexico 87102

County: Bernalillo

Country: United States

TABLE OF CONTENTS





15-004329-01 Reactions Package

Date: 3/18/2015

Time: 05:34 PM

Page: 2 of 10

Letter of Certification

Contact: Chris Teague
Name: GarVin Const Inc
Address: 504 EL Paraiso NE

City, State: Albuquerque, New Mexico 87113
Country: United States

Project: Facility Build COA Salt Storage
Builder PO #:
Jobsite: 1815 Broadway Blvd. NE

City, State: Albuquerque, New Mexico 87102
County, Country: Bernalillo, United States

This is to certify that the above referenced project has been designed in accordance with the applicable portions of the Building Code specified below. All loading and building design criteria shown below have been specified by contract and applied in accordance with the building code.

Overall Building Description

Shape	Overall Width	Overall Length	Floor Area (sq. ft.)	Wall Area (sq. ft.)	Roof Area (sq. ft.)	Max. Eave Height	Min. Eave Height 2	Max. Roof Pitch	Min. Roof Pitch	Peak Height
Salt Storage	44/8/0	44/2/0	1973	4963	2000	27/0/0	27/0/0	2.000:12	2.000:12	30/8/11

Loads and Codes - Shape: Salt Storage

City: Albuquerque County: Bernalillo
Building Code: 2009 New Mexico Commercial Building Code
Based on Building Code: 2009 International Building Code
Building Risk/Occupancy Category: I (Low Hazard: Ag, Storage, Temp)

State: New Mexico Country: United States
Built Up: 05AISC - ASD Rainfall: 4.00 inches per hour
Cold Form: 07AISI - ASD 3000.00 psi Concrete

Dead and Collateral Loads

Collateral Gravity: 3.00 psf
Collateral Uplift: 0.00 psf

Roof Covering + Second. Dead Load: 2.11 psf
Frame Weight (assumed for seismic): 2.50 psf

Roof Live Load

Roof Live Load: 20.00 psf Not Reducible

Wind Load

Wind Speed: 90.00 mph
The 'Low Rise' Method is Used
Wind Exposure (Factor): C (0.961)
Parts Wind Exposure Factor: 0.961
Wind Enclosure: Enclosed
Wind Importance Factor: 0.870
Topographic Factor: 1.0000

Snow Load

Ground Snow Load: 20.00 psf
Flat Roof Snow: 12.10 psf
Design Snow (Sloped): 12.10 psf
Rain Surcharge: 0.00
Specified Minimum Roof Snow: 20.00 psf (USR)
Exposure Category (Factor): 1 Fully Exposed (0.90)
Snow Importance: 0.800
Thermal Category (Factor): Unheated (1.20)
Ground / Roof Conversion: 0.70
% Snow Used in Seismic: 0.00
Seismic Snow Load: 0.00 psf
Unobstructed, Slippery

Seismic Load

Mapped Spectral Response - Ss: 56.40 %g
Mapped Spectral Response - S1: 17.00 %g
Seismic Design Category: D
Seismic Importance: 1.000
Framing Fundamental Period: 0.3911
Bracing Fundamental Period: 0.2369
Framing R-Factor: 3.5000
Bracing R-Factor: 3.2500
Soil Profile Type: Stiff soil (D, 4)
Diaphragm Condition: Flexible
Frame Redundancy Factor: 1.3000
Brace Redundancy Factor: 1.3000
Frame Seismic Factor (Cs): 0.1449 x W
Brace Seismic Factor (Cs): 0.1560 x W
Design Spectral Response - Sd1: 0.2403
Design Spectral Response - Sds: 0.5071

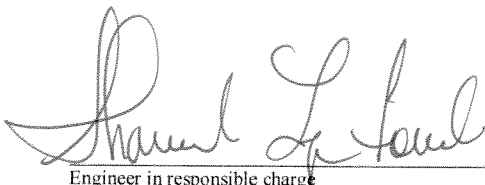
NOT Windborne Debris Region
Base Elevation: 0/0/0
Primary Zone Strip Width: 8/10/0
Parts / Portions Zone Strip Width: 4/5/0
Basic Wind Pressure: 14.73 psf

Building design loads and governing building code is provided by the Builder and is not validated by Varco Pruden Buildings, a division of BlueScope Buildings North America, Inc. The Builder is responsible for contacting the local Building Official or project Design Professional to obtain all code and loading information for this specific building site.

The design of this building is in accordance with Varco Pruden Buildings, a division of BlueScope Buildings North America, Inc. design practices which have been established based upon pertinent procedures and recommendations of the Standards listed in the Building Code or later editions.

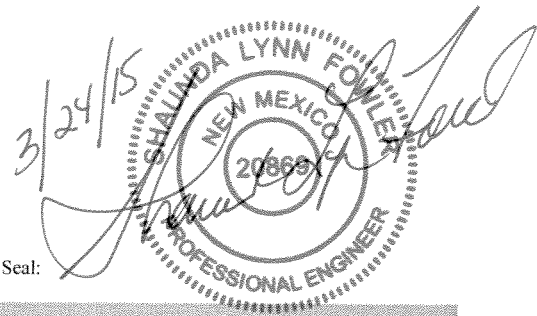
This certification DOES NOT apply to the design of the foundation or other on-site structures or components not supplied by Varco Pruden Buildings, a division of BlueScope Buildings North America, Inc., nor does it apply to unauthorized modifications to building components. Furthermore, it is understood that certification is based upon the premise that all components will be erected or constructed in strict compliance with pertinent documents for this project. Varco Pruden Buildings, a division of BlueScope Buildings North America, Inc. DOES NOT provide general review of erection during or after building construction unless specifically agreed to in the contract documents.

The undersigned engineer in responsible charge certifies that this building has been designed in accordance with the contract documents as indicated in this letter.


Engineer in responsible charge

Date: 3/24/15

Engineer's Seal:





15-004329-01 Reactions Package

Date: 3/18/2015

Time: 05:34 PM

Page: 3 of 10

Reactions - Summary Report w/Controlling Load Comb

Shape: Salt Storage

Builder Contact: Chris Teague
Name: GarVin Const Inc
Address: 504 EL Paraiso NE

Project: Facility Build COA Salt Storage
Builder PO #:
Jobsite: 1815 Broadway Blvd. NE

City, State Zip: Albuquerque, New Mexico 87113
Country: United States

City, State Zip: Albuquerque, New Mexico 87102
County, Country: Bernalillo, United States

Loads and Codes - Shape: Salt Storage

City: Albuquerque County: Bernalillo
Building Code: 2009 New Mexico Commercial Building Code
Based on Building Code: 2009 International Building Code
Building Risk/Occupancy Category: I (Low Hazard: Ag, Storage, Temp)

State: New Mexico
Built Up: 05AISC - ASD
Cold Form: 07AISI - ASD

Country: United States
Rainfall: 4.00 inches per hour
3000.00 psi Concrete

Dead and Collateral Loads

Collateral Gravity: 3.00 psf
Collateral Uplift: 0.00 psf

Roof Covering + Second. Dead Load: 2.11 psf
Frame Weight (assumed for seismic): 2.50 psf

Roof Live Load

Roof Live Load: 20.00 psf Not Reducible

Wind Load

Wind Speed: 90.00 mph
The 'Low Rise' Method is Used
Wind Exposure (Factor): C (0.961)
Parts Wind Exposure Factor: 0.961
Wind Enclosure: Enclosed
Wind Importance Factor: 0.870
Topographic Factor: 1.0000

NOT Windborne Debris Region
Base Elevation: 0/0/0
Primary Zone Strip Width: 8/10/0
Parts / Portions Zone Strip Width: 4/5/0
Basic Wind Pressure: 14.73 psf

Snow Load

Ground Snow Load: 20.00 psf
Flat Roof Snow: 12.10 psf
Design Snow (Sloped): 12.10 psf
Rain Surcharge: 0.00
Specified Minimum Roof Snow: 20.00 psf (USR)
Exposure Category (Factor): 1 Fully Exposed (0.90)
Snow Importance: 0.800
Thermal Category (Factor): Unheated (1.20)
Ground / Roof Conversion: 0.70
% Snow Used in Seismic: 0.00
Seismic Snow Load: 0.00 psf
Unobstructed, Slippery

Seismic Load

Mapped Spectral Response - Ss: 56.40 %g
Mapped Spectral Response - S1: 17.00 %g
Seismic Design Category: D
Seismic Importance: 1.000
Framing Fundamental Period: 0.3911
Bracing Fundamental Period: 0.2369
Framing R-Factor: 3.5000
Bracing R-Factor: 3.2500
Soil Profile Type: Stiff soil (D, 4)
Diaphragm Condition: Flexible
Frame Redundancy Factor: 1.3000
Brace Redundancy Factor: 1.3000
Frame Seismic Factor (Cs): 0.1449 x W
Brace Seismic Factor (Cs): 0.1560 x W
Design Spectral Response - Sd1: 0.2403
Design Spectral Response - Sds: 0.5071



15-004329-01 Reactions Package

Date: 3/18/2015

Time: 05:34 PM

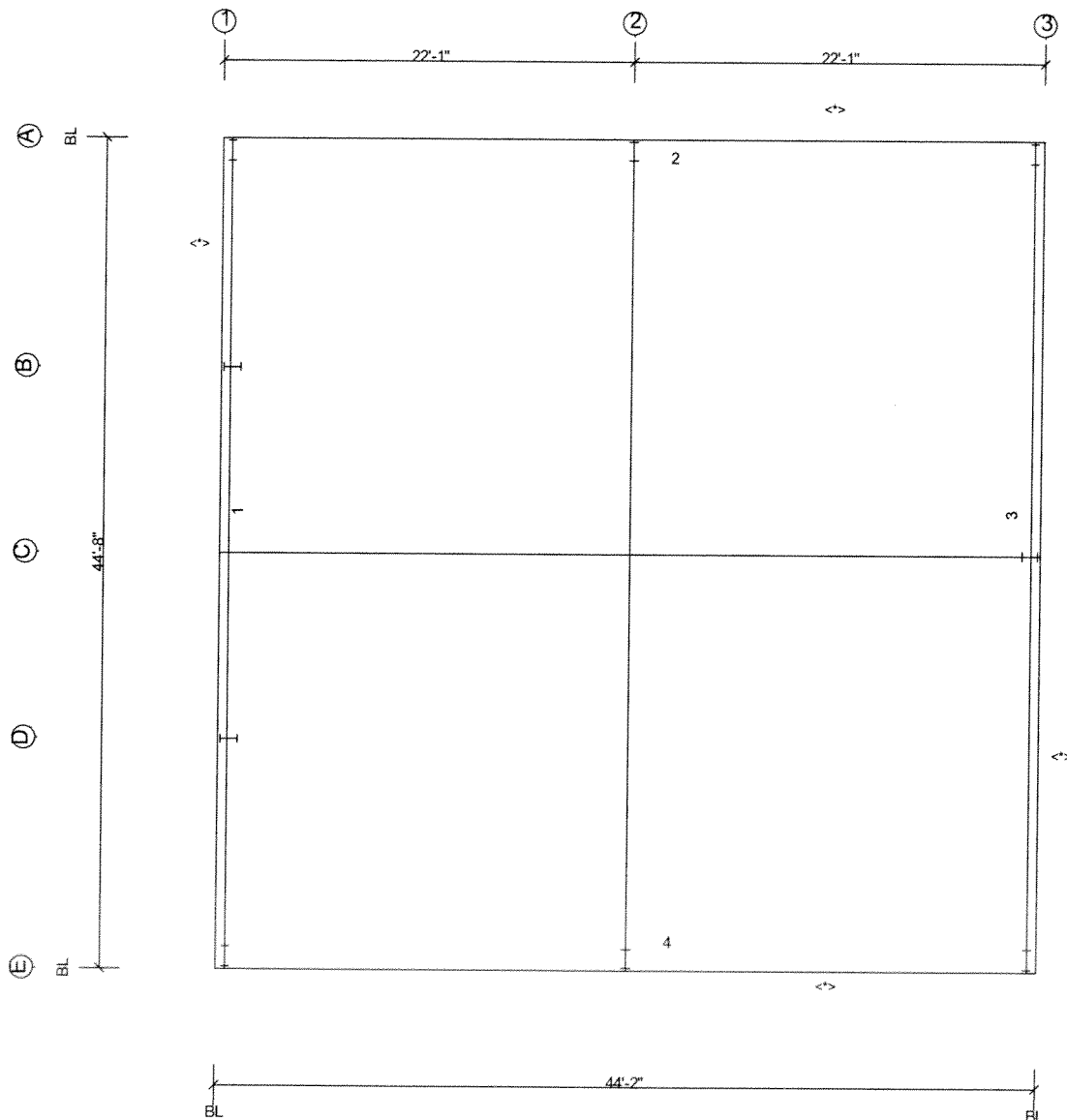
Page: 4 of 10

Overall Building Description

Shape	Overall Width	Overall Length	Floor Area (sq. ft.)	Wall Area (sq. ft.)	Roof Area (sq. ft.)	Max. Eave Height	Min. Eave Height 2	Max. Roof Pitch	Min. Roof Pitch	Peak Height
Salt Storage	44/8/0	44/2/0	1973	4963	2000	27/0/0	27/0/0	2,000:12	2,000:12	30/8/11

Overall Shape Description

Roof 1	Roof 2	From Grid	To Grid	Width	Length	Eave Ht.	Eave Ht. 2	Pitch	Pitch 2	Dist. to Ridge	Peak Height
A	B	1-A	1-E	44/8/0	44/2/0	27/0/0	27/0/0	2,000:12	2,000:12	22/4/0	30/8/11



<*> The building is designed with bracing diagonals in the designated bays. Column base reactions, base plates and anchor rods are affected by this bracing and diagonals may not be relocated without consulting the building supplier's engineer.



15-004329-01 Reactions Package

Date: 3/18/2015

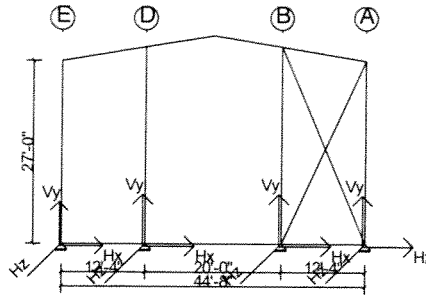
Time: 05:34 PM

Page: 5 of 10

Wall: 4, Frame at: 0/6/0

Frame ID: PandB front

Frame Type: Post & Beam



Values shown are resisting forces of the foundation.

Base Connection Design is Based on 3000.00 (psi) Concrete

Reactions - Unfactored Load Type at Frame Cross Section: 1

Type			Exterior Column		Interior Column		Interior Column		Exterior Column	
X-Loc			0/0/0		12/4/0		32/4/0		44/8/0	
Grid1 - Grid2			1-E		1-D		1-B		1-A	
Base Plate W x L (in.)			8 X 14		8 X 12		8 X 12		8 X 14	
Base Plate Thickness (in.)			0.375		0.375		0.375		0.375	
Anchor Rod Qty/Diam. (in.)			4 - 0.750		4 - 0.750		4 - 0.750		4 - 0.750	
Column Base Elev.			100'-0"		100'-0"		100'-0"		100'-0"	
Load Type	Load Description	Desc.	Hx	Vy	Hx	Vy	Hx	Vy	Hx	Vy
D	Material Dead Weight	Frm	-	0.40	-	0.97	-	0.97	-	0.40
CG	Collateral Load for Gravity Cases	Frm	-	0.14	-	0.62	-	0.62	-	0.14
L>	Live - Notional Right	Frm	-	0.92	-	4.13	-	4.13	-	0.92
<L	Live - Notional Left	Frm	-	0.92	-	4.13	-	4.13	-	0.92
SMS>	Specified Min. Roof Snow - Notional Right	Frm	-	0.92	-	4.13	-	4.13	-	0.92
<SMS	Specified Min. Roof Snow - Notional Left	Frm	-	0.92	-	4.13	-	4.13	-	0.92
US1*	Unbalanced Snow Load 1, Shifted Right	Frm	-	0.02	-	1.31	-	3.19	-	0.48
*US1	Unbalanced Snow Load 1, Shifted Left	Frm	-	0.48	-	3.19	-	1.31	-	0.02
W1>	Wind Load, Case 1, Right	Frm	-1.13	-0.61	-	3.01	-3.19	-	3.01	-2.47
<W1	Wind Load, Case 1, Left	Frm	1.61	-0.81	-	-2.71	-2.47	-	-2.71	-3.19
W2>	Wind Load, Case 2, Right	Frm	-1.91	-0.18	-	-2.28	-	-	-1.56	-0.83
<W2	Wind Load, Case 2, Left	Frm	0.83	-0.38	-	-1.56	-	-	-2.28	1.91
CU	Collateral Load for Wind Cases	Frm	-	-	-	-	-	-	-	-
L	Roof Live Load	Frm	-	0.92	-	4.13	-	4.13	-	0.92
S	Snow Load	Frm	-	0.56	-	2.50	-	2.50	-	0.56
WPA1	Wind Parallel - Ref A, Case 1	Brc	1.36	-1.27	-	-2.51	-2.02	-	-7.00	-1.36
WPD1	Wind Parallel - Ref D, Case 1	Brc	1.36	-0.84	-	-1.44	-	-	3.48	0.54
WPA2	Wind Parallel - Ref A, Case 2	Brc	0.58	-0.85	-	-1.60	-2.02	-	-6.13	-0.58
WPD2	Wind Parallel - Ref D, Case 2	Brc	0.58	-0.42	-	-0.53	-	-	4.44	1.32
WPB1	Wind Parallel - Ref B, Case 1	Brc	1.36	-0.93	-	-2.24	-2.02	-	-7.27	-1.36
WPC1	Wind Parallel - Ref C, Case 1	Brc	1.36	-0.70	-	-1.33	-	-	3.37	0.54
WPB2	Wind Parallel - Ref B, Case 2	Brc	0.58	-0.51	-	-1.33	-2.02	-	-6.40	-0.58
WPC2	Wind Parallel - Ref C, Case 2	Brc	0.58	-0.27	-	-0.42	-	-	4.33	1.32
SMS	Specified Min. Roof Snow	Frm	-	0.92	-	4.13	-	4.13	-	0.92



15-004329-01 Reactions Package

Date: 3/18/2015

Time: 05:34 PM

Page: 6 of 10

Maximum Combined Reactions Summary with Factored Loads - Framing

Note: All reactions are based on 1st order structural analysis.

Appropriate Load Factors must be applied for design of foundations.

X-Loc	Grid	Hz left (-Hx) (k)	Load Case	Hz Right (Hx) (k)	Load Case	Hz In (-Hz) (k)	Load Case	Hz Out (Hz) (k)	Load Case	Uplift (-Vy) (k)	Load Case	Vrt Down (Vy) (k)	Load Case	Mom cw (-Mzz) (in-k)	Load Case	Mom ccw (Mzz) (in-k)	Load Case
0/0/0	1-E	1.91	9	1.61	8	-	-	-	-	1.03	24	1.46	1	-	-	-	-
12/4/0	1-D	-	-	-	-	2.71	8	3.01	7	2.61	11	5.72	1	-	-	-	-
32/4/0	1-B	2.01	31	-	-	2.71	8	3.01	7	6.69	40	8.02	37	-	-	-	-
44/8/0	1-A	1.61	7	1.91	10	-	-	-	-	5.42	44	4.78	31	-	-	-	-

Maximum Frame Reactions - Factored Load Cases at Frame Cross Section: 1

Note: All reactions are based on 1st order structural analysis.

X-Loc		0/0/0		12/4/0			32/4/0			44/8/0			
Grid1 - Grid2		1-E		1-D			1-B			1-A			
Ld	Description	Hx	Vy	Hx	Hz	Vy	Hx	Hz	Vy	Hx	Vy		
Cs	(application factor not shown)	(k)	(k)	(k)	(k)	(k)	(k)	(k)	(k)	(k)	(k)		
1	D + CG + L>	-	1.46	-	-	5.72	-	-	5.72	-	1.46	-	-
7	D + CG + W1>	-1.13	-0.07	-	3.01	-1.60	-	3.01	-0.88	-1.61	-0.27	-	-
8	D + CG + <W1	1.61	-0.27	-	-2.71	-0.88	-	-2.71	-1.60	1.13	-0.07	-	-
9	D + CG + W2>	-1.91	0.36	-	-	-0.69	-	-	0.03	-0.83	0.16	-	-
10	D + CG + <W2	0.83	0.16	-	-	0.03	-	-	-0.69	1.91	0.36	-	-
11	D + CU + W1>	-1.13	-0.37	-	3.01	-2.61	-	3.01	-1.89	-1.61	-0.57	-	-
24	D + CU + WPA1	1.36	-1.03	-	-	-1.93	-2.01	-0.01	-6.42	-1.36	4.02	-	-
31	D + CG + WPA2	0.58	-0.31	-	-	-0.01	-2.01	-0.01	-4.54	-0.58	4.78	-	-
37	D + CG + L + WPD2	0.44	0.92	-	-	4.29	-	-	8.02	0.99	-2.62	-	-
40	D + CU + WPB1	1.36	-0.69	-	-	-1.66	-2.01	-0.01	-6.69	-1.36	3.68	-	-
44	D + CU + WPC1	1.36	-0.46	-	-	-0.74	-	-	3.95	0.54	-5.42	-	-

ASD Load Combinations - Framing

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 CG + 1.0 L>	D + CG + L>
7	System	1.000	1.0 D + 1.0 CG + 1.0 W1>	D + CG + W1>
8	System	1.000	1.0 D + 1.0 CG + 1.0 <W1	D + CG + <W1
9	System	1.000	1.0 D + 1.0 CG + 1.0 W2>	D + CG + W2>
10	System	1.000	1.0 D + 1.0 CG + 1.0 <W2	D + CG + <W2
11	System	1.000	0.6 D + 0.6 CU + 1.0 W1>	D + CU + W1>
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
31	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA2	D + CG + WPA2
37	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD2	D + CG + L + WPD2
40	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1
44	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1

Bracing

X-Loc	Grid	Description
32/4/0	1-B	Diagonal bracing at base is attached to column. Reactions ARE included with frame reactions.



15-004329-01 Reactions Package

Date: 3/18/2015

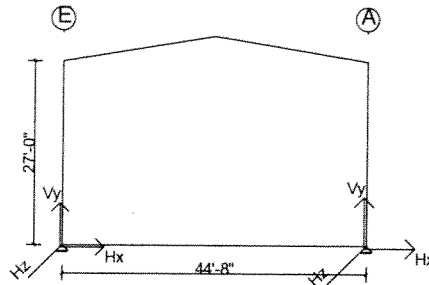
Time: 05:34 PM

Page: 7 of 10

Wall: 4, Frame at: 22/1/0

Frame ID: Rigid Frame

Frame Type: Rigid Frame



Values shown are resisting forces of the foundation.

Base Connection Design is Based on 3000.00 (psi) Concrete

Reactions - Unfactored Load Type at Frame Cross Section: 2

Type X-Loc Grid1 - Grid2 Base Plate W x L (in.) Base Plate Thickness (in.) Anchor Rod Qty/Diam. (in.) Column Base Elev.			Exterior Column 0/0/0 2-E 8 X 13 0.375 4 - 0.750 100'-0"			Exterior Column 44/8/0 2-A 8 X 13 0.375 4 - 0.750 100'-0"				
Load Type	Load Description	Desc.	Hx	Hx	Vy	Hx	Hx	Vy		
D	Material Dead Weight	Frm	0.43	-	2.09	-0.43	-	2.09	-	-
CG	Collateral Load for Gravity Cases	Frm	0.47	-	1.81	-0.47	-	1.81	-	-
L>	Live - Notional Right	Frm	2.50	-	9.64	-2.50	-	9.64	-	-
<L	Live - Notional Left	Frm	2.50	-	9.64	-2.50	-	9.64	-	-
SMS>	Specified Min. Roof Snow - Notional Right	Frm	3.12	-	12.05	-3.12	-	12.05	-	-
<SMS	Specified Min. Roof Snow - Notional Left	Frm	3.12	-	12.05	-3.12	-	12.05	-	-
US1*	Unbalanced Snow Load 1, Shifted Right	Frm	1.69	-	4.39	-1.69	-	7.54	-	-
*US1	Unbalanced Snow Load 1, Shifted Left	Frm	1.69	-	7.54	-1.69	-	4.39	-	-
W1>	Wind Load, Case 1, Right	Frm	-5.25	-	-8.75	-3.33	-	-2.75	-	-
<W1	Wind Load, Case 1, Left	Frm	3.33	-	-2.75	5.25	-	-8.75	-	-
W2>	Wind Load, Case 2, Right	Frm	-6.10	-	-6.19	-2.47	-	-0.19	-	-
<W2	Wind Load, Case 2, Left	Frm	2.47	-	-0.19	6.10	-	-6.19	-	-
CU	Collateral Load for Wind Cases	Frm	-	-	-	-	-	-	-	-
L	Roof Live Load	Frm	2.50	-	9.64	-2.50	-	9.64	-	-
S	Snow Load	Frm	1.89	-	7.29	-1.89	-	7.29	-	-
WPA1	Wind Parallel - Ref A, Case 1	Brc	1.45	-3.73	-10.33	-1.33	-3.45	-9.67	-	-
WPD1	Wind Parallel - Ref D, Case 1	Brc	1.30	-	-0.94	-1.17	-	-0.73	-	-
WPA2	Wind Parallel - Ref A, Case 2	Brc	0.60	-3.73	-7.80	-0.48	-3.44	-7.14	-	-
WPD2	Wind Parallel - Ref D, Case 2	Brc	0.45	-	1.65	-0.32	-	1.85	-	-
WPB1	Wind Parallel - Ref B, Case 1	Brc	1.33	-3.44	-9.60	-1.46	-3.75	-10.41	-	-
WPC1	Wind Parallel - Ref C, Case 1	Brc	1.17	-	-0.75	-1.30	-	-0.92	-	-
WPB2	Wind Parallel - Ref B, Case 2	Brc	0.48	-3.43	-7.06	-0.60	-3.74	-7.88	-	-
WPC2	Wind Parallel - Ref C, Case 2	Brc	0.32	-	1.83	-0.45	-	1.67	-	-
SMS	Specified Min. Roof Snow	Frm	3.12	-	12.05	-3.12	-	12.05	-	-



15-004329-01 Reactions Package

Date: 3/18/2015

Time: 05:34 PM

Page: 8 of 10

Maximum Combined Reactions Summary with Factored Loads - Framing

Note: All reactions are based on 1st order structural analysis.

Appropriate Load Factors must be applied for design of foundations.

X-Loc	Grid	Hrz left (-Hx) (k)	Load Case	Hrz Right (Hx) (k)	Load Case	Hrz In (-Hz) (k)	Load Case	Hrz Out (Hz) (k)	Load Case	Uplift (-Vy) (k)	Load Case	Vrt Down (Vy) (k)	Load Case	Mom cw (-Mzz) (in-k)	Load Case	Mom ccw (Mzz) (in-k)	Load Case
0/0/0	2-E	5.85	13	5.27	16	3.73	23	-	-	9.08	24	15.95	3	-	-	-	-
44/8/0	2-A	5.27	15	5.85	14	3.75	39	-	-	9.15	40	15.95	3	-	-	-	-

Maximum Frame Reactions - Factored Load Cases at Frame Cross Section: 2

Note: All reactions are based on 1st order structural analysis.

X-Loc		0/0/0			44/8/0						
Grid1 - Grid2		2-E			2-A						
Ld	Description	Hx	Hz	Vy	Hx	Hz	Vy				
Cs	(application factor not shown)	(k)	(k)	(k)	(k)	(k)	(k)				
3	D + CG + SMS>	4.02	-	15.95	-4.02	-	15.95	-	-	-	-
13	D + CU + W2>	-5.85	-	-4.93	-2.73	-	1.06	-	-	-	-
14	D + CU + <W2	2.73	-	1.06	5.85	-	-4.93	-	-	-	-
15	D + CG + L + W1>	-1.17	-	4.57	-5.27	-	9.07	-	-	-	-
16	D + CG + L + <W1	5.27	-	9.07	1.17	-	4.57	-	-	-	-
23	D + CG + WPA1	2.35	-3.73	-6.43	-2.23	-3.45	-5.77	-	-	-	-
24	D + CU + WPA1	1.71	-3.73	-9.08	-1.59	-3.45	-8.42	-	-	-	-
39	D + CG + WPB1	2.23	-3.44	-5.70	-2.35	-3.75	-6.51	-	-	-	-
40	D + CU + WPB1	1.59	-3.44	-8.34	-1.71	-3.75	-9.15	-	-	-	-

ASD Load Combinations - Framing

No.	Origin	Factor	Application	Description
3	System	1.000	1.0 D + 1.0 CG + 1.0 SMS>	D + CG + SMS>
13	System	1.000	0.6 D + 0.6 CU + 1.0 W2>	D + CU + W2>
14	System	1.000	0.6 D + 0.6 CU + 1.0 <W2	D + CU + <W2
15	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W1>	D + CG + L + W1>
16	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W1	D + CG + L + <W1
23	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
39	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB1	D + CG + WPB1
40	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1

Bracing

X-Loc	Grid	Description
0/0/0	2-E	Diagonal bracing at base is attached to column. Reactions ARE included with frame reactions.
44/8/0	2-A	Diagonal bracing at base is attached to column. Reactions ARE included with frame reactions.



15-004329-01 Reactions Package

Date: 3/18/2015

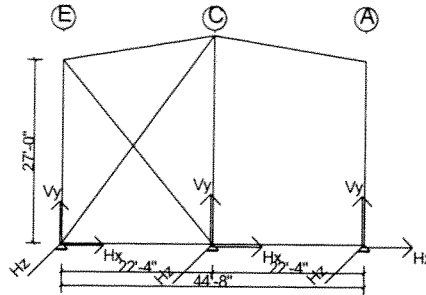
Time: 05:34 PM

Page: 9 of 10

Wall: 4, Frame at: 43/8/0

Frame ID: Post & Beam

Frame Type: Post & Beam



Values shown are resisting forces of the foundation.

Base Connection Design is Based on 3000.00 (psi) Concrete

Reactions - Unfactored Load Type at Frame Cross Section: 3

Type			Exterior Column			Interior Column			Exterior Column		
X-Loc			0/0/0			22/4/0			44/8/0		
Grid1 - Grid2			3-E			3-C			3-A		
Base Plate W x L (in.)			8 X 14			8 X 11			8 X 14		
Base Plate Thickness (in.)			0.375			0.375			0.375		
Anchor Rod Qty/Diam. (in.)			4 - 0.750			4 - 0.750			4 - 0.750		
Column Base Elev.			100'-0"			100'-0"			100'-0"		
Load Type	Load Description	Desc.	Hx	Hz	Vy	Hx	Hz	Vy	Hx	Hz	Vy
D	Material Dead Weight	Frm	-	-	0.57	-	-	1.36	-	-	0.57
CG	Collateral Load for Gravity Cases	Frm	-	-	0.30	-	-	0.92	-	-	0.30
L>	Live - Notional Right	Frm	-	-	1.99	-	-	6.10	-	-	1.99
<L	Live - Notional Left	Frm	-	-	1.99	-	-	6.10	-	-	1.99
SMS>	Specified Min. Roof Snow - Notional Right	Frm	-	-	1.99	-	-	6.10	-	-	1.99
<SMS	Specified Min. Roof Snow - Notional Left	Frm	-	-	1.99	-	-	6.10	-	-	1.99
US1*	Unbalanced Snow Load 1, Shifted Right	Frm	-	-	0.17	-	-	3.34	-	-	1.49
*US1	Unbalanced Snow Load 1, Shifted Left	Frm	-	-	1.49	-	-	3.34	-	-	0.17
W1>	Wind Load, Case 1, Right	Frm	-1.13	-	-1.51	-	4.36	-4.19	-1.60	-	-1.38
<W1	Wind Load, Case 1, Left	Frm	1.60	-	-1.38	-	-3.92	-4.19	1.13	-	-1.51
W2>	Wind Load, Case 2, Right	Frm	-1.90	-	-0.84	-	-	-2.85	-0.83	-	-0.72
<W2	Wind Load, Case 2, Left	Frm	0.83	-	-0.72	-	-	-2.85	1.90	-	-0.84
CU	Collateral Load for Wind Cases	Frm	-	-	-	-	-	-	-	-	-
L	Roof Live Load	Frm	-	-	1.99	-	-	6.10	-	-	1.99
S	Snow Load	Frm	-	-	1.21	-	-	3.69	-	-	1.21
WPA1	Wind Parallel - Ref A, Case 1	Brc	3.42	-	0.85	-	-	0.41	-1.36	-	3.58
WPD1	Wind Parallel - Ref D, Case 1	Brc	1.48	3.73	-4.13	-2.02	-	-6.12	-1.43	3.45	-5.93
WPA2	Wind Parallel - Ref A, Case 2	Brc	2.65	-	1.53	-	-	1.77	-0.58	-	4.28
WPD2	Wind Parallel - Ref D, Case 2	Brc	0.70	3.73	-3.48	-2.02	-	-4.79	-0.65	3.44	-5.29
WPB1	Wind Parallel - Ref B, Case 1	Brc	3.42	-	0.77	-	-	0.41	-1.36	-	3.67
WPC1	Wind Parallel - Ref C, Case 1	Brc	1.47	3.44	-3.40	-2.02	-	-6.12	-1.43	3.75	-6.66
WPB2	Wind Parallel - Ref B, Case 2	Brc	2.65	-	1.45	-	-	1.77	-0.58	-	4.36
WPC2	Wind Parallel - Ref C, Case 2	Brc	0.70	3.43	-2.74	-2.02	-	-4.79	-0.66	3.74	-6.02
SMS	Specified Min. Roof Snow	Frm	-	-	1.99	-	-	6.10	-	-	1.99



15-004329-01 Reactions Package

Date: 3/18/2015

Time: 05:34 PM

Page: 10 of 10

Maximum Combined Reactions Summary with Factored Loads - Framing

Note: All reactions are based on 1st order structural analysis.

Appropriate Load Factors must be applied for design of foundations.

X-Loc	Grid	Hrz left (-Hx) (k)	Load Case	Hrz Right (Hx) (k)	Load Case	Hrz In (-Hz) (k)	Load Case	Hrz Out (Hz) (k)	Load Case	Uplift (-Vy) (k)	Load Case	Vrt Down (Vy) (k)	Load Case	Mom cw (-Mzz) (in-k)	Load Case	Mom ccw (Mzz) (in-k)	Load Case
0/0/0	3-E	1.90	9	3.42	23	-	-	3.73	27	3.79	28	3.51	33	-	-	-	-
22/4/0	3-C	2.01	27	-	-	3.92	8	4.36	7	5.31	28	8.37	1	-	-	-	-
44/8/0	3-A	1.60	7	1.90	10	-	-	3.75	43	6.32	44	5.63	49	-	-	-	-

Maximum Frame Reactions - Factored Load Cases at Frame Cross Section: 3

Note: All reactions are based on 1st order structural analysis.

X-Loc		0/0/0			22/4/0			44/8/0				
Grid1 - Grid2		3-E			3-C			3-A				
Ld	Description	Hx	Hz	Vy	Hx	Hz	Vy	Hx	Hz	Vy		
Cs	(application factor not shown)	(k)	(k)	(k)	(k)	(k)	(k)	(k)	(k)	(k)		
1	D + CG + L>	-	-	2.86	-	-	8.37	-	-	2.86	-	-
7	D + CG + W1>	-1.13	-	-0.64	-	4.36	-1.92	-1.60	-	-0.51	-	-
8	D + CG + <W1	1.60	-	-0.51	-	-3.92	-1.92	1.13	-	-0.64	-	-
9	D + CG + W2>	-1.90	-	0.02	-	-	-0.58	-0.83	-	0.15	-	-
10	D + CG + <W2	0.83	-	0.15	-	-	-0.58	1.90	-	0.02	-	-
23	D + CG + WPA1	3.42	-	1.72	-	-	2.69	-1.36	-	4.45	-	-
27	D + CG + WPD1	1.48	3.73	-3.26	-2.01	-0.01	-3.85	-1.43	3.45	-5.06	-	-
28	D + CU + WPD1	1.48	3.73	-3.79	-2.01	-0.01	-5.31	-1.43	3.45	-5.59	-	-
33	D + CG + L + WPA2	1.99	-	3.51	-	-	8.17	-0.44	-	5.57	-	-
43	D + CG + WPC1	1.47	3.44	-2.53	-2.01	-0.01	-3.85	-1.43	3.75	-5.80	-	-
44	D + CU + WPC1	1.47	3.44	-3.06	-2.01	-0.01	-5.30	-1.43	3.75	-6.32	-	-
49	D + CG + L + WPB2	1.99	-	3.45	-	-	8.17	-0.44	-	5.63	-	-

ASD Load Combinations - Framing

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 CG + 1.0 L>	D + CG + L>
7	System	1.000	1.0 D + 1.0 CG + 1.0 W1>	D + CG + W1>
8	System	1.000	1.0 D + 1.0 CG + 1.0 <W1	D + CG + <W1
9	System	1.000	1.0 D + 1.0 CG + 1.0 W2>	D + CG + W2>
10	System	1.000	1.0 D + 1.0 CG + 1.0 <W2	D + CG + <W2
23	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
27	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD1	D + CG + WPD1
28	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD1	D + CU + WPD1
33	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA2	D + CG + L + WPA2
43	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC1	D + CG + WPC1
44	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1
49	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB2	D + CG + L + WPB2

Bracing

X-Loc	Grid	Description
0/0/0	3-E	Diagonal bracing at base is attached to column. Reactions ARE included with frame reactions.
22/4/0	3-C	Diagonal bracing at base is attached to column. Reactions ARE included with frame reactions.
44/8/0	3-A	Diagonal bracing at base is attached to column. Reactions ARE included with frame reactions.



VP Buildings

3200 Players Club Circle
Memphis, TN 38125-8843

STRUCTURAL DESIGN DATA

Project: Facility Build COA Salt Storage

Name: FT Fac Bld COA Salt

Builder PO #:

Jobsite: 1815 Broadway Blvd. NE

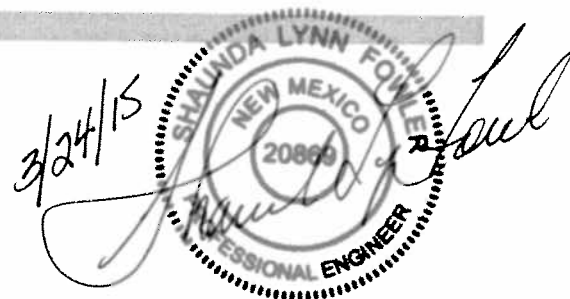
City, State: Albuquerque, New Mexico 87102

County: Bernalillo

Country: United States

TABLE OF CONTENTS

Building Loading - Expanded Report.....	2
Bracing - Summary Report.....	10
Secondary - Summary Report.....	18
Framing - Summary Report.....	30
Covering - Summary Report.....	50
Appendices	52





15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 2 of 52

Building Loading - Expanded Report

Shape: Salt Storage

Loads and Codes - Shape: Salt Storage

City: Albuquerque County: Bernalillo
Building Code: 2009 New Mexico Commercial Building Code
Based on Building Code: 2009 International Building Code
Building Risk/Occupancy Category: I (Low Hazard: Ag, Storage, Temp)

State: New Mexico
Built Up: 05AISC - ASD
Cold Form: 07AISI - ASD

Country: United States
Rainfall: 4.00 inches per hour
3000.00 psi Concrete

Dead and Collateral Loads

Collateral Gravity: 3.00 psf
Collateral Uplift: 0.00 psf

Frame Weight (assumed for seismic): 2.50 psf

Side	Type	Mag	Units	Shape	Applied to	Description
A	D	2.110	psf	Entire	Frm	Covering Weight - 26 Panel Rib + Secondary Weight 1.20 : Roof: A
A	D	0.910	psf	Entire	Pur	Covering Weight - 26 Panel Rib : Roof: A
B	D	2.110	psf	Entire	Frm	Covering Weight - 26 Panel Rib + Secondary Weight 1.20 : Roof: B
B	D	0.910	psf	Entire	Pur	Covering Weight - 26 Panel Rib : Roof: B

Roof Live Load

Roof Live Load: 20.00 psf Not Reducible

Wind Load

Wind Speed: 90.00 mph
Wind Enclosure: Enclosed
Height Used: 27/0/0 (Type: Eave)
Base Elevation: 0/0/0
Primary Zone Strip Width: 8/10/0
Velocity Pressure: (qz) 18.04 psf
Topographic Factor: 1.0000
Directionality Factor: 0.8500
Wind Exposure (Factor): C (0.961)
Basic Wind Pressure: 14.73 psf

Gust Factor: 1.0000
Wind Importance Factor: 0.870
Least Horiz. Dimension: 44/2/0

NOT Windborne Debris Region
Parts / Portions Zone Strip Width: 4/5/0
 $qz = 0.00256 * (0.87) * (90.00)^2 * (1.00)$
The 'Low Rise' Method is Used

Snow Load

Ground Snow Load: 20.00 psf
Flat Roof Snow: 12.10 psf
Design Snow (Sloped): 12.10 psf
Specified Minimum Roof Snow: 20.00 psf (USR)
Snow Accumulation Factor: 1.000
Snow Importance: 0.800
Ground / Roof Conversion: 0.70

Rain Surcharge: 0.00
Snow Exposure Category (Factor): 1 Fully Exposed (0.90)
Thermal Category (Factor): Unheated (1.20)
Unobstructed, Slippery
Slope Reduction: 1.00
Slope Used: 9.462 (2.000:12)

Seismic Load

Mapped Spectral Response - Ss: 56.40 %g
Mapped Spectral Response - S1: 17.00 %g
Seismic Design Category: D
Seismic Importance: 1.000
Frame Seismic Factor (Cs): 0.1449x W
Brace Seismic Factor (Cs): 0.1560x W
Framing R-Factor: 3.5000
Bracing R-Factor: 3.2500

% Snow Used in Seismic: 0.00
Seismic Snow Load: 0.00 psf
Frame Redundancy Factor: 1.3000
Brace Redundancy Factor: 1.3000
Soil Profile Type: Stiff soil (D, 4)
Diaphragm Condition: Flexible
Framing Fundamental Period: 0.3911
Bracing Fundamental Period: 0.2369
Fundamental Period Height Used: 27/0/0
Design Spectral Response - Sds: 0.5071
Design Spectral Response - Sd1: 0.2403



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 3 of 52

Side	Type	Mag	Units	Shape	Applied to	Description
1	E	0.262	psf	Entire	Frm	Seismic: Covering Weight - 26 Vee Rib + Secondary Weight 0.90 : Wall: 1
1	E	0.283	psf	Entire	Brc	Seismic: Covering Weight - 26 Vee Rib + Secondary Weight 0.90 : Wall: 1
2	E	0.251	psf	Entire	Frm	Seismic: Covering Weight - 26 Vee Rib + Secondary Weight 0.82 : Wall: 2
2	E	0.270	psf	Entire	Brc	Seismic: Covering Weight - 26 Vee Rib + Secondary Weight 0.82 : Wall: 2
3	E	0.268	psf	Entire	Frm	Seismic: Covering Weight - 26 Vee Rib + Secondary Weight 0.82 : Wall: 2
3	E	0.289	psf	Entire	Brc	Seismic: Covering Weight - 26 Vee Rib + Secondary Weight 0.94 : Wall: 3
4	E	0.251	psf	Entire	Frm	Seismic: Covering Weight - 26 Vee Rib + Secondary Weight 0.82 : Wall: 4
4	E	0.270	psf	Entire	Brc	Seismic: Covering Weight - 26 Vee Rib + Secondary Weight 0.82 : Wall: 4
A	E	1.103	psf	Entire	Frm	Seismic: Covering Weight - 26 Panel Rib + Secondary Weight 1.20 + (Includes 3.000 Collateral 2.500 Frame Weight) : Roof: A
A	E	1.188	psf	Entire	Brc	Seismic: Covering Weight - 26 Panel Rib + Secondary Weight 1.20 + (Includes 3.000 Collateral 2.500 Frame Weight) : Roof: A
B	E	1.103	psf	Entire	Frm	Seismic: Covering Weight - 26 Panel Rib + Secondary Weight 1.20 + (Includes 3.000 Collateral 2.500 Frame Weight) : Roof: B
B	E	1.188	psf	Entire	Brc	Seismic: Covering Weight - 26 Panel Rib + Secondary Weight 1.20 + (Includes 3.000 Collateral 2.500 Frame Weight) : Roof: B

Deflection Conditions

Frames are vertically supporting: Metal Roof Purlins and Panels

Frames are laterally supporting: Metal Wall Girts and Panels

Purlins are supporting: Metal Roof Panels

Girts are supporting: Metal Wall Panels



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 4 of 52

Design Load Combinations - Framing

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 CG + 1.0 L>	D + CG + L>
2	System	1.000	1.0 D + 1.0 CG + 1.0 <L	D + CG + <L
3	System	1.000	1.0 D + 1.0 CG + 1.0 SMS>	D + CG + SMS>
4	System	1.000	1.0 D + 1.0 CG + 1.0 <SMS	D + CG + <SMS
5	System	1.000	1.0 D + 1.0 CG + 1.0 US1*	D + CG + US1*
6	System	1.000	1.0 D + 1.0 CG + 1.0 *US1	D + CG + *US1
7	System	1.000	1.0 D + 1.0 CG + 1.0 W1>	D + CG + W1>
8	System	1.000	1.0 D + 1.0 CG + 1.0 <W1	D + CG + <W1
9	System	1.000	1.0 D + 1.0 CG + 1.0 W2>	D + CG + W2>
10	System	1.000	1.0 D + 1.0 CG + 1.0 <W2	D + CG + <W2
11	System	1.000	0.6 D + 0.6 CU + 1.0 W1>	D + CU + W1>
12	System	1.000	0.6 D + 0.6 CU + 1.0 <W1	D + CU + <W1
13	System	1.000	0.6 D + 0.6 CU + 1.0 W2>	D + CU + W2>
14	System	1.000	0.6 D + 0.6 CU + 1.0 <W2	D + CU + <W2
15	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W1>	D + CG + L + W1>
16	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W1	D + CG + L + <W1
17	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W2>	D + CG + L + W2>
18	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W2	D + CG + L + <W2
19	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W1>	D + CG + S + W1>
20	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W1	D + CG + S + <W1
21	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W2>	D + CG + S + W2>
22	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W2	D + CG + S + <W2
23	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
25	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA1	D + CG + L + WPA1
26	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA1	D + CG + S + WPA1
27	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD1	D + CG + WPD1
28	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD1	D + CU + WPD1
29	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD1	D + CG + L + WPD1
30	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD1	D + CG + S + WPD1
31	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA2	D + CG + WPA2
32	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA2	D + CU + WPA2
33	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA2	D + CG + L + WPA2
34	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA2	D + CG + S + WPA2
35	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD2	D + CG + WPD2
36	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD2	D + CU + WPD2
37	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD2	D + CG + L + WPD2
38	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD2	D + CG + S + WPD2
39	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB1	D + CG + WPB1
40	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1
41	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB1	D + CG + L + WPB1
42	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB1	D + CG + S + WPB1
43	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC1	D + CG + WPC1
44	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1
45	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC1	D + CG + L + WPC1
46	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC1	D + CG + S + WPC1
47	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB2	D + CG + WPB2
48	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB2	D + CU + WPB2
49	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB2	D + CG + L + WPB2
50	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB2	D + CG + S + WPB2
51	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC2	D + CG + WPC2
52	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC2	D + CU + WPC2
53	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC2	D + CG + L + WPC2
54	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC2	D + CG + S + WPC2



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 5 of 52

Design Load Combinations - Bracing

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 WPA1	D + WPA1
2	System	1.000	1.0 D + 1.0 WPD1	D + WPD1
3	System	1.000	1.0 D + 1.0 WPA2	D + WPA2
4	System	1.000	1.0 D + 1.0 WPD2	D + WPD2
5	System	1.000	1.0 D + 1.0 WPB1	D + WPB1
6	System	1.000	1.0 D + 1.0 WPC1	D + WPC1
7	System	1.000	1.0 D + 1.0 WPB2	D + WPB2
8	System	1.000	1.0 D + 1.0 WPC2	D + WPC2
9	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
10	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD1	D + CG + WPD1
11	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA2	D + CG + WPA2
12	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD2	D + CG + WPD2
13	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB1	D + CG + WPB1
14	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC1	D + CG + WPC1
15	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB2	D + CG + WPB2
16	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC2	D + CG + WPC2
17	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
18	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD1	D + CU + WPD1
19	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA2	D + CU + WPA2
20	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD2	D + CU + WPD2
21	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1
22	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1
23	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB2	D + CU + WPB2
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC2	D + CU + WPC2
25	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA1	D + CG + S + WPA1
26	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD1	D + CG + S + WPD1
27	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA2	D + CG + S + WPA2
28	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD2	D + CG + S + WPD2
29	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB1	D + CG + S + WPB1
30	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC1	D + CG + S + WPC1
31	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB2	D + CG + S + WPB2
32	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC2	D + CG + S + WPC2



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 6 of 52

Design Load Combinations - Purlin

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 CG + 1.0 L	D + CG + L
2	System	1.000	1.0 D + 1.0 CG + 1.0 SMS	D + CG + SMS
3	System	1.000	1.0 D + 1.0 CG + 1.0 US1 *	D + CG + US1 *
4	System	1.000	1.0 D + 1.0 CG + 1.0 *US1	D + CG + *US1
5	System	1.000	1.0 D + 1.0 CG + 1.0 PF1	D + CG + PF1(Span 1)
6	System	1.000	1.0 D + 1.0 CG + 1.0 PF1	D + CG + PF1(Span 2)
7	System	1.000	1.0 D + 1.0 CG + 1.0 W1>	D + CG + W1>
8	System	1.000	1.0 D + 1.0 CG + 1.0 <W2	D + CG + <W2
9	System	1.000	0.6 D + 0.6 CU + 1.0 W1>	D + CU + W1>
10	System	1.000	0.6 D + 0.6 CU + 1.0 <W2	D + CU + <W2
11	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W1>	D + CG + L + W1>
12	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W2	D + CG + L + <W2
13	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W1>	D + CG + S + W1>
14	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W2	D + CG + S + <W2
15	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
16	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
17	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA1	D + CG + L + WPA1
18	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA1	D + CG + S + WPA1
19	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD1	D + CG + WPD1
20	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD1	D + CU + WPD1
21	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD1	D + CG + L + WPD1
22	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD1	D + CG + S + WPD1
23	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA2	D + CG + WPA2
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA2	D + CU + WPA2
25	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA2	D + CG + L + WPA2
26	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA2	D + CG + S + WPA2
27	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD2	D + CG + WPD2
28	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD2	D + CU + WPD2
29	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD2	D + CG + L + WPD2
30	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD2	D + CG + S + WPD2
31	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB1	D + CG + WPB1
32	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1
33	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB1	D + CG + L + WPB1
34	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB1	D + CG + S + WPB1
35	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC1	D + CG + WPC1
36	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1
37	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC1	D + CG + L + WPC1
38	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC1	D + CG + S + WPC1
39	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB2	D + CG + WPB2
40	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB2	D + CU + WPB2
41	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB2	D + CG + L + WPB2
42	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB2	D + CG + S + WPB2
43	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC2	D + CG + WPC2
44	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC2	D + CU + WPC2
45	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC2	D + CG + L + WPC2
46	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC2	D + CG + S + WPC2

Design Load Combinations - Girt

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 W1>	W1>
2	System	1.000	1.0 <W2	<W2

Design Load Combinations - Roof - Panel

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 L	D + L
2	System	1.000	1.0 D + 1.0 SMS	D + SMS
3	System	1.000	1.0 D + 1.0 US1 *	D + US1 *
4	System	1.000	1.0 D + 1.0 *US1	D + *US1
5	System	1.000	1.0 D + 1.0 <W2	D + <W2
6	System	1.000	0.6 D + 1.0 W1>	D + W1>



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 7 of 52

Design Load Combinations - Wall - Panel

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 W1>	W1>
2	System	1.000	1.0 <W2	<W2

Deflection Load Combinations - Framing

No.	Origin	Factor	Def H	Def V	Application	Description
1	System	1.000	0	180	1.0 L	L
2	System	1.000	0	180	1.0 SMS	SMS
3	System	1.000	60	180	0.7 W1>	W1>
4	System	1.000	60	180	0.7 <W1	<W1
5	System	1.000	60	180	0.7 W2>	W2>
6	System	1.000	60	180	0.7 <W2	<W2
7	System Derived	1.000	60	180	0.7 WPA1	WPA1
8	System Derived	1.000	60	180	0.7 WPD1	WPD1
9	System Derived	1.000	60	180	0.7 WPA2	WPA2
10	System Derived	1.000	60	180	0.7 WPD2	WPD2
11	System Derived	1.000	60	180	0.7 WPB1	WPB1
12	System Derived	1.000	60	180	0.7 WPC1	WPC1
13	System Derived	1.000	60	180	0.7 WPB2	WPB2
14	System Derived	1.000	60	180	0.7 WPC2	WPC2

Deflection Load Combinations - Purlin

No.	Origin	Factor	Deflection	Application	Description
1	System	1.000	150	1.0 L	L
2	System	1.000	180	1.0 SMS	SMS
3	System	1.000	180	0.7 W1>	W1>
4	System	1.000	180	0.7 <W2	<W2

Deflection Load Combinations - Girt

No.	Origin	Factor	Deflection	Application	Description
1	System	1.000	90	0.7 W1>	W1>
2	System	1.000	90	0.7 <W2	<W2

Deflection Load Combinations - Roof - Panel

No.	Origin	Factor	Def H	Def V	Application	Description
1	System	1.000	60	60	1.0 SMS	SMS
2	System	1.000	60	60	0.7 <W2	<W2

Load Type Descriptions

D	Material Dead Weight	C	Collateral Load
CG	Collateral Load for Gravity Cases	CU	Collateral Load for Wind Cases
L	Roof Live Load	ASL^	Alternate Span Live Load, Shifted Right
^ASL	Alternate Span Live Load, Shifted Left	PL2	Partial Live, Full, 2 Spans
L>	Live - Notional Right	<L	Live - Notional Left
S	Snow Load	US1*	Unbalanced Snow Load 1, Shifted Right
US1	Unbalanced Snow Load 1, Shifted Left	US2	Unbalanced Snow Load 2, Shifted Right
*US2	Unbalanced Snow Load 2, Shifted Left	SD	Snow Drift Load
SS	Sliding Snow Load	RS	Rain Surcharge Load
PF1	Partial Load, Full, 1 Span	PH1	Partial Load, Half, 1 Span
PF2	Partial Load, Full, 2 Spans	PH2	Partial Load, Half, 2 Spans
S>	Snow - Notional Right	<S	Snow - Notional Left
SMS	Specified Min. Roof Snow	SMS>	Specified Min. Roof Snow - Notional Right
<SMS	Specified Min. Roof Snow - Notional Left	PS1	Partial Load, Half Span 1
PS2	Partial Load, Half Span 2	W	Wind Load
W1>	Wind Load, Case 1, Right	<W1	Wind Load, Case 1, Left
W2>	Wind Load, Case 2, Right	<W2	Wind Load, Case 2, Left
W3>	Wind Load, Case 3, Right	<W3	Wind Load, Case 3, Left
W4>	Wind Load, Case 4, Right	<W4	Wind Load, Case 4, Left
W5>	Wind Load, Case 5, Right	<W5	Wind Load, Case 5, Left
W6>	Wind Load, Case 6, Right	<W6	Wind Load, Case 6, Left
WP	Wind Load, Parallel to Ridge	WPR	Wind Load, Ridge, Right
WPL	Wind Load, Ridge, Left	WPA1	Wind Parallel - Ref A, Case 1
WPA2	Wind Parallel - Ref A, Case 2	WPB1	Wind Parallel - Ref B, Case 1
WPB2	Wind Parallel - Ref B, Case 2	WPC1	Wind Parallel - Ref C, Case 1
WPC2	Wind Parallel - Ref C, Case 2	WPD1	Wind Parallel - Ref D, Case 1



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 8 of 52

WPD2	Wind Parallel - Ref D, Case 2	WB1>	Wind Brace Reaction, Case 1, Right
<WB1	Wind Brace Reaction, Case 1, Left	WB2>	Wind Brace Reaction, Case 2, Right
<WB2	Wind Brace Reaction, Case 2, Left	WB3>	Wind Brace Reaction, Case 3, Right
<WB3	Wind Brace Reaction, Case 3, Left	WB4>	Wind Brace Reaction, Case 4, Right
<WB4	Wind Brace Reaction, Case 4, Left	WB5>	Wind Brace Reaction, Case 5, Right
<WB5	Wind Brace Reaction, Case 5, Left	WB6>	Wind Brace Reaction, Case 6, Right
<WB6	Wind Brace Reaction, Case 6, Left	MW	Minimum Wind Load
MWB	Minimum Wind Bracing Reaction	E	Seismic Load
E>	Seismic Load, Right	<E	Seismic Load, Left
EG	Vertical Seismic Effect	EG+	Vertical Seismic Effect, Additive
EG-	Vertical Seismic Effect, Subtractive	EB>	Seismic Brace Reaction, Right
<EB	Seismic Brace Reaction, Left	FL	Floor Live Load
FL*	Alternate Span Floor Live Load, Shifted Right	*FL	Alternate Span Floor Live Load, Shifted Left
FD	Floor Dead Load	AL	Auxiliary Live Load
AL*>	Auxiliary Live Load, Right, Right	*AL>	Auxiliary Live Load, Right, Left
<AL*	Auxiliary Live Load, Left, Right	<*AL	Auxiliary Live Load, Left, Left
AL*	Aux Live, Right	*AL	Aux Live, Left
AL*>(1)	Auxiliary Live Load, Right, Right, Aisle 1	*AL>(1)	Auxiliary Live Load, Right, Left, Aisle 1
<AL*(1)	Auxiliary Live Load, Left, Right, Aisle 1	<*AL(1)	Auxiliary Live Load, Left, Left, Aisle 1
AL*(1)	Aux Live, Right, Aisle 1	*AL(1)	Aux Live, Left, Aisle 1
AL*>(2)	Auxiliary Live Load, Right, Right, Aisle 2	*AL>(2)	Auxiliary Live Load, Right, Left, Aisle 2
<AL*(2)	Auxiliary Live Load, Left, Right, Aisle 2	<*AL(2)	Auxiliary Live Load, Left, Left, Aisle 2
AL*(2)	Aux Live, Right, Aisle 2	*AL(2)	Aux Live, Left, Aisle 2
AL*>(3)	Auxiliary Live Load, Right, Right, Aisle 3	*AL>(3)	Auxiliary Live Load, Right, Left, Aisle 3
<AL*(3)	Auxiliary Live Load, Left, Right, Aisle 3	<*AL(3)	Auxiliary Live Load, Left, Left, Aisle 3
AL*(3)	Aux Live, Right, Aisle 3	*AL(3)	Aux Live, Left, Aisle 3
AL*>(4)	Auxiliary Live Load, Right, Right, Aisle 4	*AL>(4)	Auxiliary Live Load, Right, Left, Aisle 4
<AL*(4)	Auxiliary Live Load, Left, Right, Aisle 4	<*AL(4)	Auxiliary Live Load, Left, Left, Aisle 4
AL*(4)	Aux Live, Right, Aisle 4	*AL(4)	Aux Live, Left, Aisle 4
AL*>(5)	Auxiliary Live Load, Right, Right, Aisle 5	*AL>(5)	Auxiliary Live Load, Right, Left, Aisle 5
<AL*(5)	Auxiliary Live Load, Left, Right, Aisle 5	<*AL(5)	Auxiliary Live Load, Left, Left, Aisle 5
AL*(5)	Aux Live, Right, Aisle 5	*AL(5)	Aux Live, Left, Aisle 5
ALB	Aux Live Bracing Reaction	ALB>	Aux Live Bracing Reaction, Right
<ALB	Aux Live Bracing Reaction, Left	WALB>	Wind, Aux Live Bracing Reaction, Right
<WALB	Wind, Aux Live Bracing Reaction, Left	ALB>(1)	Aux Live Bracing Reaction, Right, Aisle 1
<ALB(1)	Aux Live Bracing Reaction, Left, Aisle 1	WALB>(1)	Wind, Aux Live Bracing Reaction, Right, Aisle 1
<WALB(1)	Wind, Aux Live Bracing Reaction, Left, Aisle 1	ALB>(2)	Aux Live Bracing Reaction, Right, Aisle 2
<ALB(2)	Aux Live Bracing Reaction, Left, Aisle 2	WALB>(2)	Wind, Aux Live Bracing Reaction, Right, Aisle 2
<WALB(2)	Wind, Aux Live Bracing Reaction, Left, Aisle 2	ALB>(3)	Aux Live Bracing Reaction, Right, Aisle 3
<ALB(3)	Aux Live Bracing Reaction, Left, Aisle 3	WALB>(3)	Wind, Aux Live Bracing Reaction, Right, Aisle 3
<WALB(3)	Wind, Aux Live Bracing Reaction, Left, Aisle 3	ALB>(4)	Aux Live Bracing Reaction, Right, Aisle 4
<ALB(4)	Aux Live Bracing Reaction, Left, Aisle 4	WALB>(4)	Wind, Aux Live Bracing Reaction, Right, Aisle 4
<WALB(4)	Wind, Aux Live Bracing Reaction, Left, Aisle 4	ALB>(5)	Aux Live Bracing Reaction, Right, Aisle 5
<ALB(5)	Aux Live Bracing Reaction, Left, Aisle 5	WALB>(5)	Wind, Aux Live Bracing Reaction, Right, Aisle 5
<WALB(5)	Wind, Aux Live Bracing Reaction, Left, Aisle 5	WALB	Wind, Aux Live Bracing Reaction
AD	Auxiliary Dead Load	U0	User Defined Load
U1	User Defined Load - 1	U2	User Defined Load - 2
U3	User Defined Load - 3	U4	User Defined Load - 4
U5	User Defined Load - 5	U6	User Defined Load - 6
U7	User Defined Load - 7	U8	User Defined Load - 8
U9	User Defined Load - 9	UB	User Brace Reaction
UB1	User Brace Reaction - 1	UB2	User Brace Reaction - 2
UB3	User Brace Reaction - 3	UB4	User Brace Reaction - 4
UB5	User Brace Reaction - 5	UB6	User Brace Reaction - 6
UB7	User Brace Reaction - 7	UB8	User Brace Reaction - 8
UB9	User Brace Reaction - 9	R	Rain Load
T	Temperature Load	V	Shear

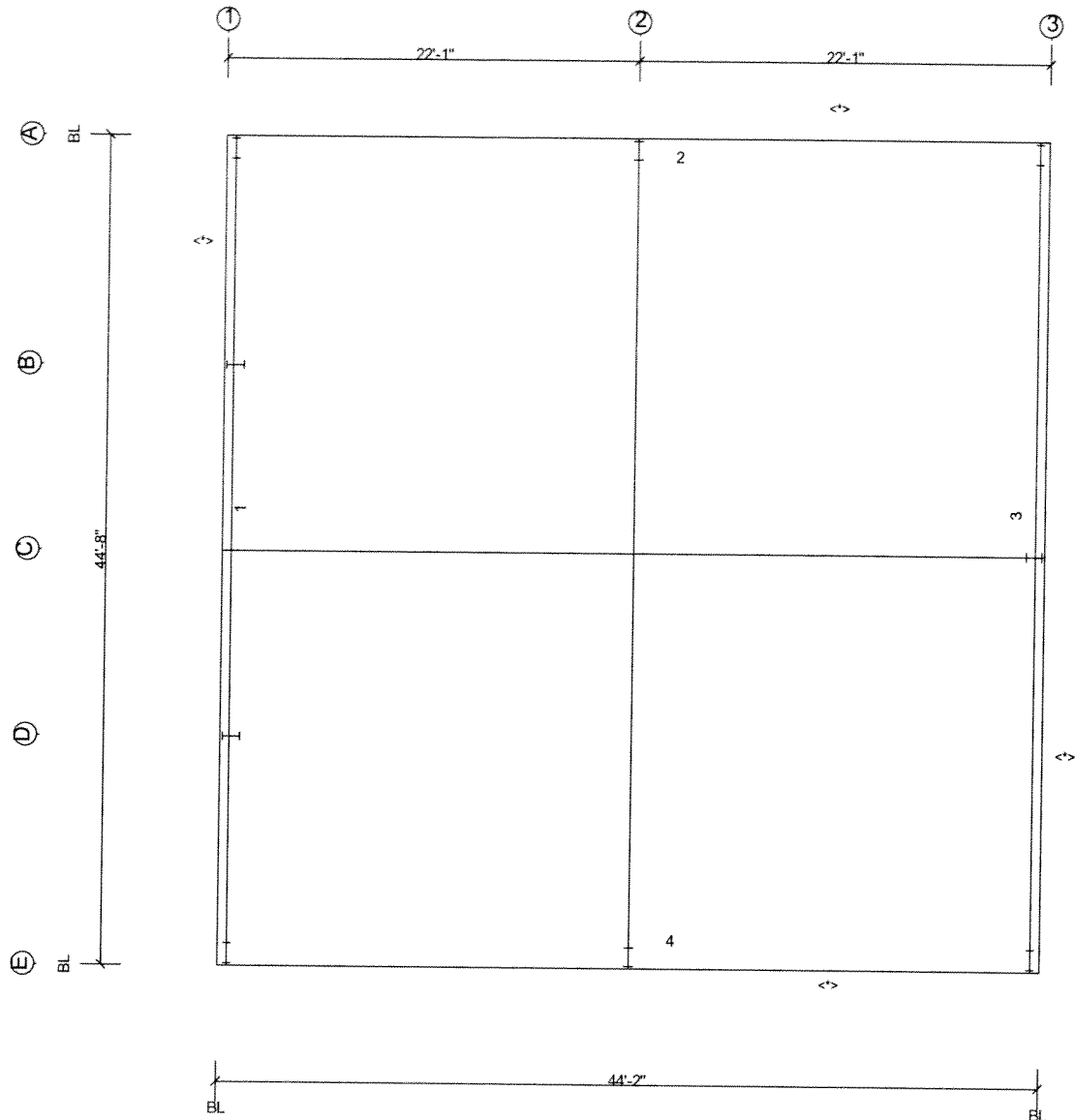


15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 9 of 52



<*> The building is designed with bracing diagonals in the designated bays. Column base reactions, base plates and anchor rods are affected by this bracing and diagonals may not be relocated without consulting the building supplier's engineer.



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 10 of 52

Bracing - Summary Report

Shape: Salt Storage

Loads and Codes - Shape: Salt Storage

City: Albuquerque County: Bernalillo
Building Code: 2009 New Mexico Commercial Building Code
Based on Building Code: 2009 International Building Code
Building Risk/Occupancy Category: I (Low Hazard: Ag, Storage, Temp)

State: New Mexico
Built Up: 05AISC - ASD
Cold Form: 07AISI - ASD

Country: United States
Rainfall: 4.00 inches per hour
3000.00 psi Concrete

Dead and Collateral Loads

Collateral Gravity: 3.00 psf
Collateral Uplift: 0.00 psf

Roof Covering + Second. Dead Load: 2.11 psf
Frame Weight (assumed for seismic): 2.50 psf

Roof Live Load

Roof Live Load: 20.00 psf Not Reducible

Wind Load

Wind Speed: 90.00 mph
The 'Low Rise' Method is Used
Wind Exposure (Factor): C (0.961)
Parts Wind Exposure Factor: 0.961
Wind Enclosure: Enclosed
Wind Importance Factor: 0.870
Topographic Factor: 1.0000

NOT Windborne Debris Region
Base Elevation: 0/0/0
Primary Zone Strip Width: 8/10/0
Parts / Portions Zone Strip Width: 4/5/0
Basic Wind Pressure: 14.73 psf

Snow Load

Ground Snow Load: 20.00 psf
Flat Roof Snow: 12.10 psf
Design Snow (Sloped): 12.10 psf
Rain Surcharge: 0.00
Specified Minimum Roof Snow: 20.00 psf (USR)
Exposure Category (Factor): 1 Fully Exposed (0.90)
Snow Importance: 0.800
Thermal Category (Factor): Unheated (1.20)
Ground / Roof Conversion: 0.70
% Snow Used in Seismic: 0.00
Seismic Snow Load: 0.00 psf
Unobstructed, Slippery

Seismic Load

Mapped Spectral Response - Ss: 56.40 %g
Mapped Spectral Response - S1: 17.00 %g
Seismic Design Category: D
Seismic Importance: 1.000
Framing Fundamental Period: 0.3911
Bracing Fundamental Period: 0.2369
Framing R-Factor: 3.5000
Bracing R-Factor: 3.2500
Soil Profile Type: Stiff soil (D, 4)
Diaphragm Condition: Flexible
Frame Redundancy Factor: 1.3000
Brace Redundancy Factor: 1.3000
Frame Seismic Factor (Cs): 0.1449 x W
Brace Seismic Factor (Cs): 0.1560 x W
Design Spectral Response - Sd1: 0.2403
Design Spectral Response - Sds: 0.5071

Deflection Conditions

Frames are vertically supporting: Metal Roof Purlins and Panels
Frames are laterally supporting: Metal Wall Girts and Panels
Purlins are supporting: Metal Roof Panels
Girts are supporting: Metal Wall Panels



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 11 of 52

Design Load Combinations - Bracing

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 WPA1	D + WPA1
2	System	1.000	1.0 D + 1.0 WPD1	D + WPD1
3	System	1.000	1.0 D + 1.0 WPA2	D + WPA2
4	System	1.000	1.0 D + 1.0 WPD2	D + WPD2
5	System	1.000	1.0 D + 1.0 WPB1	D + WPB1
6	System	1.000	1.0 D + 1.0 WPC1	D + WPC1
7	System	1.000	1.0 D + 1.0 WPB2	D + WPB2
8	System	1.000	1.0 D + 1.0 WPC2	D + WPC2
9	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
10	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD1	D + CG + WPD1
11	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA2	D + CG + WPA2
12	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD2	D + CG + WPD2
13	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB1	D + CG + WPB1
14	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC1	D + CG + WPC1
15	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB2	D + CG + WPB2
16	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC2	D + CG + WPC2
17	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
18	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD1	D + CU + WPD1
19	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA2	D + CU + WPA2
20	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD2	D + CU + WPD2
21	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1
22	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1
23	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB2	D + CU + WPB2
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC2	D + CU + WPC2
25	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA1	D + CG + S + WPA1
26	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD1	D + CG + S + WPD1
27	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA2	D + CG + S + WPA2
28	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD2	D + CG + S + WPD2
29	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB1	D + CG + S + WPB1
30	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC1	D + CG + S + WPC1
31	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB2	D + CG + S + WPB2
32	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC2	D + CG + S + WPC2

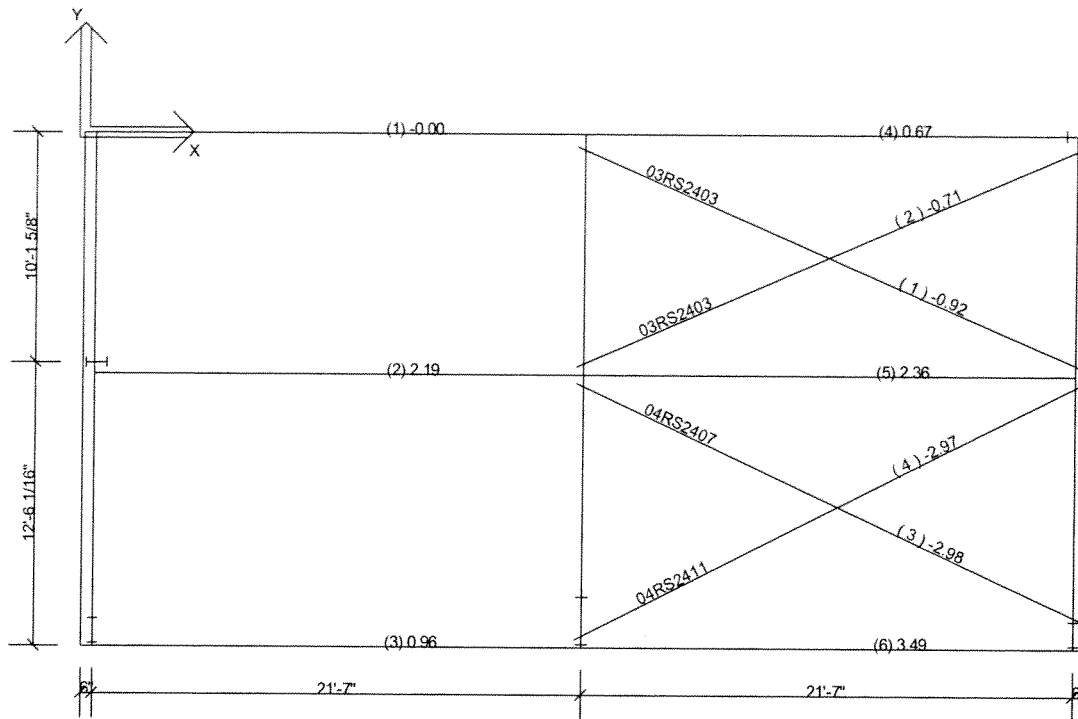


15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 12 of 52



Diagonal Bracing Member Design Summary: Roof A

Mem. No.	Bracing Shape	Length (ft)	Angle	Design Axial (k)	Seismic Factor	Stress Factor	Stress Ratio	Governing Load Case	Design Status	Comment
1	R 0.375	24.22	28.3	-0.92	1.0000	1.0000	0.361	1.0D+1.0CG+1.0WPC2	passed	
2	R 0.375	24.22	28.3	-0.71	1.0000	1.0000	0.279	1.0D+1.0WPB1	passed	
3	R 0.5	24.50	31.1	-2.98	1.0000	1.0000	0.648	1.0D+1.0CG+1.0WPC2	passed	
4	R 0.5	24.90	31.1	-2.97	1.0000	1.0000	0.648	1.0D+1.0CG+1.0WPB2	passed	

Mem.	End	Diagonal Connection Design Information
1	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPC2, Factored F = 0.92, E factor = 1.000, stress increase = 1.000, slot offset = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPC2, Factored F = 0.92, E factor = 1.000, stress increase = 1.000, slot offset = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
2	Left	Slot: Web Thk = 0.164, Load Case 1.0D+1.0WPB1, Factored F = 0.71, E factor = 1.000, stress increase = 1.000, slot offset = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPB1, Factored F = 0.71, E factor = 1.000, stress increase = 1.000, slot offset = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
3	Left	Slot: Web Thk = 0.164, Load Case 1.0D+1.0CG+1.0WPC2, Factored F = 2.98, E factor = 1.000, stress increase = 1.000, slot offset = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPC2, Factored F = 2.98, E factor = 1.000, stress increase = 1.000, slot offset = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
4	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPB2, Factored F = 2.97, E factor = 1.000, stress increase = 1.000, slot offset = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPB2, Factored F = 2.97, E factor = 1.000, stress increase = 1.000, slot offset = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.

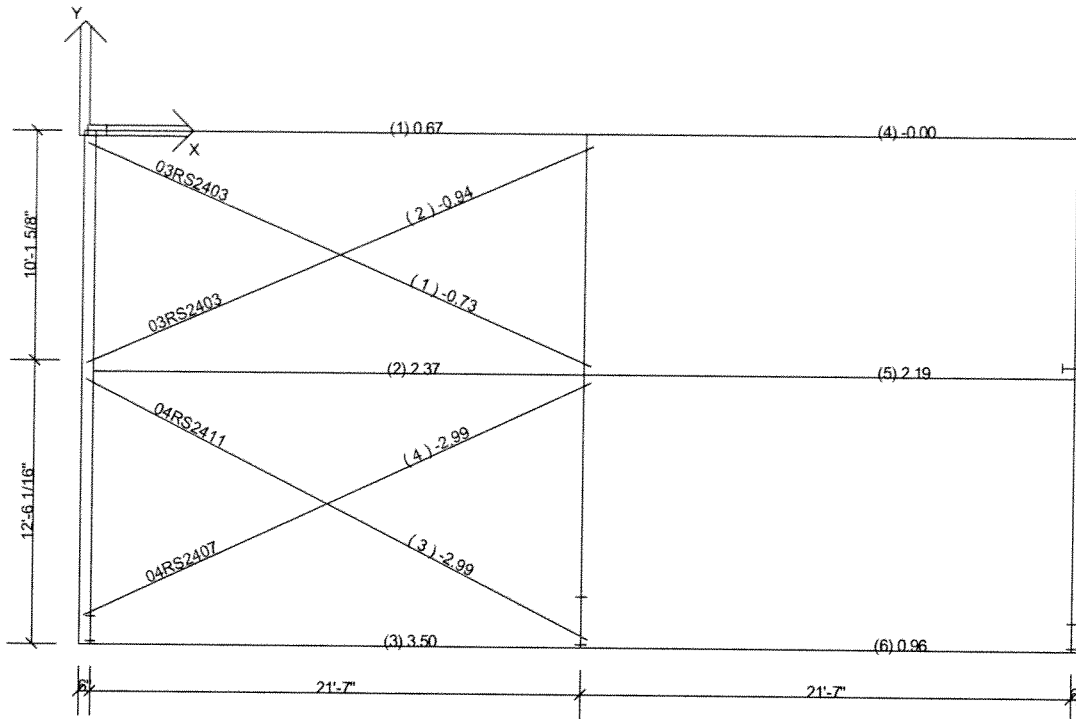


15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

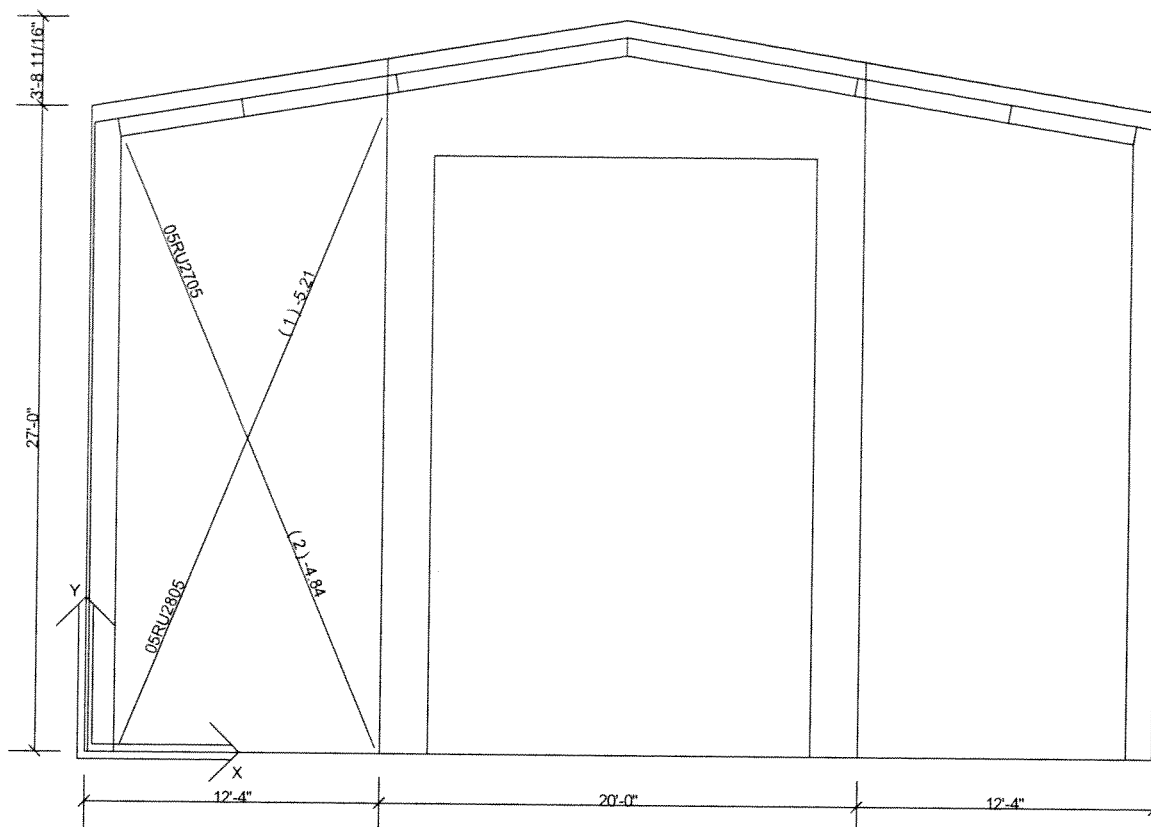
Page: 13 of 52



Diagonal Bracing Member Design Summary: Roof B

Mem. No.	Bracing Shape	Length (ft)	Angle	Design Axial (k)	Seismic Factor	Stress Factor	Stress Ratio	Governing Load Case	Design Status	Comment
1	R 0.375	24.22	28.3	-0.73	1.0000	1.0000	0.286	1.0D+1.0WPA1	passed	
2	R 0.375	24.22	28.3	-0.94	1.0000	1.0000	0.366	1.0D+1.0CG+1.0WPD2	passed	
3	R 0.5	24.90	31.1	-2.99	1.0000	1.0000	0.651	1.0D+1.0CG+1.0WPA2	passed	
4	R 0.5	24.50	31.1	-2.99	1.0000	1.0000	0.651	1.0D+1.0CG+1.0WPD2	passed	

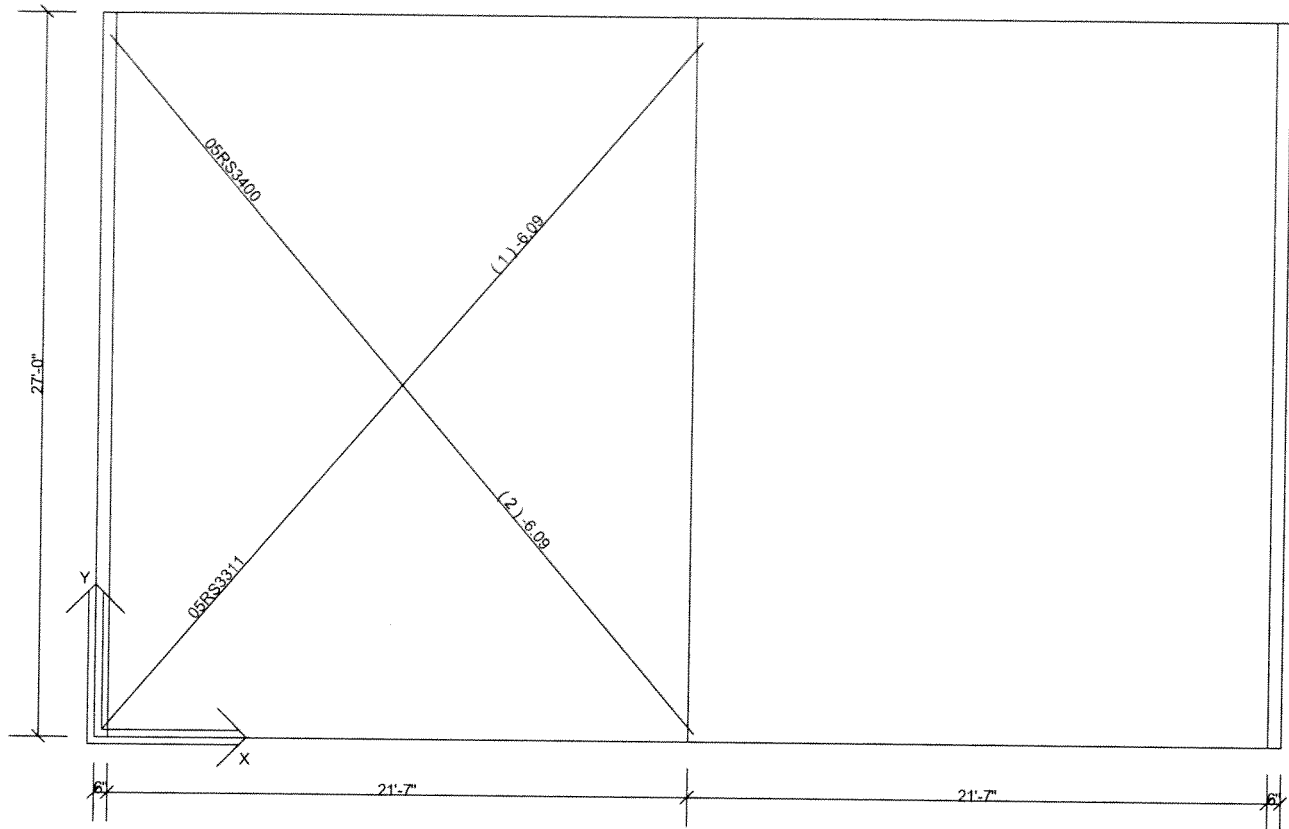
Mem.	End	Diagonal Connection Design Information
1	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPA1, Factored F = 0.73, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.164, Load Case 1.0D+1.0WPA1, Factored F = 0.73, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
2	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPD2, Factored F = 0.94, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPD2, Factored F = 0.94, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
3	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPA2, Factored F = 2.99, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPA2, Factored F = 2.99, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
4	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPD2, Factored F = 2.99, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.164, Load Case 1.0D+1.0CG+1.0WPD2, Factored F = 2.99, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.



Diagonal Bracing Member Design Summary: Endwall 1

Mem. No.	Bracing Shape	Length (ft)	Angle	Design Axial (k)	Seismic Factor	Stress Factor	Stress Ratio	Governing Load Case	Design Status	Comment
1	R 0.625	28.41	67.0	-5.21	1.0000	1.0000	0.702	1.0D+1.0CG+1.0WPC2	passed	
2	R 0.625	27.36	65.4	-4.84	1.0000	1.0000	0.651	1.0D+1.0CG+1.0WPB2	passed	

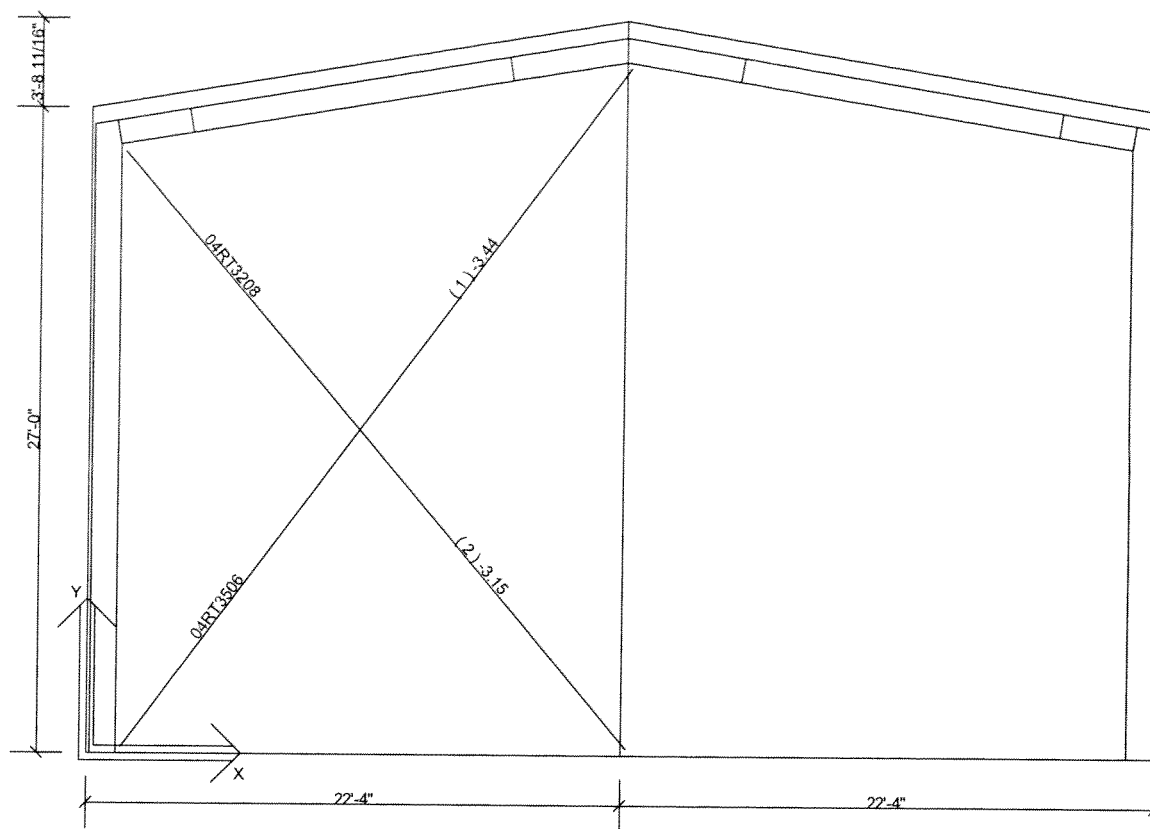
Mem.	End	Diagonal Connection Design Information
1	Left	Clevis Connection Per DP 3.15.2, SQW5x5x0.375, Weld To Flange 0.188 One, Web Weld PASSED.
	Right	Clevis Connection Per DP 3.15.2, SQW 5.0x5.0x0.375 to web and Stiffener, design angle = 68.0 deg, flange offset = 5.563in., SQW weld 0.188 fillet one side => passed
2	Left	Clevis Connection Per DP 3.15.2, SQW5x5x0.375, Weld To Flange 0.188 One, Web Weld PASSED.
	Right	Clevis Connection Per DP 3.15.2, SQW 5.0x5.0x0.375, Design angle = 66.6 deg, , dimA = 5.063 in., SQW Weld 0.19 Fillet One



Diagonal Bracing Member Design Summary: Sidewall 2

Mem. No.	Bracing Shape	Length (ft)	Angle	Design Axial (k)	Seismic Factor	Stress Factor	Stress Ratio	Governing Load Case	Design Status	Comment
1	R 0.625	33.89	51.4	-6.09	1.0000	1.0000	0.819	1.0D+1.0WPC1	passed	
2	R 0.625	33.98	51.4	-6.09	1.0000	1.0000	0.820	1.0D+1.0WPB1	passed	

Mem.	End	Diagonal Connection Design Information
1	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPC1, Factored F = 6.09, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPC1, Factored F = 6.09, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
2	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPB1, Factored F = 6.09, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPB1, Factored F = 6.09, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.



Diagonal Bracing Member Design Summary: Endwall 3

Mem. No.	Bracing Shape	Length (ft)	Angle	Design Axial (k)	Seismic Factor	Stress Factor	Stress Ratio	Governing Load Case	Design Status	Comment
1	R 0.5	35.44	54.0	-3.44	1.0000	1.0000	0.750	1.0D+1.0CG+1.0WPA2	passed	
2	R 0.5	32.64	50.4	-3.15	1.0000	1.0000	0.686	1.0D+1.0CG+1.0WPD2	passed	

Mem.	End	Diagonal Connection Design Information
1	Left Right	Clevis Connection Per DP 3.15.2, SQW5x5x0.375, Weld To Flange 0.188 One, Web Weld PASSED. Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPA2, Factored F = 3.44, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
2	Left Right	Clevis Connection Per DP 3.15.2, SQW5x5x0.375, Weld To Flange 0.188 One, Web Weld PASSED. Slot: Web Thk = 0.134, Load Case 1.0D+1.0CG+1.0WPD2, Factored F = 3.15, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.

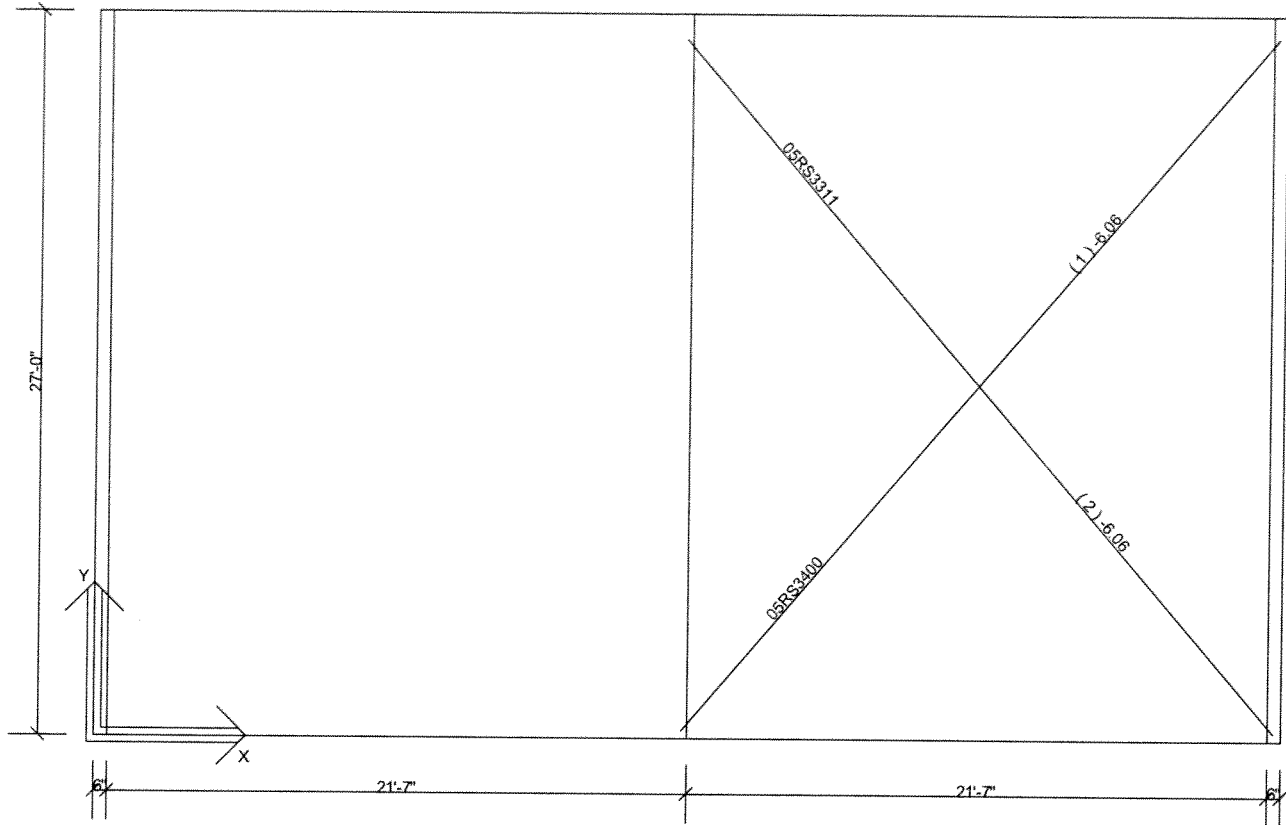


15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 17 of 52



Diagonal Bracing Member Design Summary: Sidewall 4

Mem. No.	Bracing Shape	Length (ft)	Angle	Design Axial (k)	Seismic Factor	Stress Factor	Stress Ratio	Governing Load Case	Design Status	Comment
1	R 0.625	33.98	51.4	-6.06	1.0000	1.0000	0.816	1.0D+1.0WPA1	passed	
2	R 0.625	33.89	51.4	-6.06	1.0000	1.0000	0.816	1.0D+1.0WPD1	passed	

Mem.	End	Diagonal Connection Design Information
1	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPA1, Factored F = 6.06, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPA1, Factored F = 6.06, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
2	Left	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPD1, Factored F = 6.06, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.
	Right	Slot: Web Thk = 0.134, Load Case 1.0D+1.0WPD1, Factored F = 6.06, E factor = 1.000, stress increase = 1.000, slot offset, = 3.000, web-flange weld OK, web direct shear OK, web punching shear OK, tensile fracture of web OK, >> PASSED.



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 18 of 52

Secondary - Summary Report

Loads and Codes - Shape: Salt Storage

City: Albuquerque County: Bernalillo
Building Code: 2009 New Mexico Commercial Building Code
Based on Building Code: 2009 International Building Code
Building Risk/Occupancy Category: I (Low Hazard: Ag, Storage, Temp)

State: New Mexico
Built Up: 05AISC - ASD
Cold Form: 07AISI - ASD

Country: United States
Rainfall: 4.00 inches per hour
3000.00 psi Concrete

Dead and Collateral Loads

Collateral Gravity: 3.00 psf
Collateral Uplift: 0.00 psf

Roof Covering + Second. Dead Load: 2.11 psf
Frame Weight (assumed for seismic): 2.50 psf

Roof Live Load

Roof Live Load: 20.00 psf Not Reducible

Wind Load

Wind Speed: 90.00 mph
The 'Low Rise' Method is Used
Wind Exposure (Factor): C (0.961)
Parts Wind Exposure Factor: 0.961
Wind Enclosure: Enclosed
Wind Importance Factor: 0.870
Topographic Factor: 1.0000

NOT Windborne Debris Region
Base Elevation: 0/0/0
Primary Zone Strip Width: 8/10/0
Parts / Portions Zone Strip Width: 4/5/0
Basic Wind Pressure: 14.73 psf

Snow Load

Ground Snow Load: 20.00 psf
Flat Roof Snow: 12.10 psf
Design Snow (Sloped): 12.10 psf
Rain Surcharge: 0.00
Specified Minimum Roof Snow: 20.00 psf (USR)
Exposure Category (Factor): 1 Fully Exposed (0.90)
Snow Importance: 0.800
Thermal Category (Factor): Unheated (1.20)
Ground / Roof Conversion: 0.70
% Snow Used in Seismic: 0.00
Seismic Snow Load: 0.00 psf
Unobstructed, Slippery

Seismic Load

Mapped Spectral Response - Ss: 56.40 %g
Mapped Spectral Response - S1: 17.00 %g
Seismic Design Category: D
Seismic Importance: 1.000
Framing Fundamental Period: 0.3911
Bracing Fundamental Period: 0.2369
Framing R-Factor: 3.5000
Bracing R-Factor: 3.2500
Soil Profile Type: Stiff soil (D, 4)
Diaphragm Condition: Flexible
Frame Redundancy Factor: 1.3000
Brace Redundancy Factor: 1.3000
Frame Seismic Factor (Cs): 0.1449 x W
Brace Seismic Factor (Cs): 0.1560 x W
Design Spectral Response - Sd1: 0.2403
Design Spectral Response - Sds: 0.5071



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 19 of 52

Design Load Combinations - Purlin

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 CG + 1.0 L	D + CG + L
2	System	1.000	1.0 D + 1.0 CG + 1.0 SMS	D + CG + SMS
3	System	1.000	1.0 D + 1.0 CG + 1.0 US1 *	D + CG + US1 *
4	System	1.000	1.0 D + 1.0 CG + 1.0 *US1	D + CG + *US1
5	System	1.000	1.0 D + 1.0 CG + 1.0 PF1	D + CG + PF1(Span 1)
6	System	1.000	1.0 D + 1.0 CG + 1.0 PF1	D + CG + PF1(Span 2)
7	System	1.000	1.0 D + 1.0 CG + 1.0 W1>	D + CG + W1>
8	System	1.000	1.0 D + 1.0 CG + 1.0 <W2	D + CG + <W2
9	System	1.000	0.6 D + 0.6 CU + 1.0 W1>	D + CU + W1>
10	System	1.000	0.6 D + 0.6 CU + 1.0 <W2	D + CU + <W2
11	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W1>	D + CG + L + W1>
12	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W2	D + CG + L + <W2
13	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W1>	D + CG + S + W1>
14	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W2	D + CG + S + <W2
15	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
16	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
17	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA1	D + CG + L + WPA1
18	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA1	D + CG + S + WPA1
19	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD1	D + CG + WPD1
20	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD1	D + CU + WPD1
21	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD1	D + CG + L + WPD1
22	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD1	D + CG + S + WPD1
23	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA2	D + CG + WPA2
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA2	D + CU + WPA2
25	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA2	D + CG + L + WPA2
26	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA2	D + CG + S + WPA2
27	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD2	D + CG + WPD2
28	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD2	D + CU + WPD2
29	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD2	D + CG + L + WPD2
30	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD2	D + CG + S + WPD2
31	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB1	D + CG + WPB1
32	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1
33	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB1	D + CG + L + WPB1
34	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB1	D + CG + S + WPB1
35	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC1	D + CG + WPC1
36	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1
37	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC1	D + CG + L + WPC1
38	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC1	D + CG + S + WPC1
39	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB2	D + CG + WPB2
40	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB2	D + CU + WPB2
41	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB2	D + CG + L + WPB2
42	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB2	D + CG + S + WPB2
43	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC2	D + CG + WPC2
44	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC2	D + CU + WPC2
45	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC2	D + CG + L + WPC2
46	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC2	D + CG + S + WPC2

Design Load Combinations - Girt

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 W1>	W1>
2	System	1.000	1.0 <W2	<W2

Deflection Load Combinations - Purlin

No.	Origin	Factor	Deflection	Application	Description
1	System	1.000	150	1.0 L	L
2	System	1.000	180	1.0 SMS	SMS
3	System	1.000	180	0.7 W1>	W1>
4	System	1.000	180	0.7 <W2	<W2

Deflection Load Combinations - Girt

No.	Origin	Factor	Deflection	Application	Description
1	System	1.000	90	0.7 W1>	W1>
2	System	1.000	90	0.7 <W2	<W2



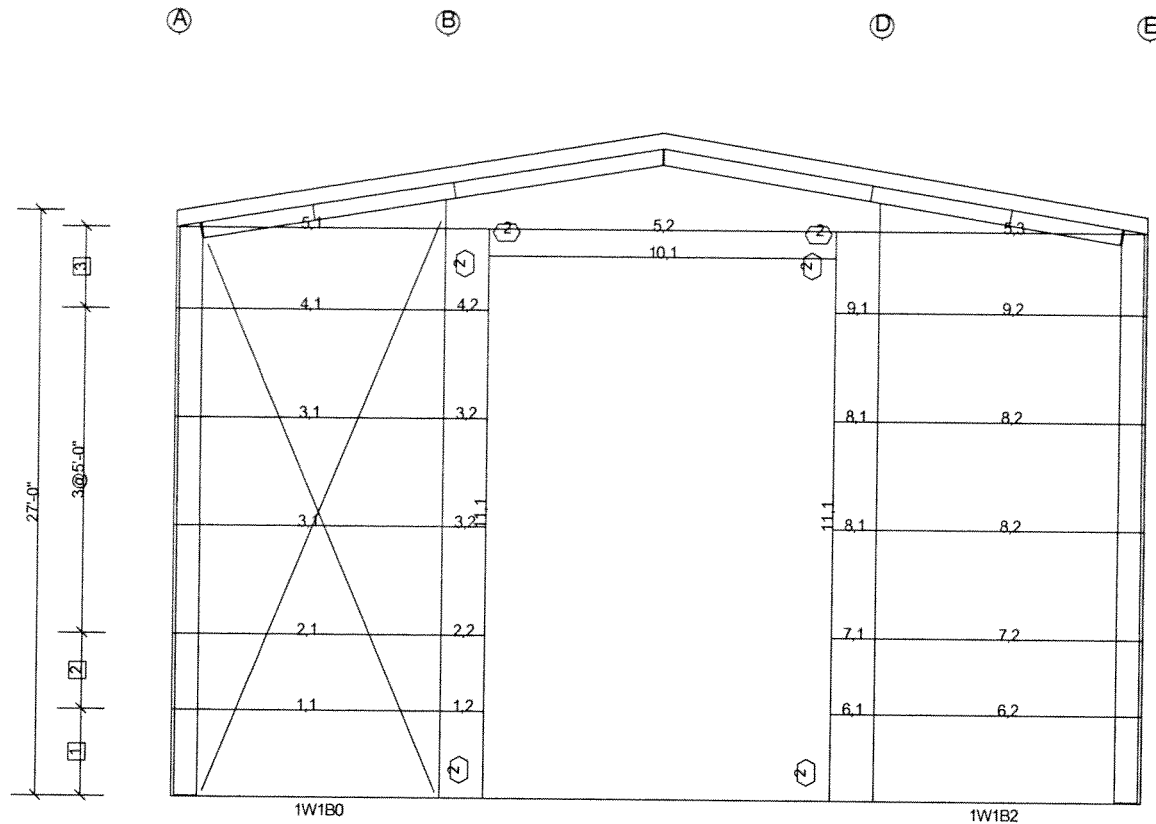
15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 20 of 52

Wall: 1



Dimension Key

- 1 4'-0"
- 2 3'-6"
- 3 3'-9"
- 4 2'-0"



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 21 of 52

Maximum Secondary Designs for Shape Salt Storage on Side 1

Des Id	Len (ft)	Description - Fy(ksi)	Design Status	Detail Lap (in.)	Exterior						Interior					Exterior						
					% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	Lap (in.)	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	Lap (in.)	
1,1	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.35	0.00	0.21	0.00	1							
1,2	2.00	8.50x0.060 Z Sim-60.0	Yes	0.0							0.01	0.00	0.00	0.00	1							
2,1	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.40	0.00	0.24	0.00	1							
2,2	2.00	8.50x0.060 Z Sim-60.0	Yes	0.0							0.01	0.00	0.00	0.00	1							
3,1	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.46	0.00	0.28	0.00	1							
3,2	2.00	8.50x0.060 Z Sim-60.0	Yes	0.0							0.01	0.00	0.00	0.00	1							
4,1	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.41	0.00	0.25	0.00	1							
4,2	2.00	8.50x0.060 Z Sim-60.0	Yes	0.0							0.01	0.00	0.00	0.00	1							
5,1	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.26	0.00	0.16	0.00	1							
5,2	20.00	8.50x0.088 Z Sim-60.0	Yes	0.0							0.89	0.00	0.00	0.00	1							
5,3	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.26	0.00	0.16	0.00	1							
6,1	2.00	8.50x0.060 Z Sim-60.0	Yes	0.0							0.01	0.00	0.00	0.00	1							
6,2	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.35	0.00	0.21	0.00	1							
7,1	2.00	8.50x0.060 Z Sim-60.0	Yes	0.0							0.01	0.00	0.00	0.00	1							
7,2	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.40	0.00	0.24	0.00	1							
8,1	2.00	8.50x0.060 Z Sim-60.0	Yes	0.0							0.01	0.00	0.00	0.00	1							
8,2	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.46	0.00	0.28	0.00	1							
9,1	2.00	8.50x0.060 Z Sim-60.0	Yes	0.0							0.01	0.00	0.00	0.00	1							
9,2	12.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.41	0.00	0.25	0.00	1							
10,1	16.00	8.50x0.060 C Sim-60.0	Yes	0.0							0.09	0.00	0.00	0.00	1							
11,1	26.25	8.50x0.113 C Sim-60.0	Yes	0.0							0.95	0.00	0.00	0.00	1							

Maximum Secondary Deflections for Shape Salt Storage on Side 1

Design Id	Segment	Deflection(in.)	Ratio	Location(ft)	Load Case	Description
1	1	0.08	(L/1801)	6.00	1	0.7W1>
1	2	-	-	-	-	-
2	1	0.09	(L/1593)	6.00	1	0.7W1>
2	2	-	-	-	-	-
3	1	0.11	(L/1372)	6.00	1	0.7W1>
3	2	-	-	-	-	-
4	1	0.10	(L/1551)	6.00	1	0.7W1>
4	2	-	-	-	-	-
5	1	0.06	(L/2379)	6.00	1	0.7W1>
5	2	0.73	(L/327)	22.33	1	0.7W1>
5	3	0.06	(L/2378)	38.33	1	0.7W1>
6	1	-	-	-	-	-
6	2	0.08	(L/1802)	8.00	1	0.7W1>
7	1	-	-	-	-	-
7	2	0.09	(L/1594)	8.00	1	0.7W1>
8	1	-	-	-	-	-
8	2	0.11	(L/1373)	8.00	1	0.7W1>
9	1	-	-	-	-	-
9	2	0.10	(L/1552)	8.00	1	0.7W1>
10	1	0.04	(L/5287)	8.00	1	0.7W1>
11	1	1.93	(L/164)	13.00	1	0.7W1>



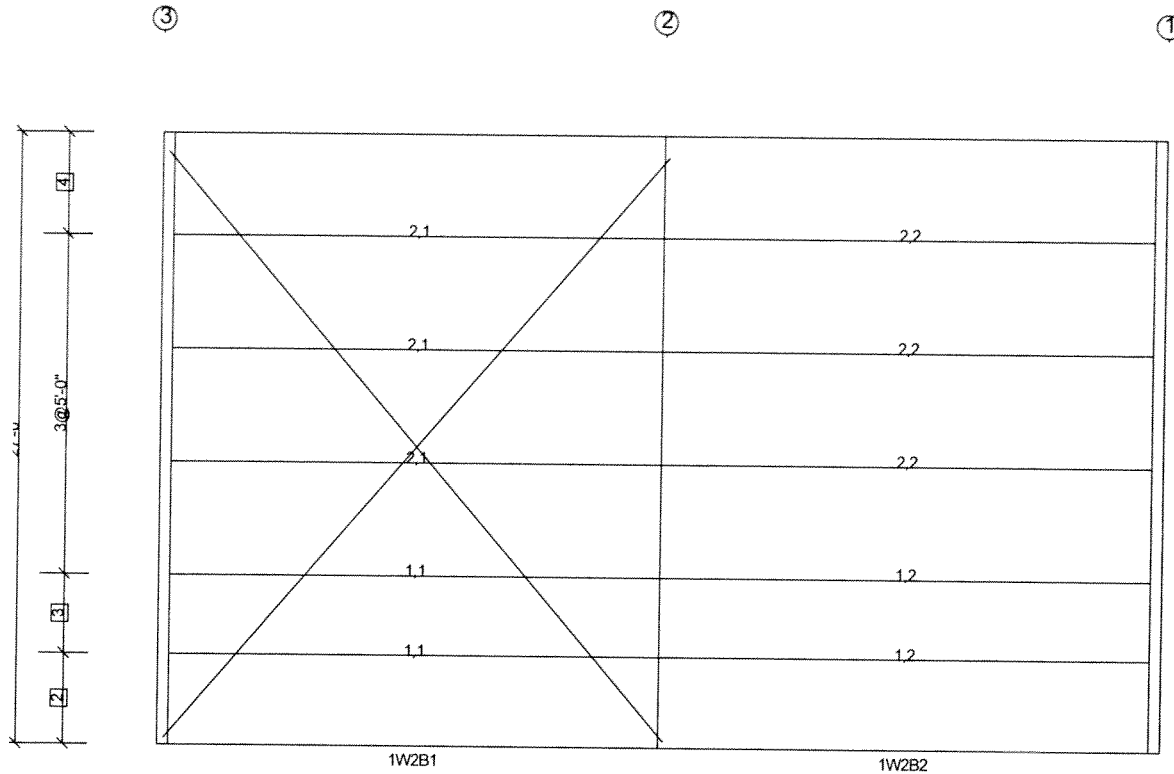
15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 22 of 52

Wall: 2



Dimension Key

- 1 6"
- 2 4'-0"
- 3 3'-6"
- 4 4'-6"

Maximum Secondary Designs for Shape Salt Storage on Side 2

Des Id	Len (ft)	Description - Fy(ksi)	Design Status	Detail Lap (in.)	Exterior					Interior					Exterior				
					% Bnd	% Shr	% Cmb	% Wcp	Ld Cs (in.)	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs (in.)
1,1	21.58	8.50x0.068 Z Sim-60.0	Yes	0.0						0.91	0.00	0.55	0.00	1					
1,2	21.58	8.50x0.068 Z Sim-60.0	Yes	0.0						0.91	0.00	0.00	0.00	1					
2,1	21.58	8.50x0.073 Z Sim-60.0	Yes	0.0						0.93	0.00	0.57	0.00	1					
2,2	21.58	8.50x0.073 Z Sim-60.0	Yes	0.0						0.93	0.00	0.00	0.00	1					

Maximum Secondary Deflections for Shape Salt Storage on Side 2

Design Id	Segment	Deflection(in.)	Ratio	Location(ft)	Load Case	Description
1	1	0.69	(L/374)	11.00	1	0.7W1>
1	2	0.69	(L/374)	32.58	1	0.7W1>
2	1	0.74	(L/348)	11.00	1	0.7W1>
2	2	0.74	(L/348)	32.58	1	0.7W1>



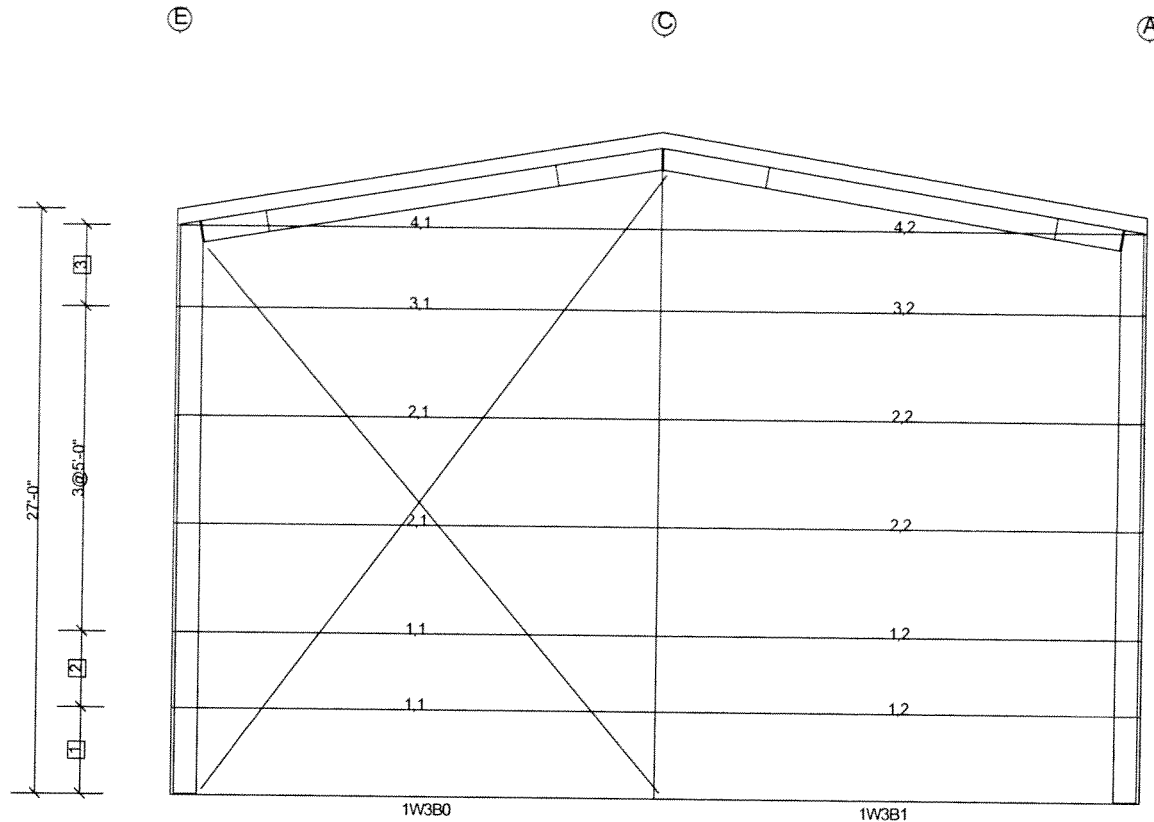
15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 23 of 52

Wall: 3



Dimension Key

- 1 4'-0"
- 2 3'-6"
- 3 3'-9"

Maximum Secondary Designs for Shape Salt Storage on Side 3

Des Id	Len (ft)	Description - Fy(ksi)	Design Status	Detail Lap (in.)	Exterior						Interior					Exterior					
					% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	Lap (in.)	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	Lap (in.)
1,1	22.33	8.50x0.068 Z Sim-60.0	Yes	0.0							0.97	0.00	0.00	0.00	1						
1,2	22.33	8.50x0.068 Z Sim-60.0	Yes	0.0							0.97	0.00	0.00	0.00	1						
2,1	22.33	8.50x0.073 Z Sim-60.0	Yes	0.0							0.99	0.00	0.00	0.00	1						
2,2	22.33	8.50x0.073 Z Sim-60.0	Yes	0.0							0.99	0.00	0.00	0.00	1						
3,1	22.33	8.50x0.068 Z Sim-60.0	Yes	0.0							1.00	0.00	0.00	0.00	1						
3,2	22.33	8.50x0.068 Z Sim-60.0	Yes	0.0							1.00	0.00	0.00	0.00	1						
4,1	22.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.93	0.00	0.00	0.00	1						
4,2	22.33	8.50x0.060 Z Sim-60.0	Yes	0.0							0.93	0.00	0.00	0.00	1						



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 24 of 52

Maximum Secondary Deflections for Shape Salt Storage on Side 3

Design Id	Segment	Deflection(in.)	Ratio	Location(ft)	Load Case	Description
1	1	0.79	(L/339)	11.00	1	0.7W1>
1	2	0.79	(L/339)	33.33	1	0.7W1>
2	1	0.85	(L/316)	11.00	1	0.7W1>
2	2	0.85	(L/316)	33.33	1	0.7W1>
3	1	0.81	(L/330)	11.00	1	0.7W1>
3	2	0.81	(L/330)	33.33	1	0.7W1>
4	1	0.71	(L/377)	11.50	1	0.7W1>
4	2	0.71	(L/377)	33.33	1	0.7W1>



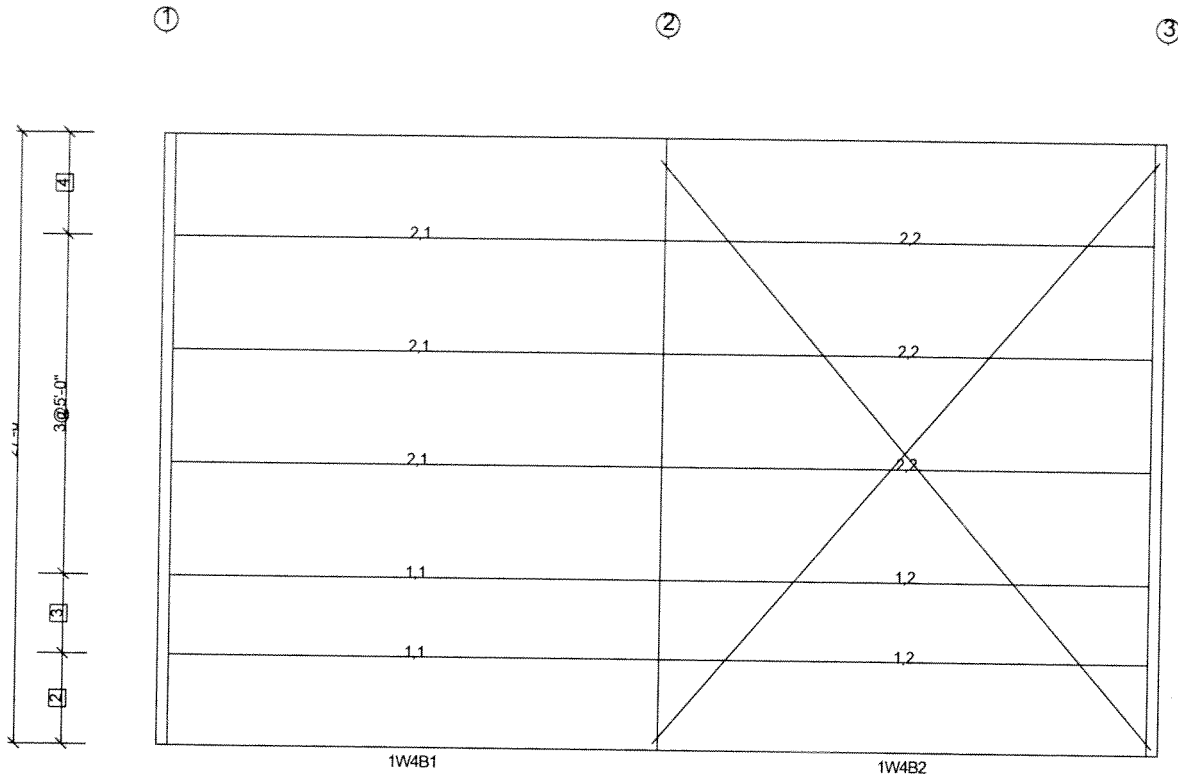
15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 25 of 52

Wall: 4



Dimension Key

- 1 6"
- 2 4'-0"
- 3 3'-6"
- 4 4'-6"

Maximum Secondary Designs for Shape Salt Storage on Side 4

Des Id	Len (ft)	Description - Fy(ksi)	Design Status	Detail Lap (in.)	Exterior					Interior					Exterior				
					% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs
1,1	21.58	8.50x0.068 Z Sim-60.0	Yes	0.0						0.91	0.00	0.55	0.00	1					
1,2	21.58	8.50x0.068 Z Sim-60.0	Yes	0.0						0.91	0.00	0.00	0.00	1					
2,1	21.58	8.50x0.073 Z Sim-60.0	Yes	0.0						0.93	0.00	0.57	0.00	1					
2,2	21.58	8.50x0.073 Z Sim-60.0	Yes	0.0						0.93	0.00	0.00	0.00	1					

Maximum Secondary Deflections for Shape Salt Storage on Side 4

Design Id	Segment	Deflection(in.)	Ratio	Location(ft)	Load Case	Description
1	1	0.69	(L/374)	11.00	1	0.7W1>
1	2	0.69	(L/374)	32.58	1	0.7W1>
2	1	0.74	(L/348)	11.00	1	0.7W1>
2	2	0.74	(L/348)	32.58	1	0.7W1>



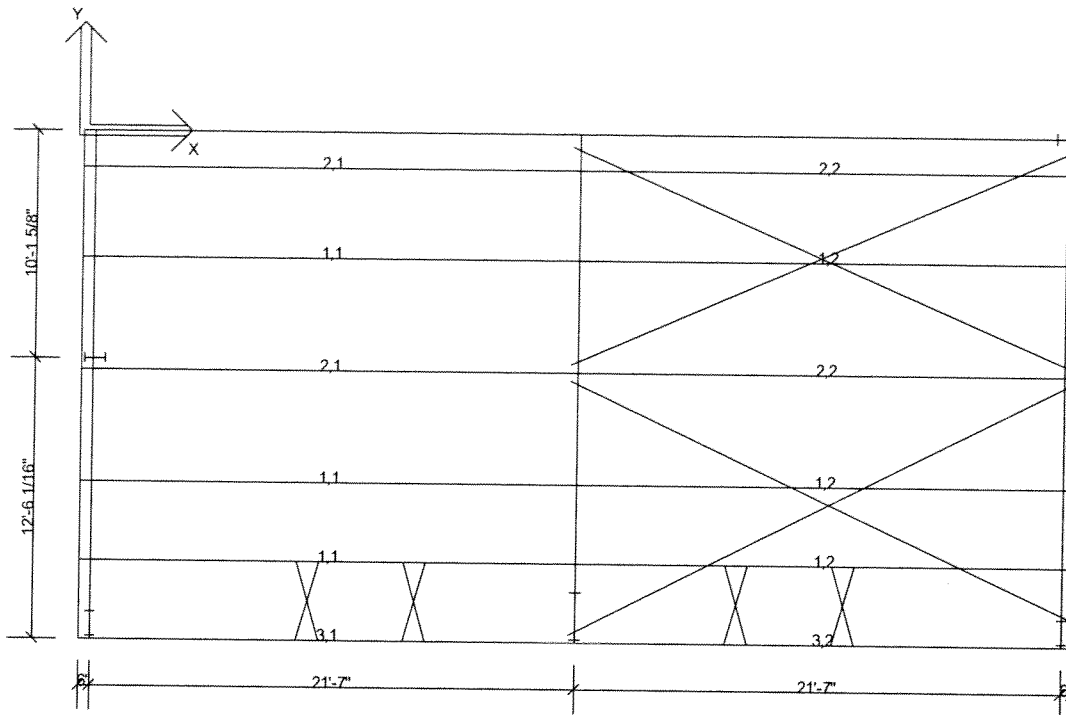
15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 26 of 52

Roof: A



Maximum Secondary Designs for Shape Salt Storage on Side A

Des Id	Len (ft)	Description - Fy(ksi)	Design Status	Detail Lap (in.)	Exterior					Interior					Exterior				
					% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	Lap (in.)	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	% Bnd	% Shr	% Cmb	% Wcp
1,1	22.08	8.50x0.060 Z Con-60.0	Yes	34.5							0.00	0.02	0.58	0.87	4	0.72	0.33	0.98	0.99
1,2	22.08	8.50x0.060 Z Con-60.0	Yes	34.5	0.72	0.33	0.98	0.99	4	34.5	0.00	0.36	0.58	0.87	4				
2,1	22.08	8.50x0.068 Z Con-60.0	Yes	34.5							0.52	0.21	0.76	0.00	25	0.70	0.28	0.92	0.90
2,2	22.08	8.50x0.060 Z Con-60.0	Yes	34.5	0.70	0.28	0.92	0.90	12	34.5	0.00	0.38	0.61	0.92	12				
3,1	22.08	8.50x0.060 EZ Sim-60.0	Yes	0.0							0.42	0.00	0.00	0.00	12				
3,2	22.08	8.50x0.060 EZ Sim-60.0	Yes	0.0							0.27	0.00	0.63	0.00	20				

Maximum Secondary Deflections for Shape Salt Storage on Side A

Design Id	Segment	Deflection(in.)	Ratio	Location(ft)	Load Case	Description
1	1	-0.53	(L/485)	9.00	2	1.0SMS
1	2	-0.54	(L/479)	34.96	2	1.0SMS
2	1	-0.52	(L/496)	9.00	2	1.0SMS
2	2	-0.60	(L/431)	34.96	2	1.0SMS
3	1	-0.51	(L/508)	11.50	2	1.0SMS
3	2	-0.51	(L/508)	33.08	2	1.0SMS



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 27 of 52

Purlin Anchorage Forces for Shape Salt Storage , Roof A, Panel Type is PR, Pitch = 2.000:12 AR Clip if req'd - EPC3

Bay	Thickness	Load(psf)	Ld Case	# Purlins	Length	Simple?	Diaphragm Width	Allowable Defl	Actual Defl
1	0.060	-23.60	1	5	22.08	N	22.64	0.736	0.010
2	0.060	-23.60	1	5	22.08	N	22.64	0.736	0.010

Reference Frm-Line	Located @	Force per Anch. Line(k)	Force per Anchor	Anch. Allow	Req'd AR Anchors	Actual AR, STD	Required Stiffness	Available Stiffness	Diaphragm Allow	Diaphragm Shr	Diaphragm Stress Ratio
1(0.00)	Frame	0.52D	0.34D (k)	0.54W	1	1, 0	2.425	3.489	0.126	0.020	0.161
2(22.08)	Frame	1.08D	0.49D (k)	0.58W	1	1, 0	5.081	5.922	0.126	0.019	0.149
3(44.17)	Frame	0.52D	0.34D (k)	0.54W	1	1, 0	2.425	3.489	0.126	0.020	0.161



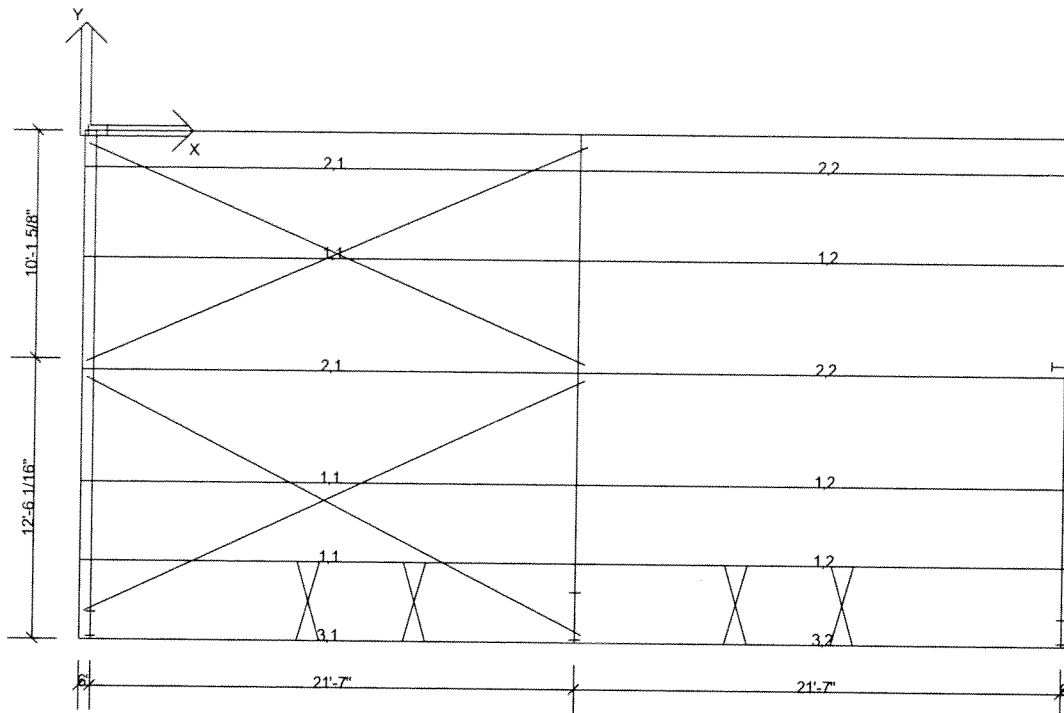
15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 28 of 52

Roof: B



Maximum Secondary Designs for Shape Salt Storage on Side B

Des Id	Len (ft)	Description - Fy(ksi)	Design Status	Detail Lap (in.)	Exterior					Interior					Exterior				
					% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs	% Bnd	% Shr	% Cmb	% Wcp	Ld Cs
1,1	22.08	8.50x0.060 Z Con-60.0	Yes	34.5															
1,2	22.08	8.50x0.060 Z Con-60.0	Yes	34.5	0.72	0.33	0.98	0.99	3	34.5	0.00	0.02	0.58	0.87	3	0.72	0.33	0.98	0.99
2,1	22.08	8.50x0.060 Z Con-60.0	Yes	34.5															
2,2	22.08	8.50x0.068 Z Con-60.0	Yes	34.5	0.70	0.28	0.92	0.90	12	34.5	0.00	0.02	0.61	0.92	12	0.70	0.28	0.92	0.90
3,1	22.08	8.50x0.060 EZ Sim-60.0	Yes	0.0															
3,2	22.08	8.50x0.060 EZ Sim-60.0	Yes	0.0															

Maximum Secondary Deflections for Shape Salt Storage on Side B

Design Id	Segment	Deflection(in.)	Ratio	Location(ft)	Load Case	Description
1	1	-0.53	(L/485)	9.00	2	1.0SMS
1	2	-0.54	(L/479)	34.96	2	1.0SMS
2	1	-0.59	(L/436)	9.00	2	1.0SMS
2	2	-0.53	(L/489)	34.96	2	1.0SMS
3	1	-0.51	(L/509)	11.50	2	1.0SMS
3	2	-0.51	(L/509)	33.08	2	1.0SMS



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 29 of 52

Purlin Anchorage Forces for Shape Salt Storage , Roof B, Panel Type is PR, Pitch = 2.000:12 AR Clip if req'd - EPC3

Bay	Thickness	Load(psf)	Ld Case	# Purlins	Length	Simple?	Diaphragm Width	Allowable Defl	Actual Defl
1	0.060	-23.60	1	5	22.08	N	22.64	0.736	0.010
2	0.060	-23.60	1	5	22.08	N	22.64	0.736	0.010

Reference Frm-Line	Located @	Force per Anch. Line(k)	Force per Anchor	Anch. Allow	Req'd AR Anchors	Actual AR, STD	Required Stiffness	Available Stiffness	Diaphragm Allow	Diaphragm Shr	Diaphragm Stress Ratio
1(0.00)	Frame	0.52D	0.34D (k)	0.54W	1	1, 0	2.425	3.489	0.126	0.020	0.161
2(22.08)	Frame	1.08D	0.49D (k)	0.58W	1	1, 0	5.081	5.922	0.126	0.019	0.149
3(44.17)	Frame	0.52D	0.34D (k)	0.54W	1	1, 0	2.425	3.489	0.126	0.020	0.161



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 30 of 52

Framing - Summary Report

Loads and Codes - Shape: Salt Storage

City: Albuquerque County: Bernalillo
Building Code: 2009 New Mexico Commercial Building Code
Based on Building Code: 2009 International Building Code
Building Risk/Occupancy Category: I (Low Hazard: Ag, Storage, Temp)

State: New Mexico
Built Up: 05AISC - ASD
Cold Form: 07AISI - ASD

Country: United States
Rainfall: 4.00 inches per hour
3000.00 psi Concrete

Dead and Collateral Loads

Collateral Gravity: 3.00 psf
Collateral Uplift: 0.00 psf

Roof Covering + Second. Dead Load: 2.11 psf
Frame Weight (assumed for seismic): 2.50 psf

Roof Live Load

Roof Live Load: 20.00 psf Not Reducible

Wind Load

Wind Speed: 90.00 mph
The 'Low Rise' Method is Used
Wind Exposure (Factor): C (0.961)
Parts Wind Exposure Factor: 0.961
Wind Enclosure: Enclosed
Wind Importance Factor: 0.870
Topographic Factor: 1.0000

NOT Windborne Debris Region
Base Elevation: 0/0/0
Primary Zone Strip Width: 8/10/0
Parts / Portions Zone Strip Width: 4/5/0
Basic Wind Pressure: 14.73 psf

Snow Load

Ground Snow Load: 20.00 psf
Flat Roof Snow: 12.10 psf
Design Snow (Sloped): 12.10 psf
Rain Surcharge: 0.00
Specified Minimum Roof Snow: 20.00 psf (USR)
Exposure Category (Factor): 1 Fully Exposed (0.90)
Snow Importance: 0.800
Thermal Category (Factor): Unheated (1.20)
Ground / Roof Conversion: 0.70
% Snow Used in Seismic: 0.00
Seismic Snow Load: 0.00 psf
Unobstructed, Slippery

Seismic Load

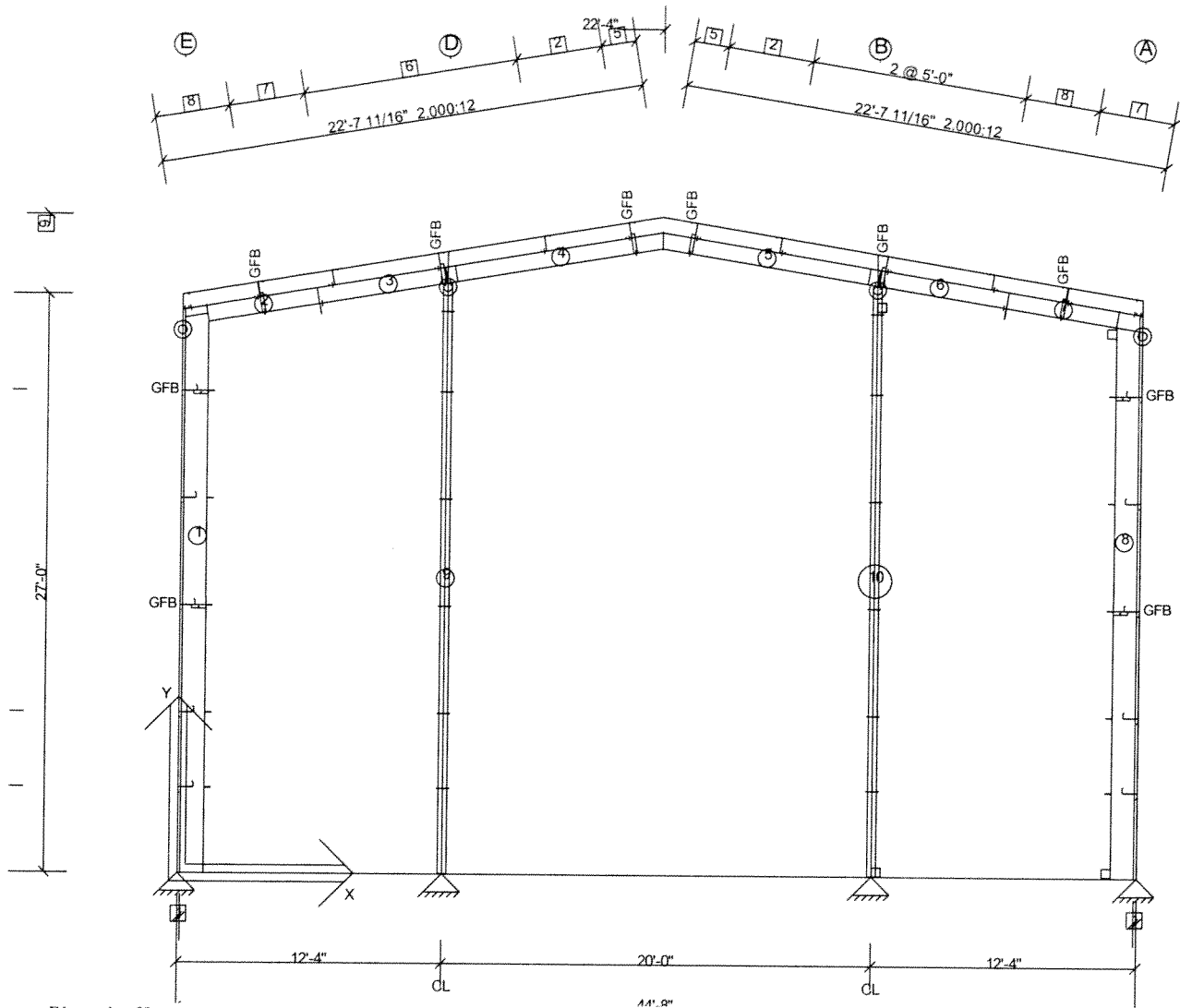
Mapped Spectral Response - Ss: 56.40 %g
Mapped Spectral Response - S1: 17.00 %g
Seismic Design Category: D
Seismic Importance: 1.000
Framing Fundamental Period: 0.3911
Bracing Fundamental Period: 0.2369
Framing R-Factor: 3.5000
Bracing R-Factor: 3.2500
Soil Profile Type: Stiff soil (D, 4)
Diaphragm Condition: Flexible
Frame Redundancy Factor: 1.3000
Brace Redundancy Factor: 1.3000
Frame Seismic Factor (Cs): 0.1449 x W
Brace Seismic Factor (Cs): 0.1560 x W
Design Spectral Response - Sd1: 0.2403
Design Spectral Response - Sds: 0.5071

Deflection Conditions

Frames are vertically supporting: Metal Roof Purlins and Panels
Frames are laterally supporting: Metal Wall Girts and Panels
Purlins are supporting: Metal Roof Panels
Girts are supporting: Metal Wall Panels

Wall: 4, Frame at: 0/6/0

Frame Cross Section: 1



Dimension Key

- 1 1 5/8"
- 2 4'-0"
- 3 3'-6"
- 4 4'-6"
- 5 1'-7 7/16"

- 6 2 @ 5'-0"
7 3'-6 1/8"
8 3'-6 3/16"
9 30'-8 11/16" Ridge Ht.

Frame Clearances

Horiz. Clearance between members 1(CX001) and 8(CX002): 42'-2 9/16"

Vert. Clearance at member 1(CX001): 25'-8 3/16"

Vert. Clearance at member 8(CX002): 25'-8 3/16"

Vert. Clearance at member 9(EPX001): 27'-6 15/16"

Vert. Clearance at member 10(EPX002): 27'-6 15/16"

Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 32 of 52

Frame Location Design Parameters:

Location	Avg. Bay Space	Description	Angle	Group	Trib. Override	Design Status
0/6/0	11/3/8	PandB front	90.0000		-	Automatic Design

Design Load Combinations - Framing

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 CG + 1.0 L>	D + CG + L>
2	System	1.000	1.0 D + 1.0 CG + 1.0 <L	D + CG + <L
3	System	1.000	1.0 D + 1.0 CG + 1.0 SMS>	D + CG + SMS>
4	System	1.000	1.0 D + 1.0 CG + 1.0 <SMS	D + CG + <SMS
5	System	1.000	1.0 D + 1.0 CG + 1.0 US1*	D + CG + US1*
6	System	1.000	1.0 D + 1.0 CG + 1.0 *US1	D + CG + *US1
7	System	1.000	1.0 D + 1.0 CG + 1.0 W1>	D + CG + W1>
8	System	1.000	1.0 D + 1.0 CG + 1.0 <W1	D + CG + <W1
9	System	1.000	1.0 D + 1.0 CG + 1.0 W2>	D + CG + W2>
10	System	1.000	1.0 D + 1.0 CG + 1.0 <W2	D + CG + <W2
11	System	1.000	0.6 D + 0.6 CU + 1.0 W1>	D + CU + W1>
12	System	1.000	0.6 D + 0.6 CU + 1.0 <W1	D + CU + <W1
13	System	1.000	0.6 D + 0.6 CU + 1.0 W2>	D + CU + W2>
14	System	1.000	0.6 D + 0.6 CU + 1.0 <W2	D + CU + <W2
15	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W1>	D + CG + L + W1>
16	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W1	D + CG + L + <W1
17	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W2>	D + CG + L + W2>
18	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W2	D + CG + L + <W2
19	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W1>	D + CG + S + W1>
20	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W1	D + CG + S + <W1
21	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W2>	D + CG + S + W2>
22	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W2	D + CG + S + <W2
23	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
25	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA1	D + CG + L + WPA1
26	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA1	D + CG + S + WPA1
27	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD1	D + CG + WPD1
28	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD1	D + CU + WPD1
29	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD1	D + CG + L + WPD1
30	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD1	D + CG + S + WPD1
31	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA2	D + CG + WPA2
32	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA2	D + CU + WPA2
33	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA2	D + CG + L + WPA2
34	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA2	D + CG + S + WPA2
35	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD2	D + CG + WPD2
36	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD2	D + CU + WPD2
37	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD2	D + CG + L + WPD2
38	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD2	D + CG + S + WPD2
39	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB1	D + CG + WPB1
40	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1
41	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB1	D + CG + L + WPB1
42	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB1	D + CG + S + WPB1
43	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC1	D + CG + WPC1
44	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1
45	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC1	D + CG + L + WPC1
46	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC1	D + CG + S + WPC1
47	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB2	D + CG + WPB2
48	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB2	D + CU + WPB2
49	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB2	D + CG + L + WPB2
50	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB2	D + CG + S + WPB2
51	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC2	D + CG + WPC2
52	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC2	D + CU + WPC2
53	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC2	D + CG + L + WPC2
54	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC2	D + CG + S + WPC2



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 33 of 52

Frame Member Sizes

Mem. No.	Flg Width (in.)	Flg Thk (in.)	Web Thk (in.)	Depth1 (in.)	Depth2 (in.)	Length (ft)	Weight (p)	Flg Fy (ksi)	Web Fy (ksi)	Splice Jt.1	Codes Jt.2	Shape
1	5.00	0.1345	0.1345	13.00	13.00	26.30	291.5	55.00	55.00	BP	KN	3P
2	5.00	0.1345	0.1345	9.00	9.00	6.18	50.8	55.00	55.00	KN	SS	3P
3	5.00	0.1345	0.1345	9.00	9.00	6.52	55.9	55.00	55.00	SS	SS	3P
4	5.00	0.1345	0.1345	9.00	9.00	9.80	87.6	55.00	55.00	SS	SP	3P
5	5.00	0.1345	0.1345	9.00	9.00	9.80	87.6	55.00	55.00	SP	SS	3P
6	5.00	0.1345	0.1345	9.00	9.00	6.52	55.9	55.00	55.00	SS	SS	3P
7	5.00	0.1345	0.1345	9.00	9.00	6.18	50.8	55.00	55.00	SS	KN	3P
8	5.00	0.1345	0.1345	13.00	13.00	26.30	291.5	55.00	55.00	BP	KN	3P
9	5.00	0.2500	0.1345	11.00	11.00	27.58	384.4	55.00	55.00	BP	CP	3P
10	5.00	0.2500	0.1345	11.00	11.00	27.58	384.4	55.00	55.00	BP	CP	3P

Total Frame Weight = 1740.5 (p) (Includes all plates)

Frame Member Releases

Member	Joint 1	Joint 2
1	No	Yes
8	No	Yes
9	No	Yes
10	No	Yes

Boundary Condition Summary

Member	X-Loc	Y-Loc	Supp. X	Supp. Y	Moment	Displacement X(in.)	Displacement Y(in.)	Displacement ZZ(rad.)
1	0/0/0	0/0/0	Yes	Yes	No	0/0/0	0/0/0	0.0000
8	44/8/0	0/0/0	Yes	Yes	No	0/0/0	0/0/0	0.0000
9	12/4/0	0/0/0	Yes	Yes	No	0/0/0	0/0/0	0.0000
10	32/4/0	0/0/0	Yes	Yes	No	0/0/0	0/0/0	0.0000

Values shown are resisting forces of the foundation.

Base Connection Design is Based on 3000.00 (psi) Concrete

Reactions - Unfactored Load Type at Frame Cross Section: 1

Type X-Loc		Exterior Column 0/0/0 1-E		Interior Column 12/4/0 1-D			Interior Column 32/4/0 1-B			Exterior Column 44/8/0 1-A		
Grid1 - Grid2		8 X 14		8 X 12			8 X 12			8 X 14		
Base Plate W x L (in.)		0.375		0.375			0.375			0.375		
Base Plate Thickness (in.)		4 - 0.750		4 - 0.750			4 - 0.750			4 - 0.750		
Anchor Rod Qty/Diam. (in.)		100'-0"		100'-0"			100'-0"			100'-0"		
Column Base Elev.												
Load Type	Desc.	Hx	Vy	Hx	Hx	Vy	Hx	Hx	Vy	Hx	Vy	
D	Frm	-	0.40	-	-	0.97	-	-	0.97	-	0.40	-
CG	Frm	-	0.14	-	-	0.62	-	-	0.62	-	0.14	-
L>	Frm	-	0.92	-	-	4.13	-	-	4.13	-	0.92	-
<L	Frm	-	0.92	-	-	4.13	-	-	4.13	-	0.92	-
SMS>	Frm	-	0.92	-	-	4.13	-	-	4.13	-	0.92	-
<SMS	Frm	-	0.92	-	-	4.13	-	-	4.13	-	0.92	-
US1*	Frm	-	0.02	-	-	1.31	-	-	3.19	-	0.48	-
*US1	Frm	-	0.48	-	-	3.19	-	-	1.31	-	0.02	-
W1>	Frm	-1.13	-0.61	-	3.01	-3.19	-	3.01	-2.47	-1.61	-0.81	-
<W1	Frm	1.61	-0.81	-	-2.71	-2.47	-	-2.71	-3.19	1.13	-0.61	-
W2>	Frm	-1.91	-0.18	-	-	-2.28	-	-	-1.56	-0.83	-0.38	-
<W2	Frm	0.83	-0.38	-	-	-1.56	-	-	-2.28	1.91	-0.18	-
CU	Frm	-	-	-	-	-	-	-	-	-	-	-
L	Frm	-	0.92	-	-	4.13	-	-	4.13	-	0.92	-
S	Frm	-	0.56	-	-	2.50	-	-	2.50	-	0.56	-
WPA1	Brc	1.36	-1.27	-	-	-2.51	-2.02	-	-7.00	-1.36	3.77	-
WPD1	Brc	1.36	-0.84	-	-	-1.44	-	-	3.48	0.54	-5.51	-
WPA2	Brc	0.58	-0.85	-	-	-1.60	-2.02	-	-6.13	-0.58	4.24	-
WPD2	Brc	0.58	-0.42	-	-	-0.53	-	-	4.44	1.32	-5.13	-
WPB1	Brc	1.36	-0.93	-	-	-2.24	-2.02	-	-7.27	-1.36	3.43	-
WPC1	Brc	1.36	-0.70	-	-	-1.33	-	-	3.37	0.54	-5.66	-
WPB2	Brc	0.58	-0.51	-	-	-1.33	-2.02	-	-6.40	-0.58	3.90	-
WPC2	Brc	0.58	-0.27	-	-	-0.42	-	-	4.33	1.32	-5.28	-
SMS	Frm	-	0.92	-	-	4.13	-	-	4.13	-	0.92	-



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 34 of 52

Sum of Forces with Reactions Check - Framing

Load Type	Horizontal		Vertical	
	Load (k)	Reaction (k)	Load (k)	Reaction (k)
D	0.0	0.0	2.8	2.8
CG	0.0	0.0	1.5	1.5
L>	0.0	0.0	10.1	10.1
<L	0.0	0.0	10.1	10.1
SMS>	0.0	0.0	10.1	10.1
<SMS	0.0	0.0	10.1	10.1
US1*	0.0	0.0	5.0	5.0
*US1	0.0	0.0	5.0	5.0
W1>	5.5	5.5	7.1	7.1
<W1	5.5	5.5	7.1	7.1
W2>	5.5	5.5	4.4	4.4
<W2	5.5	5.5	4.4	4.4
CU	0.0	0.0	0.0	0.0
L	0.0	0.0	10.1	10.1
S	0.0	0.0	6.1	6.1
WPA1	0.1	0.1	7.0	7.0
WPD1	0.0	2.0	4.3	4.3
WPA2	0.1	0.1	4.3	4.3
WPD2	0.0	2.0	1.6	1.6
WPB1	0.1	0.1	7.0	7.0
WPC1	0.0	2.0	4.3	4.3
WPB2	0.1	0.1	4.3	4.3
WPC2	0.0	2.0	1.6	1.6
SMS	0.0	0.0	10.1	10.1

Maximum Combined Reactions Summary with Factored Loads - Framing

Note: All reactions are based on 1st order structural analysis.

X-Loc	Grid	Hz left (-Hx) (k)	Load Case	Hz Right (Hx) (k)	Load Case	Hz In (-Hz) (k)	Load Case	Hz Out (Hz) (k)	Load Case	Uplift (-Vy) (k)	Load Case	Vrt Down (Vy) (k)	Load Case	Mom cw (-Mzz) (in-k)	Load Case	Mom ccw (Mzz) (in-k)	Load Case
0/0/0	1-E	1.91	9	1.61	8	-	-	-	-	1.03	24	1.46	1	-	-	-	-
12/4/0	1-D	-	-	-	-	2.71	8	3.01	7	2.61	11	5.72	1	-	-	-	-
22/4/0	30/8/11	2.75	7	2.75	8	-	-	-	-	-	-	-	-	-	-	-	-
32/4/0	1-B	2.01	31	-	-	2.71	8	3.01	7	6.69	40	8.02	37	-	-	-	-
44/8/0	1-A	1.61	7	1.91	10	-	-	-	-	5.42	44	4.78	31	-	-	-	-

Base Plate Summary

Base Connection Design is Based on 3000.00 (psi) Concrete

Plate Fy = 55.00 ksi

Grade A36 Anchor Rods used to determine quantity and diameter

Gage & pitch standards are based on ACI-318 Appendix D criteria for "cast-in-place" anchor rods (Min space = 4*drod)

X-Loc	Grid	Mem. No.	Thickness (in.)	Width (in.)	Length (in.)	Stiff.	Num. Of Rods	Rod Diam. (in.)	Pitch (in.)	Gage (in.)	Hole Type	Welds to Flange	Welds to Web
0/0/0	1-E	1	0.375	8	14	No	4	0.750	5.0	5.0	Std	OS-0.1875	OS-0.1875
12/4/0	1-D	9	0.375	8	12	No	4	0.750	5.0	5.0	Std	OS-0.1875	OS-0.1875
32/4/0	1-B	10	0.375	8	12	No	4	0.750	5.0	5.0	Std	OS-0.1875	OS-0.1875
44/8/0	1-A	8	0.375	8	14	No	4	0.750	5.0	5.0	Std	OS-0.1875	OS-0.1875

Pinned Base Plate Connection Loading

X-Loc	Maximum Shear Case			Maximum Tension Case			Maximum Comp Case			Maximum Bracing/WA Case			
	Shear	Axial	Load	Shear	Tension	Load	Shear	Comp	Load	Shear	Axial	Frame Shear (k)	Load
	(k)	(k)	Case	(k)	(k)	Case	(k)	(k)	Case	(k)	(k)		Case
0/0/0	1.91	0.06	13	1.36	-1.03	24	-	1.46	1	-	-	-	0
12/4/0	3.01	-1.60	7	3.01	-2.61	11	0.00	5.72	1	-	-	-	0
32/4/0	3.01	-1.89	11	0.01	-6.69	40	0.00	8.02	37	2.01	-6.69	0.01	40
44/8/0	1.91	0.06	14	0.54	-5.42	44	0.58	4.78	31	-	-	-	0



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 35 of 52

Base Plate Connection Strength Ratios

X-Loc	Rod Shear	Load Case	Rod Tension	Load Case	Rod V + T	Load Case	Rod Bending	Load Case	Conc. Bearing	Load Case	Plate Tension	Load Case	Plate Comp	Load Case	Flange Weld	Load Case	Web Weld	Load Case
0/0/0	0.093	13	0.027	24	-	0	-	0	0.012	1	0.039	24	0.022	1	0.015	1	0.052	13
12/4/0	0.147	7	0.068	11	-	0	-	0	0.054	1	0.096	11	0.100	1	0.085	1	0.105	11
32/4/0	0.147	11	0.174	40	-	0	-	0	0.076	37	0.247	40	0.140	37	0.119	37	0.148	40
44/8/0	0.093	14	0.141	44	-	0	-	0	0.039	31	0.205	44	0.071	31	0.049	31	0.103	44

Web Stiffener Summary

Mem. No.	Stiff. No.	Desc.	Loc. (ft)	Web Depth (in.)	h/t	a/h	a (in.)	Thick. (in.)	Width (in.)	Side	Welding Description
1	1	S2	25.90	12.328	91.65	N/A	N/A	0.1875	2.000	Both	SP-OS-0.1250,W-OS-0.1250,F-OS-0.1250
3	1	S2	6.06	8.731	64.91	N/A	N/A	0.1875	2.000	Both	F-OS-0.1250,W-OS-0.1250,F-OS-0.1250
6	1	S2	0.46	8.731	64.91	N/A	N/A	0.1875	2.000	Both	F-OS-0.1250,W-OS-0.1250,F-OS-0.1250
8	1	S2	25.52	12.579	93.52	N/A	N/A	0.1875	2.000	Both	SP-BS-0.1875,W-BS-0.1250,F-OS-0.1250
10	1	S5	26.75	10.500	78.07	N/A	N/A	0.5000	5.000	Near	F-BS-0.1875,W-BS-0.1875

Bolted End-Plate Connections (Plate Fy = 55.00 ksi)

Mem. No.	Jt. No.	Type	End-Plate Dimensions			Bolt			Outside Flange			Inside Flange		
			Thick. (in.)	Width (in.)	Length (in.)	Diam. (in.)	Spec/Joint	Gages In/Out (in.)	Configuration	Pitches 1st/2nd (in.)	Configuration	Pitches 1st/2nd (in.)	Configuration	Pitches 1st/2nd (in.)
1	2	KN(Face)	0.375	6.00	10.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00
2	1	KN(Face)	0.375	6.00	10.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00
4	2	SP	0.250	6.00	10.12	0.500	A325N/PT	3.00	11	Flush	4.63	12	Flush	1.50
5	1	SP	0.250	6.00	10.12	0.500	A325N/PT	3.00	11	Flush	4.63	12	Flush	1.50
7	2	KN(Face)	0.375	6.00	10.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00
8	2	KN(Face)	0.375	6.00	10.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00
9	2	CP	0.375	6.00	12.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00
10	2	CP	0.375	6.00	12.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00

Moment Connections:

Outside Flange		Required Strength				Design Proc.	Strength Ratios *							
Mem. No.	Jt. No.	Ld Cs	Axial (k)	Shear (k)	Moment (in-k)		Bolt Tension	Bolt Shear	Plate Bending	Shear Yielding	Shear Rupture	Bearing Tearing	Flange Weld	Web Weld
4	2	12	2.2	0.0	28.1	AISC DG-16/Thin plate	0.368	0.000	0.554	0.000	0.000	0.000	0.516	0.516
5	1	12	2.2	0.0	28.1	AISC DG-16/Thin plate	0.368	0.000	0.554	0.000	0.000	0.000	0.516	0.516

Inside Flange		Required Strength				Design Proc.	Strength Ratios *							
Mem. No.	Jt. No.	Ld Cs	Axial (k)	Shear (k)	Moment (in-k)		Bolt Tension	Bolt Shear	Plate Bending	Shear Yielding	Shear Rupture	Bearing Tearing	Flange Weld	Web Weld
4	2	2	0.0	0.0	75.1	AISC DG-16/Thin plate	0.402	0.001	0.973	0.000	0.000	0.000	0.516	0.516
5	1	2	0.0	0.0	75.1	AISC DG-16/Thin plate	0.402	0.001	0.973	0.000	0.000	0.000	0.516	0.516

* Strength ratios shown for the connections are reported as a percentage of the system default or user Override Stress Limit.

Pinned Connections:

Mem. No.	Jt. No.	Maximum Shear Case			Maximum Tension Case			Strength Ratios						
		Ld Cs	Axial (k)	Shear (k)	Ld Cs	Axial (k)	Shear (k)	Bolt Tension	Bolt Shear	Bolt V + T	Plate Bending	Flange Yielding	Flange Bearing	Web Weld
1	2	1	-0.1	0.8	12	1.8	0.3	0.058	0.045	0.000	0.058	0.041	0.030	0.033
2	2	1	-0.1	0.8	12	1.8	0.3	0.058	0.045	0.000	0.058	0.041	0.030	0.033
7	2	2	-0.1	0.8	11	1.8	0.3	0.058	0.045	0.000	0.058	0.041	0.030	0.033
8	2	2	-0.1	0.8	11	1.8	0.3	0.058	0.045	0.000	0.058	0.041	0.030	0.033
9	2	7	1.6	2.9	11	2.6	2.9	0.082	0.155	0.000	0.084	0.032	0.056	0.100
10	2	7	0.9	2.9	12	2.6	2.6	0.082	0.155	0.000	0.084	0.032	0.056	0.100



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 36 of 52

Flange Brace Summary

Member	From Member Joint 1	From Side Point 1	Part	Axial Load per FB (k)	Load Case	Design Note
1	12/6/0	12/6/0	GFB2030	0.172	8	
1	22/6/0	22/6/0	GFB2030	0.081	8	
2	2/6/4	19/1/9	GFB2033	0.041	24	
3	5/9/14	10/7/7	GFB2003	0.187	2	
4	8/3/9	1/7/7	GFB2033	0.064	11	
5	1/6/0	1/7/7	GFB2033	0.064	12	
6	0/8/7	10/7/7	GFB2003	0.187	1	
7	2/8/5	19/1/10	GFB2033	0.082	40	
8	12/6/0	12/6/0	GFB2030	0.172	7	
8	22/6/0	22/6/0	GFB2030	0.081	7	

Top Of Post Summary

X-Loc	Grid	Top Reaction	Conn. Force	Condition	Flg Mn Moment	Rb Allow Shear	Comp	FB Force R1	FB Angle R2	Min Purlin	FB Typ	Purlin Bearing	Bolt Shear	FB/WSF Bearing
12/4/0	1-D	3.00	1.25	Std	0.00	0.00	N	1.42	28.14	0.068	GFB	2.86	4.42	3.37
32/4/0	1-B	3.00	1.25	Std	0.00	0.00	N	1.42	28.14	0.068	GFB	2.86	4.42	3.37

Frame Design Member Summary - Controlling Load Case and Maximum Combined Stresses per Member (Locations are from Joint 1)

Mem. No.	Loc. ft	Depth in.	Controlling Cases		Required Strength				Available Strength				Strength Ratios	
			Axial + Flexure	Shear	Axial Pr k	Shear Vr k	Mom-x Mrx in-k	Mom-y Mry in-k	Axial Pc k	Shear Vc k	Mom-x Mcx in-k	Mom-y Mcy in-k	Axial + Flexure	Shear
1	12.50	13.00	9		-0.4		149.5	0.0	18.8		146.9	39.0	1.03	
1	0.00	13.00		13		1.9				15.4				0.12
2	4.35	9.00	24		1.7		-22.9	0.0	83.1		169.5	39.0	0.14	
2	0.49	9.00		1		0.8				20.9				0.04
3	6.12	9.00	2		0.4		-100.6	0.0	83.1		169.5	39.0	0.60	
3	6.12	9.00		2		-2.4				20.9				0.11
4	0.00	9.00	1		-0.5		-100.6	0.0	30.6		169.5	39.0	0.60	
4	0.00	9.00		2		2.9				20.9				0.14
5	10.14	9.00	2		-0.5		-100.6	0.0	30.6		169.5	39.0	0.60	
5	10.14	9.00		1		-2.9				20.9				0.14
6	0.00	9.00	1		0.4		-100.6	0.0	83.1		169.5	39.0	0.60	
6	0.00	9.00		1		2.4				20.9				0.11
7	2.69	9.00	40		1.6		-40.4	0.0	76.4		169.5	39.0	0.25	
7	5.21	9.00		2		-0.8				20.9				0.04
8	12.50	13.00	10		-0.4		149.5	0.0	18.8		146.9	39.0	1.03	
8	0.00	13.00		14		-1.9				15.4				0.12
9	12.50	11.00	7		1.6		-249.9	0.0	115.1		253.2	96.5	0.99	
9	0.00	11.00		11		-3.0				19.1				0.16
10	12.50	11.00	7		0.9		-249.9	0.0	115.1		251.2	96.5	1.00	
10	0.00	11.00		11		-3.0				19.1				0.16

Parameters Used for Axial and Flexural Design

Mem. No.	Loc. ft	Lx in.	Ly/Lt in.	Lb in.	Ag in.2	Afn in.2	Ixx in.4	Iyy in.4	Sx in.3	Sy in.3	Zx in.3	Zy in.3	J in.4	Cw in.6	Cb	Rpg	Rpc	Qs	Qa
1	12.50	308.70	150.0	150.0	3.06	0.67	78.79	2.80	12.12	1.12	14.10	1.74	0.02	116.06	1.00	1.00	1.13	0.56	0.85
2	4.35	135.97	102.1	102.1	2.52	0.67	33.89	2.80	7.53	1.12	8.53	1.72	0.02	55.09	1.78	1.00	1.13	0.67	1.00
3	6.12	135.97	108.0	108.0	2.52	0.67	33.89	2.80	7.53	1.12	8.53	1.72	0.02	55.09	2.09	1.00	1.13	0.67	1.00
4	0.00	121.66	108.0	108.0	2.52	0.67	33.89	2.80	7.53	1.12	8.53	1.72	0.02	55.09	2.08	1.00	1.13	0.67	0.93
5	10.14	121.66	108.0	108.0	2.52	0.67	33.89	2.80	7.53	1.12	8.53	1.72	0.02	55.09	2.08	1.00	1.13	0.67	0.93
6	0.00	135.97	108.0	108.0	2.52	0.67	33.89	2.80	7.53	1.12	8.53	1.72	0.02	55.09	2.09	1.00	1.13	0.67	1.00
7	2.69	135.97	102.2	102.2	2.52	0.50	33.89	2.80	7.53	1.12	8.53	1.72	0.02	55.09	1.69	1.00	1.13	0.67	1.00
8	12.50	308.70	150.0	150.0	3.06	0.67	78.79	2.80	12.12	1.12	14.10	1.74	0.02	116.06	1.00	1.00	1.13	0.56	0.85
9	12.50	335.49	150.0	150.0	3.91	0.94	85.21	5.21	15.49	2.08	17.14	3.17	0.06	150.53	1.02	1.00	1.11	0.99	1.00
10	12.50	335.49	150.0	150.0	3.91	0.94	85.21	5.21	15.49	2.08	17.14	3.17	0.06	150.53	1.01	1.00	1.11	0.99	1.00



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 37 of 52

Deflection Load Combinations - Framing

No.	Origin	Factor	Def H	Def V	Application	Description
1	System	1.000	0	180	1.0 L	L
2	System	1.000	0	180	1.0 SMS	SMS
3	System	1.000	60	180	0.7 W1>	W1>
4	System	1.000	60	180	0.7 <W1	<W1
5	System	1.000	60	180	0.7 W2>	W2>
6	System	1.000	60	180	0.7 <W2	<W2
7	System Derived	1.000	60	180	0.7 WPA1	WPA1
8	System Derived	1.000	60	180	0.7 WPD1	WPD1
9	System Derived	1.000	60	180	0.7 WPA2	WPA2
10	System Derived	1.000	60	180	0.7 WPD2	WPD2
11	System Derived	1.000	60	180	0.7 WPB1	WPB1
12	System Derived	1.000	60	180	0.7 WPC1	WPC1
13	System Derived	1.000	60	180	0.7 WPB2	WPB2
14	System Derived	1.000	60	180	0.7 WPC2	WPC2

Controlling Frame Deflection Ratios for Cross Section: 1

Description	Ratio	Deflection (in.)	Member	Joint	Load Case	Load Case Description
Max. Horizontal Deflection	(H/14505)	0.022	1	2	3	W1>
Max. Vertical Deflection for Span 1	(L/4739)	0.030	3	1	7	WPA1
Max. Vertical Deflection for Span 2	(L/870)	-0.276	5	1	1	L
Max. Vertical Deflection for Span 3	(L/3167)	0.044	7	1	11	WPB1

* Negative horizontal deflection is left

* Negative vertical deflection is down

Lateral deflections of primary frames are calculated on a bare frame basis and do not include resistance from systems such as roof and endwall diaphragms or partial base fixity. Therefore, these deflections may be considerably overstated.



15-004329-01 Calculations Package

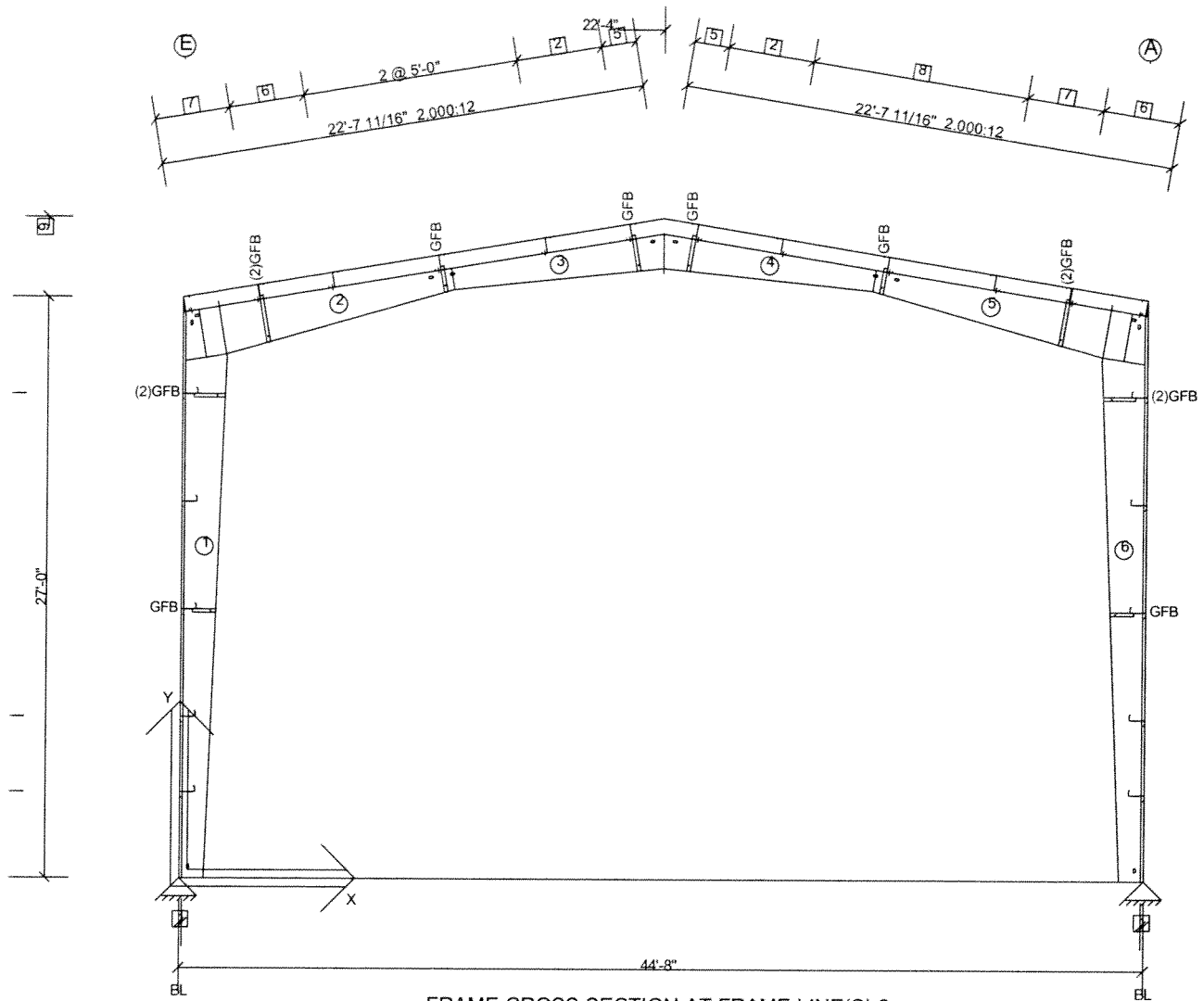
Date: 3/18/2015

Time: 05:28 PM

Page: 38 of 52

Wall: 4, Frame at: 22/1/0

Frame Cross Section: 2



Dimension Key

1	1 5/8"	6	3'-6 1/8"
2	4'-0"	7	3'-6 3/16"
3	3'-6"	8	2 @ 5'-0"
4	4'-6"	9	30'-8 11/16" Ridge Ht.
5	1'-7 7/16"		

Frame Clearances

Horiz. Clearance between members 1(CX003) and 6(CX003): 40'-5 7/8"

Vert. Clearance at member 1(CX003): 24'-1 3/8"

Vert. Clearance at member 6(CX003): 24'-1 3/8"

Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 39 of 52

Frame Location Design Parameters:

Location	Avg. Bay Space	Description	Angle	Group	Trib. Override	Design Status
22/1/0	21/7/0	Rigid Frame	90.0000		-	Automatic Design

Design Load Combinations - Framing

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 CG + 1.0 L>	D + CG + L>
2	System	1.000	1.0 D + 1.0 CG + 1.0 <L	D + CG + <L
3	System	1.000	1.0 D + 1.0 CG + 1.0 SMS>	D + CG + SMS>
4	System	1.000	1.0 D + 1.0 CG + 1.0 <SMS	D + CG + <SMS
5	System	1.000	1.0 D + 1.0 CG + 1.0 US1*	D + CG + US1*
6	System	1.000	1.0 D + 1.0 CG + 1.0 *US1	D + CG + *US1
7	System	1.000	1.0 D + 1.0 CG + 1.0 W1>	D + CG + W1>
8	System	1.000	1.0 D + 1.0 CG + 1.0 <W1	D + CG + <W1
9	System	1.000	1.0 D + 1.0 CG + 1.0 W2>	D + CG + W2>
10	System	1.000	1.0 D + 1.0 CG + 1.0 <W2	D + CG + <W2
11	System	1.000	0.6 D + 0.6 CU + 1.0 W1>	D + CU + W1>
12	System	1.000	0.6 D + 0.6 CU + 1.0 <W1	D + CU + <W1
13	System	1.000	0.6 D + 0.6 CU + 1.0 W2>	D + CU + W2>
14	System	1.000	0.6 D + 0.6 CU + 1.0 <W2	D + CU + <W2
15	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W1>	D + CG + L + W1>
16	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W1	D + CG + L + <W1
17	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W2>	D + CG + L + W2>
18	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W2	D + CG + L + <W2
19	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W1>	D + CG + S + W1>
20	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W1	D + CG + S + <W1
21	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W2>	D + CG + S + W2>
22	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W2	D + CG + S + <W2
23	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
25	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA1	D + CG + L + WPA1
26	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA1	D + CG + S + WPA1
27	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD1	D + CG + WPD1
28	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD1	D + CU + WPD1
29	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD1	D + CG + L + WPD1
30	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD1	D + CG + S + WPD1
31	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA2	D + CG + WPA2
32	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA2	D + CU + WPA2
33	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA2	D + CG + L + WPA2
34	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA2	D + CG + S + WPA2
35	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD2	D + CG + WPD2
36	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD2	D + CU + WPD2
37	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD2	D + CG + L + WPD2
38	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD2	D + CG + S + WPD2
39	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB1	D + CG + WPB1
40	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1
41	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB1	D + CG + L + WPB1
42	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB1	D + CG + S + WPB1
43	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC1	D + CG + WPC1
44	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1
45	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC1	D + CG + L + WPC1
46	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC1	D + CG + S + WPC1
47	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB2	D + CG + WPB2
48	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB2	D + CU + WPB2
49	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB2	D + CG + L + WPB2
50	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB2	D + CG + S + WPB2
51	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC2	D + CG + WPC2
52	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC2	D + CU + WPC2
53	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC2	D + CG + L + WPC2
54	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC2	D + CG + S + WPC2



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 40 of 52

Frame Member Sizes

Mem. No.	Flg Width (in.)	Flg Thk (in.)	Web Thk (in.)	Depth1 (in.)	Depth2 (in.)	Length (ft)	Weight (p)	Flg Fy (ksi)	Web Fy (ksi)	Splice Jt.1	Codes Jt.2	Shape
1	6.00	0.2500	0.1345	12.00	23.00	26.30	507.5	55.00	55.00	BP	KN	3P
2	5.00	0.1875	0.1644	27.00	12.00	12.50	207.1	55.00	55.00	KN	SS	3P
3	5.00	0.1875	0.1345	12.00	19.00	10.00	145.5	55.00	55.00	SS	SP	3P
4	5.00	0.1875	0.1345	19.00	12.00	10.00	145.5	55.00	55.00	SP	SS	3P
5	5.00	0.1875	0.1644	12.00	27.00	12.50	207.1	55.00	55.00	SS	KN	3P
6	6.00	0.2500	0.1345	12.00	23.00	26.30	507.5	55.00	55.00	BP	KN	3P

Total Frame Weight = 1720.2 (p) (Includes all plates)

Boundary Condition Summary

Member	X-Loc	Y-Loc	Supp. X	Supp. Y	Moment	Displacement X(in.)	Displacement Y(in.)	Displacement ZZ(rad.)
1	0/0/0	0/0/0	Yes	Yes	No	0/0/0	0/0/0	0.0000
6	44/8/0	0/0/0	Yes	Yes	No	0/0/0	0/0/0	0.0000

Values shown are resisting forces of the foundation.

Base Connection Design is Based on 3000.00 (psi) Concrete

Reactions - Unfactored Load Type at Frame Cross Section: 2

Type X-Loc Grid1 - Grid2 Base Plate W x L (in.) Base Plate Thickness (in.) Anchor Rod Qty/Diam. (in.) Column Base Elev.		Exterior Column 0/0/0 2-E 8 X 13 0.375 4 - 0.750 100'-0"			Exterior Column 44/8/0 2-A 8 X 13 0.375 4 - 0.750 100'-0"					
Load Type	Desc.	Hx	Hx	Vy	Hx	Hx	Vy			
D	Frm	0.43	-	2.09	-0.43	-	2.09	-	-	-
CG	Frm	0.47	-	1.81	-0.47	-	1.81	-	-	-
L>	Frm	2.50	-	9.64	-2.50	-	9.64	-	-	-
<L	Frm	2.50	-	9.64	-2.50	-	9.64	-	-	-
SMS>	Frm	3.12	-	12.05	-3.12	-	12.05	-	-	-
<SMS	Frm	3.12	-	12.05	-3.12	-	12.05	-	-	-
US1*	Frm	1.69	-	4.39	-1.69	-	7.54	-	-	-
*US1	Frm	1.69	-	7.54	-1.69	-	4.39	-	-	-
W1>	Frm	-5.25	-	-8.75	-3.33	-	-2.75	-	-	-
<W1	Frm	3.33	-	-2.75	5.25	-	-8.75	-	-	-
W2>	Frm	-6.10	-	-6.19	-2.47	-	-0.19	-	-	-
<W2	Frm	2.47	-	-0.19	6.10	-	-6.19	-	-	-
CU	Frm	-	-	-	-	-	-	-	-	-
L	Frm	2.50	-	9.64	-2.50	-	9.64	-	-	-
S	Frm	1.89	-	7.29	-1.89	-	7.29	-	-	-
WPA1	Brc	1.45	-3.73	-10.33	-1.33	-3.45	-9.67	-	-	-
WPD1	Brc	1.30	-	-0.94	-1.17	-	-0.73	-	-	-
WPA2	Brc	0.60	-3.73	-7.80	-0.48	-3.44	-7.14	-	-	-
WPD2	Brc	0.45	-	1.65	-0.32	-	1.85	-	-	-
WPB1	Brc	1.33	-3.44	-9.60	-1.46	-3.75	-10.41	-	-	-
WPC1	Brc	1.17	-	-0.75	-1.30	-	-0.92	-	-	-
WPB2	Brc	0.48	-3.43	-7.06	-0.60	-3.74	-7.88	-	-	-
WPC2	Brc	0.32	-	1.83	-0.45	-	1.67	-	-	-
SMS	Frm	3.12	-	12.05	-3.12	-	12.05	-	-	-



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 41 of 52

Sum of Forces with Reactions Check - Framing

Load Type	Horizontal		Vertical	
	Load (k)	Reaction (k)	Load (k)	Reaction (k)
D	0.0	0.0	4.3	4.2
CG	0.0	0.0	3.6	3.6
L>	0.0	0.0	19.3	19.3
<L	0.0	0.0	19.3	19.3
SMS>	0.0	0.0	24.1	24.1
<SMS	0.0	0.0	24.1	24.1
US1*	0.0	0.0	11.9	11.9
*US1	0.0	0.0	11.9	11.9
W1>	8.6	8.6	11.5	11.5
<W1	8.6	8.6	11.5	11.5
W2>	8.6	8.6	6.4	6.4
<W2	8.6	8.6	6.4	6.4
CU	0.0	0.0	0.0	0.0
L	0.0	0.0	19.3	19.3
S	0.0	0.0	14.6	14.6
WPA1	0.1	0.1	10.8	20.0
WPD1	0.1	0.1	10.8	1.7
WPA2	0.1	0.1	5.7	14.9
WPD2	0.1	0.1	5.7	3.5
WPB1	0.1	0.1	10.8	20.0
WPC1	0.1	0.1	10.8	1.7
WPB2	0.1	0.1	5.7	14.9
WPC2	0.1	0.1	5.7	3.5
SMS	0.0	0.0	24.1	24.1

Maximum Combined Reactions Summary with Factored Loads - Framing

Note: All reactions are based on 1st order structural analysis.

X-Loc	Grid	Hrz left (-Hx) (k)	Load Case	Hrz Right (Hx) (k)	Load Case	Hrz In (-Hz) (k)	Load Case	Hrz Out (Hz) (k)	Load Case	Uplift (-Vy) (k)	Load Case	Vrt Down (Vy) (k)	Load Case	Mom cw (-Mzz) (in-k)	Load Case	Mom ccw (Mzz) (in-k)	Load Case
0/0/0	2-E	5.85	13	5.27	16	3.73	23	-	-	9.08	24	15.95	3	-	-	-	-
44/8/0	2-A	5.27	15	5.85	14	3.75	39	-	-	9.15	40	15.95	3	-	-	-	-

Base Plate Summary

Base Connection Design is Based on 3000.00 (psi) Concrete

Plate Fy = 55.00 ksi

Grade A36 Anchor Rods used to determine quantity and diameter

Gage & pitch standards are based on ACI-318 Appendix D criteria for "cast-in-place" anchor rods (Min space = 4*drod)

X-Loc	Grid	Mem. No.	Thickness (in.)	Width (in.)	Length (in.)	Stiff.	Num. Of Rods	Rod Diam. (in.)	Pitch (in.)	Gage (in.)	Hole Type	Welds to Flange	Welds to Web
0/0/0	2-E	1	0.375	8	13	No	4	0.750	5.0	5.0	Std	OS-0.1875	OS-0.1875
44/8/0	2-A	6	0.375	8	13	No	4	0.750	5.0	5.0	Std	OS-0.1875	OS-0.1875

Pinned Base Plate Connection Loading

X-Loc	Maximum Shear Case			Maximum Tension Case			Maximum Comp Case			Maximum Bracing/WA Case			
	Shear (k)	Axial (k)	Load Case	Shear (k)	Tension (k)	Load Case	Shear (k)	Comp (k)	Load Case	Shear (k)	Axial (k)	Frame Shear (k)	Load Case
0/0/0	5.93	-4.87	13	1.71	-9.09	24	4.07	16.04	4	3.73	-9.09	1.71	24
44/8/0	5.93	-4.87	14	1.72	-9.16	40	4.07	16.00	3	3.75	-9.16	1.72	40

Base Plate Connection Strength Ratios

X-Loc	Rod Shear	Load Case	Rod Tension	Load Case	Rod V + T	Load Case	Rod Bending	Load Case	Conc. Bearing	Load Case	Plate Tension	Load Case	Plate Comp	Load Case	Flange Weld	Load Case	Web Weld	Load Case
0/0/0	0.289	13	0.237	24	-	0	-	0	0.140	4	0.334	24	0.165	4	0.205	4	0.189	24
44/8/0	0.289	14	0.238	40	-	0	-	0	0.139	3	0.337	40	0.165	3	0.205	3	0.190	40



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 42 of 52

Web Stiffener Summary

Mem. No.	Stiff. No.	Desc.	Loc. (ft)	Web Depth (in.)	h/t	a/h	a (in.)	Thick. (in.)	Width (in.)	Side	Welding Description
1	1	S11		Alternate	Web	Thick.=	0.1875	0.3125	2.500	Opposite Fillet	W-OS-0.1250
1	2	S9	24.00	22.793	169.46	N/A	N/A	0.2500	2.500	Both	SP-BS-0.2500,W-BS-0.1250,F-OS-0.1250
6	1	S11		Alternate	Web	Thick.=	0.1875	0.3125	2.500	Opposite Fillet	W-OS-0.1250
6	2	S9	24.00	22.793	169.46	N/A	N/A	0.2500	2.500	Both	SP-BS-0.2500,W-BS-0.1250,F-OS-0.1250

Bolted End-Plate Connections (Plate Fy = 55.00 ksi)

Mem. No.	Jt. No.	Type	End-Plate Dimensions			Bolt			Outside Flange			Inside Flange		
			Thick. (in.)	Width (in.)	Length (in.)	Diam. (in.)	Spec/Joint	Gages In/Out (in.)	Configuration ID	Desc.	Pitches 1st/2nd (in.)	Configuration ID	Desc.	Pitches 1st/2nd (in.)
1	2	KN(Face)	0.375	6.00	32.50	0.750	A325N/PT	3.00	33	Extended	3.25/2.00	32	Extended	3.25/2.00
2	1	KN(Face)	0.375	6.00	32.50	0.750	A325N/PT	3.00	33	Extended	3.25/2.00	32	Extended	3.25/2.00
3	2	SP	0.375	6.00	22.61	0.750	A325N/PT	3.00	11	Flush	15.91	31	Extended	3.25
4	1	SP	0.375	6.00	22.61	0.750	A325N/PT	3.00	11	Flush	15.91	31	Extended	3.25
5	2	KN(Face)	0.375	6.00	32.50	0.750	A325N/PT	3.00	33	Extended	3.25/2.00	32	Extended	3.25/2.00
6	2	KN(Face)	0.375	6.00	32.50	0.750	A325N/PT	3.00	33	Extended	3.25/2.00	32	Extended	3.25/2.00

Moment Connections:

Outside Flange		Required Strength				Design Proc.	Strength Ratios *							
Mem. No.	Jt. No.	Ld Cs	Axial (k)	Shear (k)	Moment (in-k)		Bolt Tension	Bolt Shear	Plate Bending	Shear Yielding	Shear Rupture	Bearing Tearing	Flange Weld	Web Weld
1	2	18	-4.8	9.2	1079.1	AISC DG-16/Thin plate	0.328	0.084	0.905	0.372	0.550	0.060	0.735	0.631
2	1	18	-4.8	9.2	1079.1	AISC DG-16/Thin plate	0.328	0.084	0.905	0.372	0.550	0.060	0.735	0.631
3	2	12	2.5	2.3	147.6	AISC DG-16/Thin plate	0.303	0.052	0.491	0.000	0.000	0.075	0.719	0.516
4	1	12	2.5	2.3	147.6	AISC DG-16/Thin plate	0.303	0.052	0.491	0.000	0.000	0.075	0.719	0.516
5	2	17	-4.8	9.2	1079.4	AISC DG-16/Thin plate	0.327	0.085	0.907	0.372	0.550	0.060	0.799	0.631
6	2	17	-4.8	9.2	1079.4	AISC DG-16/Thin plate	0.327	0.085	0.907	0.372	0.550	0.060	0.799	0.631

Inside Flange		Required Strength				Design Proc.	Strength Ratios *							
Mem. No.	Jt. No.	Ld Cs	Axial (k)	Shear (k)	Moment (in-k)		Bolt Tension	Bolt Shear	Plate Bending	Shear Yielding	Shear Rupture	Bearing Tearing	Flange Weld	Web Weld
1	2	11	3.3	6.7	895.3	AISC DG-16/Thin plate	0.390	0.076	0.945	0.345	0.510	0.058	0.681	0.631
2	1	11	3.3	6.7	895.3	AISC DG-16/Thin plate	0.390	0.076	0.945	0.345	0.510	0.058	0.681	0.631
3	2	3	-4.0	0.5	563.0	AISC DG-16/Thin plate	0.423	0.007	0.882	0.270	0.399	0.006	0.959	0.516
4	1	3	-4.0	0.5	563.0	AISC DG-16/Thin plate	0.423	0.007	0.882	0.270	0.399	0.006	0.959	0.516
5	2	12	3.3	6.7	895.1	AISC DG-16/Thin plate	0.390	0.076	0.948	0.345	0.510	0.058	0.799	0.631
6	2	12	3.3	6.7	895.1	AISC DG-16/Thin plate	0.390	0.076	0.948	0.345	0.510	0.058	0.799	0.631

* Strength ratios shown for the connections are reported as a percentage of the system default or user Override Stress Limit.

Flange Brace Summary

Member	From Member Joint 1	From Side Point 1	Part	Axial Load per FB (k)	Load Case	Design Note
1	12/6/0	12/6/0	GFB2045	0.937	16	
1	22/6/0	22/6/0	(2)GFB2060	0.623	18	
2	1/11/2	19/1/9	(2)GFB3000	0.364	18	
2	10/5/4	10/7/7	GFB2050	0.483	14	
3	8/6/0	1/7/7	GFB2081	0.200	12	
4	1/6/0	1/7/7	GFB2081	0.200	11	
5	0/6/0	10/7/7	GFB2050	0.483	13	
5	9/0/3	19/1/10	(2)GFB3000	0.364	17	
6	12/6/0	12/6/0	GFB2045	0.937	15	
6	22/6/0	22/6/0	(2)GFB2060	0.623	17	



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 43 of 52

Frame Design Member Summary - Controlling Load Case and Maximum Combined Stresses per Member (Locations are from Joint 1)

Mem. No.	Loc. ft	Depth in.	Controlling Cases		Required Strength				Available Strength				Strength Ratios	
			Axial + Flexure	Shear	Axial Pr k	Shear Vr k	Mom-x Mrx in-k	Mom-y Mry in-k	Axial Pc k	Shear Vc k	Mom-x Mcx in-k	Mom-y Mcy in-k	Axial + Flexure	Shear
1	22.50	22.17	4		-16.1		-1043.2	0.0	72.8		1179.6	111.5	1.01	
1	24.35	23.00		4		-3.8				8.7				0.44
2	0.77	27.00	18		-4.8		-1079.1	0.0	79.1		1124.3	50.9	0.99	
2	0.77	27.00		4		13.2				13.3				0.99
3	6.50	16.67	3		-4.3		539.8	0.0	44.5		566.8	51.0	1.00	
3	0.00	12.00		4		6.3				17.0				0.37
4	3.37	16.67	4		-4.3		539.8	0.0	44.5		566.8	51.0	1.00	
4	9.87	12.00		3		-6.3				17.0				0.37
5	10.95	27.00	17		-4.8		-1079.4	0.0	78.7		1124.3	50.9	0.99	
5	10.95	27.00		3		-13.2				13.3				0.99
6	22.50	22.17	3		-16.1		-1043.4	0.0	72.8		1179.6	111.5	1.01	
6	24.35	23.00		3		3.8				8.7				0.44

Parameters Used for Axial and Flexural Design

Mem. No.	Loc. ft	Lx in.	Ly/Lt in.	Lb in.	Ag in.2	Afn in.2	Ixx in.4	Iyy in.4	Sx in.3	Sy in.3	Zx in.3	Zy in.3	J in.4	Cw in.6	Cb	Rpg	Rpc	Qs	Qa
1	22.50	292.17	120.0	120.0	5.91	1.50	474.30	9.00	42.79	3.00	48.66	4.60	0.08	1081.35	1.20	0.98	1.00	0.84	0.65
2	0.77	249.91	20.6	20.6	6.25	0.94	595.57	3.92	44.12	1.57	54.27	2.52	0.06	703.83	1.00	0.97	1.00	0.78	0.50
3	6.50	249.91	108.1	48.0	4.07	0.94	175.93	3.91	21.10	1.56	24.39	2.42	0.04	265.64	1.19	1.00	1.03	0.79	0.75
4	3.37	249.91	108.1	48.0	4.07	0.94	175.93	3.91	21.10	1.56	24.39	2.42	0.04	265.64	1.20	1.00	1.03	0.79	0.75
5	10.95	249.91	23.1	23.1	6.25	0.94	595.57	3.92	44.12	1.57	54.27	2.52	0.06	703.83	1.08	0.97	1.00	0.78	0.50
6	22.50	292.17	120.0	120.0	5.91	1.50	474.30	9.00	42.79	3.00	48.66	4.60	0.08	1081.35	1.20	0.98	1.00	0.84	0.65

Deflection Load Combinations - Framing

No.	Origin	Factor	Def H	Def V	Application	Description
1	System	1.000	0	180	1.0 L	L
2	System	1.000	0	180	1.0 SMS	SMS
3	System	1.000	60	180	0.7 W1>	W1>
4	System	1.000	60	180	0.7 <W1	<W1
5	System	1.000	60	180	0.7 W2>	W2>
6	System	1.000	60	180	0.7 <W2	<W2
7	System Derived	1.000	60	180	0.7 WPA1	WPA1
8	System Derived	1.000	60	180	0.7 WPD1	WPD1
9	System Derived	1.000	60	180	0.7 WPA2	WPA2
10	System Derived	1.000	60	180	0.7 WPD2	WPD2
11	System Derived	1.000	60	180	0.7 WPB1	WPB1
12	System Derived	1.000	60	180	0.7 WPC1	WPC1
13	System Derived	1.000	60	180	0.7 WPB2	WPB2
14	System Derived	1.000	60	180	0.7 WPC2	WPC2

Controlling Frame Deflection Ratios for Cross Section: 2

Description	Ratio	Deflection (in.)	Member	Joint	Load Case	Load Case Description
Max. Horizontal Deflection	(H/93)	3.239	1	2	3	W1>
Max. Vertical Deflection for Span 1	(L/278)	-1.827	4	1	2	SMS

* Negative horizontal deflection is left

* Negative vertical deflection is down

Lateral deflections of primary frames are calculated on a bare frame basis and do not include resistance from systems such as roof and endwall diaphragms or partial base fixity. Therefore, these deflections may be considerably overstated.

Frame Lateral Stiffness (K): 0.000 (k/in)

Fundamental Period (calculated) (T): 0.000 (sec.)



15-004329-01 Calculations Package

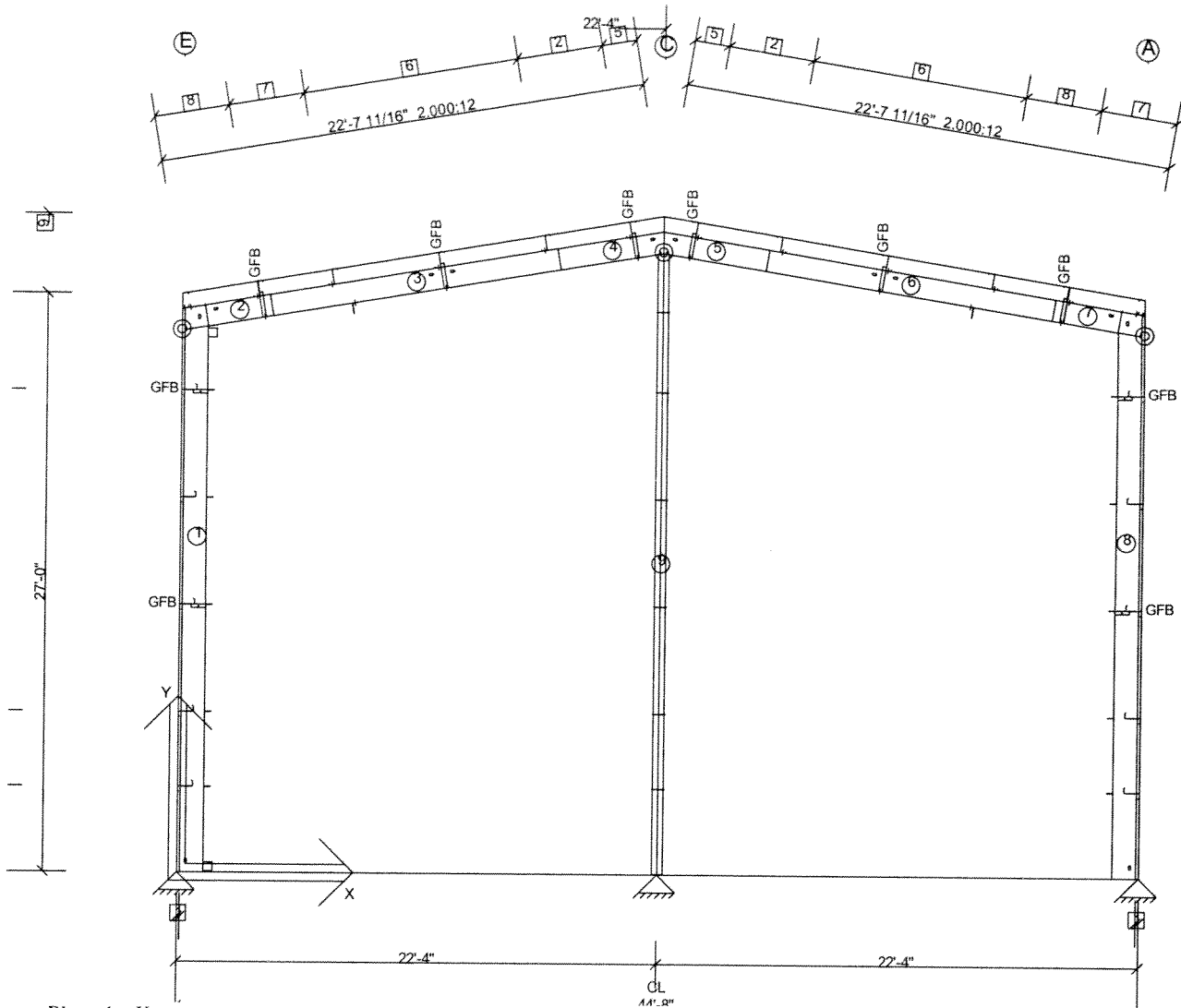
Date: 3/18/2015

Time: 05:28 PM

Page: 44 of 52

Wall: 4, Frame at: 43/8/0

Frame Cross Section: 3



Dimension Key

- | | |
|--------------|--------------------------|
| 1 1 5/8" | 6 2 @ 5'-0" |
| 2 4'-0" | 7 3'-6 1/8" |
| 3 3'-6" | 8 3'-6 3/16" |
| 4 4'-6" | 9 30'-8 11/16" Ridge Ht. |
| 5 1'-7 7/16" | |

Frame Clearances

Horiz. Clearance between members 1(CX004) and 8(CX005): 42'-2 9/16"

Vert. Clearance at member 1(CX004): 25'-5 3/16"

Vert. Clearance at member 8(CX005): 25'-5 3/16"

Vert. Clearance at member 9(EPX003): 28'-11 7/8"

Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 45 of 52

Frame Location Design Parameters:

Location	Avg. Bay Space	Description	Angle	Group	Trib. Override	Design Status
43/8/0	11/3/8	Post & Beam	90.0000		-	Automatic Design

Design Load Combinations - Framing

No.	Origin	Factor	Application	Description
1	System	1.000	1.0 D + 1.0 CG + 1.0 L>	D + CG + L>
2	System	1.000	1.0 D + 1.0 CG + 1.0 <L	D + CG + <L
3	System	1.000	1.0 D + 1.0 CG + 1.0 SMS>	D + CG + SMS>
4	System	1.000	1.0 D + 1.0 CG + 1.0 <SMS	D + CG + <SMS
5	System	1.000	1.0 D + 1.0 CG + 1.0 US1*	D + CG + US1*
6	System	1.000	1.0 D + 1.0 CG + 1.0 *US1	D + CG + *US1
7	System	1.000	1.0 D + 1.0 CG + 1.0 W1>	D + CG + W1>
8	System	1.000	1.0 D + 1.0 CG + 1.0 <W1	D + CG + <W1
9	System	1.000	1.0 D + 1.0 CG + 1.0 W2>	D + CG + W2>
10	System	1.000	1.0 D + 1.0 CG + 1.0 <W2	D + CG + <W2
11	System	1.000	0.6 D + 0.6 CU + 1.0 W1>	D + CU + W1>
12	System	1.000	0.6 D + 0.6 CU + 1.0 <W1	D + CU + <W1
13	System	1.000	0.6 D + 0.6 CU + 1.0 W2>	D + CU + W2>
14	System	1.000	0.6 D + 0.6 CU + 1.0 <W2	D + CU + <W2
15	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W1>	D + CG + L + W1>
16	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W1	D + CG + L + <W1
17	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 W2>	D + CG + L + W2>
18	System	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 <W2	D + CG + L + <W2
19	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W1>	D + CG + S + W1>
20	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W1	D + CG + S + <W1
21	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 W2>	D + CG + S + W2>
22	System	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 <W2	D + CG + S + <W2
23	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA1	D + CG + WPA1
24	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA1	D + CU + WPA1
25	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA1	D + CG + L + WPA1
26	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA1	D + CG + S + WPA1
27	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD1	D + CG + WPD1
28	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD1	D + CU + WPD1
29	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD1	D + CG + L + WPD1
30	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD1	D + CG + S + WPD1
31	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPA2	D + CG + WPA2
32	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPA2	D + CU + WPA2
33	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPA2	D + CG + L + WPA2
34	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPA2	D + CG + S + WPA2
35	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPD2	D + CG + WPD2
36	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPD2	D + CU + WPD2
37	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPD2	D + CG + L + WPD2
38	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPD2	D + CG + S + WPD2
39	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB1	D + CG + WPB1
40	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB1	D + CU + WPB1
41	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB1	D + CG + L + WPB1
42	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB1	D + CG + S + WPB1
43	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC1	D + CG + WPC1
44	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC1	D + CU + WPC1
45	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC1	D + CG + L + WPC1
46	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC1	D + CG + S + WPC1
47	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPB2	D + CG + WPB2
48	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPB2	D + CU + WPB2
49	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPB2	D + CG + L + WPB2
50	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPB2	D + CG + S + WPB2
51	System Derived	1.000	1.0 D + 1.0 CG + 1.0 WPC2	D + CG + WPC2
52	System Derived	1.000	0.6 D + 0.6 CU + 1.0 WPC2	D + CU + WPC2
53	System Derived	1.000	1.0 D + 1.0 CG + 0.75 L + 0.75 WPC2	D + CG + L + WPC2
54	System Derived	1.000	1.0 D + 1.0 CG + 0.75 S + 0.75 WPC2	D + CG + S + WPC2



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 46 of 52

Frame Member Sizes

Mem. No.	Flg Width (in.)	Flg Thk (in.)	Web Thk (in.)	Depth1 (in.)	Depth2 (in.)	Length (ft)	Weight (p)	Flg Fy (ksi)	Web Fy (ksi)	Splice Jt.1	Codes Jt.2	Shape
1	5.00	0.1345	0.1345	13.00	13.00	26.30	292.6	55.00	55.00	BP	KN	3P
2	5.00	0.1345	0.1345	12.00	12.00	4.00	38.5	55.00	55.00	KN	SS	3P
3	5.00	0.1345	0.1345	12.00	12.00	13.50	134.3	55.00	55.00	SS	SS	3P
4	5.00	0.1345	0.1345	12.00	12.00	5.00	56.7	55.00	55.00	SS	SP	3P
5	5.00	0.1345	0.1345	12.00	12.00	5.00	56.7	55.00	55.00	SP	SS	3P
6	5.00	0.1345	0.1345	12.00	12.00	13.50	134.3	55.00	55.00	SS	SS	3P
7	5.00	0.1345	0.1345	12.00	12.00	4.00	38.5	55.00	55.00	SS	KN	3P
8	5.00	0.1345	0.1345	13.00	13.00	26.30	292.6	55.00	55.00	BP	KN	3P
9	6.00	0.2500	0.1345	10.00	10.00	28.99	449.2	55.00	55.00	BP	CP	3P

Total Frame Weight = 1493.2 (p) (Includes all plates)

Frame Member Releases

Member	Joint 1	Joint 2
1	No	Yes
8	No	Yes
9	No	Yes

Boundary Condition Summary

Member	X-Loc	Y-Loc	Supp. X	Supp. Y	Moment	Displacement X(in.)	Displacement Y(in.)	Displacement ZZ(rad.)
1	0/0/0	0/0/0	Yes	Yes	No	0/0/0	0/0/0	0.0000
8	44/8/0	0/0/0	Yes	Yes	No	0/0/0	0/0/0	0.0000
9	22/4/0	0/0/0	Yes	Yes	No	0/0/0	0/0/0	0.0000

Values shown are resisting forces of the foundation.

Base Connection Design is Based on 3000.00 (psi) Concrete

Reactions - Unfactored Load Type at Frame Cross Section: 3

Type		Exterior Column			Interior Column			Exterior Column				
X-Loc		0/0/0			22/4/0			44/8/0				
Grid1 - Grid2		3-E			3-C			3-A				
Base Plate W x L (in.)		8 X 14			8 X 11			8 X 14				
Base Plate Thickness (in.)		0.375			0.375			0.375				
Anchor Rod Qty/Diam. (in.)		4 - 0.750			4 - 0.750			4 - 0.750				
Column Base Elev.		100'-0"			100'-0"			100'-0"				
Load Type	Desc.	Hx	Hz	Vy	Hx	Hz	Vy	Hx	Hz	Vy		
D	Frm	-	-	0.57	-	-	1.36	-	-	0.57	-	-
CG	Frm	-	-	0.30	-	-	0.92	-	-	0.30	-	-
L>	Frm	-	-	1.99	-	-	6.10	-	-	1.99	-	-
<L	Frm	-	-	1.99	-	-	6.10	-	-	1.99	-	-
SMS>	Frm	-	-	1.99	-	-	6.10	-	-	1.99	-	-
<SMS	Frm	-	-	1.99	-	-	6.10	-	-	1.99	-	-
US1*	Frm	-	-	0.17	-	-	3.34	-	-	1.49	-	-
*US1	Frm	-	-	1.49	-	-	3.34	-	-	0.17	-	-
W1>	Frm	-1.13	-	-1.51	-	4.36	-4.19	-1.60	-	-1.38	-	-
<W1	Frm	1.60	-	-1.38	-	-3.92	-4.19	1.13	-	-1.51	-	-
W2>	Frm	-1.90	-	-0.84	-	-	-2.85	-0.83	-	-0.72	-	-
<W2	Frm	0.83	-	-0.72	-	-	-2.85	1.90	-	-0.84	-	-
CU	Frm	-	-	-	-	-	-	-	-	-	-	-
L	Frm	-	-	1.99	-	-	6.10	-	-	1.99	-	-
S	Frm	-	-	1.21	-	-	3.69	-	-	1.21	-	-
WPA1	Brc	3.42	-	0.85	-	-	0.41	-1.36	-	3.58	-	-
WPD1	Brc	1.48	3.73	-4.13	-2.02	-	-6.12	-1.43	3.45	-5.93	-	-
WPA2	Brc	2.65	-	1.53	-	-	1.77	-0.58	-	4.28	-	-
WPD2	Brc	0.70	3.73	-3.48	-2.02	-	-4.79	-0.65	3.44	-5.29	-	-
WPB1	Brc	3.42	-	0.77	-	-	0.41	-1.36	-	3.67	-	-
WPC1	Brc	1.47	3.44	-3.40	-2.02	-	-6.12	-1.43	3.75	-6.66	-	-
WPB2	Brc	2.65	-	1.45	-	-	1.77	-0.58	-	4.36	-	-
WPC2	Brc	0.70	3.43	-2.74	-2.02	-	-4.79	-0.66	3.74	-6.02	-	-
SMS	Frm	-	-	1.99	-	-	6.10	-	-	1.99	-	-



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 47 of 52

Sum of Forces with Reactions Check - Framing

Load Type	Horizontal		Vertical	
	Load (k)	Reaction (k)	Load (k)	Reaction (k)
D	0.0	0.0	2.6	2.5
CG	0.0	0.0	1.5	1.5
L>	0.0	0.0	10.1	10.1
<L	0.0	0.0	10.1	10.1
SMS>	0.0	0.0	10.1	10.1
<SMS	0.0	0.0	10.1	10.1
US1*	0.0	0.0	5.0	5.0
*US1	0.0	0.0	5.0	5.0
W1>	5.5	1.4	7.1	7.1
<W1	5.5	1.8	7.1	7.1
W2>	5.5	5.5	4.4	4.4
<W2	5.5	5.5	4.4	4.4
CU	0.0	0.0	0.0	0.0
L	0.0	0.0	10.1	10.1
S	0.0	0.0	6.1	6.1
WPA1	0.0	2.0	4.3	4.9
WPD1	0.1	0.1	7.0	16.2
WPA2	0.0	2.0	1.6	7.6
WPD2	0.1	0.1	4.3	13.6
WPB1	0.0	2.0	4.3	4.9
WPC1	0.1	0.1	7.0	16.2
WPB2	0.0	2.0	1.6	7.6
WPC2	0.1	0.1	4.3	13.6
SMS	0.0	0.0	10.1	10.1

Maximum Combined Reactions Summary with Factored Loads - Framing

Note: All reactions are based on 1st order structural analysis.

X-Loc	Grid	Hz left (-Hx) (k)	Load Case	Hz Right (Hx) (k)	Load Case	Hz In (-Hz) (k)	Load Case	Hz Out (Hz) (k)	Load Case	Uplift (-Vy) (k)	Load Case	Vrt Down (Vy) (k)	Load Case	Mom cw (-Mzz) (in-k)	Load Case	Mom ccw (Mzz) (in-k)	Load Case
0/0/0	3-E	1.90	9	3.42	23	-	-	3.73	27	3.79	28	3.51	33	-	-	-	-
22/4/0	30/8/11	2.77	9	2.77	10	-	-	-	-	-	-	-	-	-	-	-	-
22/4/0	3-C	2.01	27	-	-	3.92	8	4.36	7	5.31	28	8.37	1	-	-	-	-
44/8/0	3-A	1.60	7	1.90	10	-	-	3.75	43	6.32	44	5.63	49	-	-	-	-

Base Plate Summary

Base Connection Design is Based on 3000.00 (psi) Concrete

Plate Fy = 55.00 ksi

Grade A36 Anchor Rods used to determine quantity and diameter

Gage & pitch standards are based on ACI-318 Appendix D criteria for "cast-in-place" anchor rods (Min space = 4*drod)

X-Loc	Grid	Mem. No.	Thickness (in.)	Width (in.)	Length (in.)	Stiff.	Num. Of Rods	Rod Diam. (in.)	Pitch (in.)	Gage (in.)	Hole Type	Welds to Flange	Welds to Web
0/0/0	3-E	1	0.375	8	14	No	4	0.750	5.0	5.0	Std	OS-0.1875	OS-0.1875
22/4/0	3-C	9	0.375	8	11	No	4	0.750	5.0	5.0	Std	OS-0.1875	OS-0.1875
44/8/0	3-A	8	0.375	8	14	No	4	0.750	5.0	5.0	Std	OS-0.1875	OS-0.1875

Pinned Base Plate Connection Loading

X-Loc	Maximum Shear Case			Maximum Tension Case			Maximum Comp Case			Maximum Bracing/WA Case			
	Shear (k)	Axial (k)	Load Case	Shear (k)	Tension (k)	Load Case	Shear (k)	Comp (k)	Load Case	Shear (k)	Axial (k)	Frame Shear (k)	Load Case
0/0/0	3.42	1.11	40	1.48	-3.79	28	1.99	3.51	33	3.73	-3.79	1.48	28
22/4/0	4.36	-3.38	11	0.01	-5.30	28	-	8.37	1	2.01	-5.30	0.01	28
44/8/0	1.90	-0.50	14	1.43	-6.32	44	0.44	5.63	49	3.75	-6.32	1.43	44

Base Plate Connection Strength Ratios

X-Loc	Rod Shear	Load Case	Rod Tension	Load Case	Rod V + T	Load Case	Rod Bending	Load Case	Conc. Bearing	Load Case	Plate Tension	Load Case	Plate Comp	Load Case	Flange Weld	Load Case	Web Weld	Load Case
0/0/0	0.196	28	0.099	28	-	0	-	0	0.028	33	0.143	28	0.052	33	0.200	28	0.092	40
22/4/0	0.213	11	0.138	28	-	0	-	0	0.086	1	0.172	28	0.102	1	0.114	1	0.155	11
44/8/0	0.196	44	0.165	44	-	0	-	0	0.046	49	0.239	44	0.084	49	0.201	44	0.123	44



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 48 of 52

Web Stiffener Summary

Mem. No.	Stiff. No.	Desc.	Loc. (ft)	Web Depth (in.)	h/t	a/h	a (in.)	Thick. (in.)	Width (in.)	Side	Welding Description
1	1	S2	25.27	12.579	93.52	N/A	N/A	0.1875	2.000	Both	SP-BS-0.1875,W-BS-0.1250,F-OS-0.1250
8	1	S2	25.27	12.579	93.52	N/A	N/A	0.1875	2.000	Both	SP-BS-0.1875,W-BS-0.1250,F-OS-0.1250

Bolted End-Plate Connections (Plate Fy = 55.00 ksi)

Mem. No.	Jt. No.	Type	End-Plate Dimensions			Bolt			Outside Flange			Inside Flange		
			Thick. (in.)	Width (in.)	Length (in.)	Diam. (in.)	Spec/Joint	Gages In/Out (in.)	Configuration	Pitches 1st/2nd (in.)	Configuration	Pitches 1st/2nd (in.)		
1	2	KN(Face)	0.375	6.00	13.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00
2	1	KN(Face)	0.375	6.00	13.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00
4	2	SP	0.375	6.00	12.67	0.500	A325N/PT	3.00	12	Flush	1.50	11	Flush (0)	7.75
5	1	SP	0.375	6.00	12.67	0.500	A325N/PT	3.00	12	Flush	1.50	11	Flush (0)	7.75
7	2	KN(Face)	0.375	6.00	13.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00
8	2	KN(Face)	0.375	6.00	13.00	0.500	A325/-	3.00	11	Flush	3.00	11	Flush	3.00
9	2	CP	0.375	4.00	11.00	0.500	A325/-	***	11	Flush	-	11	Flush	0.00

Moment Connections:

Outside Flange		Required Strength				Design Proc.	Strength Ratios *							
Mem. No.	Jt. No.	Ld Cs	Axial (k)	Shear (k)	Moment (in-k)		Bolt Tension	Bolt Shear	Plate Bending	Shear Yielding	Shear Rupture	Bearing Tearing	Flange Weld	Web Weld
4	2	2	0.7	3.9	205.4	AISC DG-16/Thin plate	0.679	0.135	0.847	0.000	0.000	0.064	0.607	0.516
5	1	2	0.7	3.9	205.4	AISC DG-16/Thin plate	0.679	0.135	0.847	0.000	0.000	0.064	0.607	0.516

Inside Flange		Required Strength				Design Proc.	Strength Ratios *							
Mem. No.	Jt. No.	Ld Cs	Axial (k)	Shear (k)	Moment (in-k)		Bolt Tension	Bolt Shear	Plate Bending	Shear Yielding	Shear Rupture	Bearing Tearing	Flange Weld	Web Weld
4	2	12	2.0	1.6	99.8	AISC DG-16/Thick plate	0.761	0.083	0.958	0.000	0.000	0.053	1.000	0.516
5	1	12	2.0	1.6	99.8	AISC DG-16/Thick plate	0.761	0.083	0.958	0.000	0.000	0.053	1.000	0.516

* Strength ratios shown for the connections are reported as a percentage of the system default or user Override Stress Limit.

Pinned Connections:

		Maximum Shear Case			Maximum Tension Case			Strength Ratios							
Mem. No.	Jt. No.	Ld Cs	Axial (k)	Shear (k)	Ld Cs	Axial (k)	Shear (k)	Bolt Tension	Bolt Shear	Bolt V + T	Plate Bending	Flange Yielding	Flange Bearing	Flange Weld	Web Weld
1	2	3	-0.4	2.2	12	1.9	0.8	0.060	0.118	0.000	0.062	0.043	0.079	0.036	0.068
2	2	3	-0.4	2.2	12	1.9	0.8	0.060	0.118	0.000	0.062	0.043	0.079	0.036	0.068
7	2	2	-0.4	2.2	11	1.9	0.8	0.060	0.118	0.000	0.062	0.043	0.079	0.034	0.068
8	2	2	-0.4	2.2	11	1.9	0.8	0.060	0.118	0.000	0.062	0.043	0.079	0.034	0.068
9	2	7	1.9	4.1	11	3.4	4.1	0.106	0.215	0.000	0.083	0.034	0.077	0.140	0.153

Flange Brace Summary

Member	From Member Joint I	From Side Point I	Part	Axial Load per FB (k)	Load Case	Design Note
1	12/6/0	12/6/0	GFB2030	0.170	8	
1	22/6/0	22/6/0	GFB2030	0.078	8	
2	2/6/12	19/1/9	GFB2050	0.082	28	
3	8/0/1	10/7/7	GFB2050	0.105	11	
4	3/6/0	1/7/7	GFB2050	0.212	1	
5	1/6/0	1/7/7	GFB2050	0.212	2	
6	5/6/0	10/7/7	GFB2050	0.105	12	
7	0/6/2	19/1/10	GFB2050	0.070	40	
8	12/6/0	12/6/0	GFB2030	0.170	7	
8	22/6/0	22/6/0	GFB2030	0.078	7	



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 49 of 52

Frame Design Member Summary - Controlling Load Case and Maximum Combined Stresses per Member (Locations are from Joint 1)

Mem. No.	Loc. ft	Depth in.	Controlling Cases		Required Strength				Available Strength				Strength Ratios	
			Axial + Flexure	Shear	Axial Pr k	Shear Vr k	Mom-x Mrx in-k	Mom-y Mry in-k	Axial Pc k	Shear Vc k	Mom-x Mcx in-k	Mom-y Mcy in-k	Axial + Flexure	Shear
1	12.50	13.00	9		-0.0		147.6	0.0	18.8		146.9	39.0	1.01	
1	0.00	13.00		13		1.9				15.4				0.12
2	3.53	12.00	3		-0.2		78.1	0.0	30.6		211.7	39.0	0.37	
2	0.47	12.00		3		2.2				16.7				0.13
3	5.50	12.00	2		0.0		115.5	0.0	96.5		211.7	39.0	0.55	
3	13.50	12.00		1		-2.5				16.7				0.15
4	4.92	12.00	4		0.7		-205.4	0.0	96.5		211.7	39.0	0.97	
4	4.92	12.00		1		-3.9				16.7				0.23
5	0.00	12.00	1		0.7		-205.4	0.0	96.5		211.7	39.0	0.97	
5	0.00	12.00		4		3.9				16.7				0.23
6	8.00	12.00	1		0.0		115.5	0.0	96.5		211.7	39.0	0.55	
6	0.00	12.00		2		2.5				16.7				0.15
7	0.00	12.00	2		-0.2		78.1	0.0	30.6		211.7	39.0	0.37	
7	3.07	12.00		2		-2.2				16.7				0.13
8	12.50	13.00	10		-0.0		147.6	0.0	18.8		146.9	39.0	1.01	
8	0.00	13.00		14		-1.9				15.4				0.12
9	12.50	10.00	7		1.9		-376.4	0.0	127.8		382.1	121.4	0.99	
9	0.00	10.00		11		-4.4				21.3				0.21

Parameters Used for Axial and Flexural Design

Mem. No.	Loc. ft	Lx in.	Ly/Lt in.	Lb in.	Ag in.2	Afn in.2	Ixx in.4	Iyy in.4	Sx in.3	Sy in.3	Zx in.3	Zy in.3	J in.4	Cw in.6	Cb	Rpg	Rpc	Qs	Qa
1	12.50	305.66	150.0	150.0	3.06	0.67	78.79	2.80	12.12	1.12	14.10	1.74	0.02	116.06	1.00	1.00	1.13	0.56	0.85
2	3.53	257.87	102.1	42.1	2.92	0.67	65.44	2.80	10.91	1.12	12.61	1.73	0.02	98.71	1.05	1.00	1.15	0.59	0.82
3	5.50	257.87	102.1	60.0	2.92	0.67	65.44	2.80	10.91	1.12	12.61	1.73	0.02	98.71	1.05	1.00	1.15	0.59	1.00
4	4.92	257.87	34.0	34.0	2.92	0.67	65.44	2.80	10.91	1.12	12.61	1.73	0.02	98.71	1.08	1.00	1.15	0.59	1.00
5	0.00	257.87	34.0	34.0	2.92	0.67	65.44	2.80	10.91	1.12	12.61	1.73	0.02	98.71	1.08	1.00	1.15	0.59	1.00
6	8.00	257.87	102.2	60.0	2.92	0.67	65.44	2.80	10.91	1.12	12.61	1.73	0.02	98.71	1.05	1.00	1.15	0.59	1.00
7	0.00	257.87	102.2	42.2	2.92	0.67	65.44	2.80	10.91	1.12	12.61	1.73	0.02	98.71	1.05	1.00	1.15	0.59	0.82
8	12.50	305.66	150.0	150.0	3.06	0.67	78.79	2.80	12.12	1.12	14.10	1.74	0.02	116.06	1.00	1.00	1.13	0.56	0.85
9	12.50	353.98	150.0	150.0	4.28	1.19	80.92	9.00	16.18	3.00	17.66	4.54	0.07	213.94	1.01	1.00	1.09	0.92	1.00

Deflection Load Combinations - Framing

No.	Origin	Factor	Def H	Def V	Application	Description
1	System	1.000	0	180	1.0 L	L
2	System	1.000	0	180	1.0 SMS	SMS
3	System	1.000	60	180	0.7 W1>	W1>
4	System	1.000	60	180	0.7 <W1	<W1
5	System	1.000	60	180	0.7 W2>	W2>
6	System	1.000	60	180	0.7 <W2	<W2
7	System Derived	1.000	60	180	0.7 WPA1	WPA1
8	System Derived	1.000	60	180	0.7 WPD1	WPD1
9	System Derived	1.000	60	180	0.7 WPA2	WPA2
10	System Derived	1.000	60	180	0.7 WPD2	WPD2
11	System Derived	1.000	60	180	0.7 WPB1	WPB1
12	System Derived	1.000	60	180	0.7 WPC1	WPC1
13	System Derived	1.000	60	180	0.7 WPB2	WPB2
14	System Derived	1.000	60	180	0.7 WPC2	WPC2

Controlling Frame Deflection Ratios for Cross Section: 3

Description	Ratio	Deflection (in.)	Member	Joint	Load Case	Load Case Description
Max. Horizontal Deflection	(H/64832)	-0.005	8	2	6	<W2
Max. Vertical Deflection for Span 1	(L/1708)	-0.152	3	1	1	L
Max. Vertical Deflection for Span 2	(L/1708)	-0.152	7	1	1	L

* Negative horizontal deflection is left

* Negative vertical deflection is down

Lateral deflections of primary frames are calculated on a bare frame basis and do not include resistance from systems such as roof and endwall diaphragms or partial base fixity. Therefore, these deflections may be considerably overstated.



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 50 of 52

Covering - Summary Report

Shape: Salt Storage

Loads and Codes - Shape: Salt Storage

City: Albuquerque County: Bernalillo
Building Code: 2009 New Mexico Commercial Building Code
Based on Building Code: 2009 International Building Code
Building Risk/Occupancy Category: I (Low Hazard: Ag, Storage, Temp)

State: New Mexico
Built Up: 05AISC - ASD
Cold Form: 07AISI - ASD

Country: United States
Rainfall: 4.00 inches per hour
3000.00 psi Concrete

Dead and Collateral Loads

Collateral Gravity: 3.00 psf
Collateral Uplift: 0.00 psf

Roof Covering + Second. Dead Load: 2.11 psf
Frame Weight (assumed for seismic): 2.50 psf

Roof Live Load

Roof Live Load: 20.00 psf Not Reducible

Wind Load

Wind Speed: 90.00 mph
The 'Low Rise' Method is Used
Wind Exposure (Factor): C (0.961)
Parts Wind Exposure Factor: 0.961
Wind Enclosure: Enclosed
Wind Importance Factor: 0.870
Topographic Factor: 1.0000

NOT Windborne Debris Region
Base Elevation: 0/0/0
Primary Zone Strip Width: 8/10/0
Parts / Portions Zone Strip Width: 4/5/0
Basic Wind Pressure: 14.73 psf

Snow Load

Ground Snow Load: 20.00 psf
Flat Roof Snow: 12.10 psf
Design Snow (Sloped): 12.10 psf
Rain Surcharge: 0.00
Specified Minimum Roof Snow: 20.00 psf (USR)
Exposure Category (Factor): 1 Fully Exposed (0.90)
Snow Importance: 0.800
Thermal Category (Factor): Unheated (1.20)
Ground / Roof Conversion: 0.70
% Snow Used in Seismic: 0.00
Seismic Snow Load: 0.00 psf
Unobstructed, Slippery

Seismic Load

Mapped Spectral Response - Ss: 56.40 %g
Mapped Spectral Response - S1: 17.00 %g
Seismic Design Category: D
Seismic Importance: 1.000
Framing Fundamental Period: 0.3911
Bracing Fundamental Period: 0.2369
Framing R-Factor: 3.5000
Bracing R-Factor: 3.2500
Soil Profile Type: Stiff soil (D, 4)
Diaphragm Condition: Flexible
Frame Redundancy Factor: 1.3000
Brace Redundancy Factor: 1.3000
Frame Seismic Factor (Cs): 0.1449 x W
Brace Seismic Factor (Cs): 0.1560 x W
Design Spectral Response - Sd1: 0.2403
Design Spectral Response - Sds: 0.5071

Covering Design Loads - Wall: 1

Zone	Units	Type	Description	Actual	Loc1	Allow.	Ratio	Dir.	Coef.
End Zone	psf	W1>	Non-std Spacing: 5/0/0 Required	21.21	0/0/0	27.000	0.79	OUT	-1.440
End Zone	psf	<W2	Standard Spacing is Adequate	15.91	0/0/0	16.000	0.99	IN	1.080
End Zone	psf	W1>	Non-std Spacing: 5/0/0 Required	21.21	40/3/0	27.000	0.79	OUT	-1.440
End Zone	psf	<W2	Standard Spacing is Adequate	15.91	40/3/0	16.000	0.99	IN	1.080
Interior Area	psf	W1>	Need Lower Girt	17.23	4/5/0	18.000	0.96	OUT	-1.170
Interior Area	psf	<W2	Standard Spacing is Adequate	15.91	4/5/0	16.000	0.99	IN	1.080

Covering Design Loads - Wall: 2

Zone	Units	Type	Description	Actual	Loc1	Allow.	Ratio	Dir.	Coef.
End Zone	psf	W1>	Non-std Spacing: 5/0/0 Required	21.21	0/0/0	27.000	0.79	OUT	-1.440
End Zone	psf	<W2	Standard Spacing is Adequate	15.91	0/0/0	16.000	0.99	IN	1.080
End Zone	psf	W1>	Non-std Spacing: 5/0/0 Required	21.21	39/9/0	27.000	0.79	OUT	-1.440
End Zone	psf	<W2	Standard Spacing is Adequate	15.91	39/9/0	16.000	0.99	IN	1.080
Interior Area	psf	W1>	Need Lower Girt	17.23	4/5/0	18.000	0.96	OUT	-1.170
Interior Area	psf	<W2	Standard Spacing is Adequate	15.91	4/5/0	16.000	0.99	IN	1.080

Covering Design Loads - Wall: 3

Zone	Units	Type	Description	Actual	Loc1	Allow.	Ratio	Dir.	Coef.
End Zone	psf	W1>	Non-std Spacing: 5/0/0 Required	21.21	0/0/0	27.000	0.79	OUT	-1.440
End Zone	psf	<W2	Standard Spacing is Adequate	15.91	0/0/0	16.000	0.99	IN	1.080
End Zone	psf	W1>	Non-std Spacing: 5/0/0 Required	21.21	40/3/0	27.000	0.79	OUT	-1.440
End Zone	psf	<W2	Standard Spacing is Adequate	15.91	40/3/0	16.000	0.99	IN	1.080
Interior Area	psf	W1>	Need Lower Girt	17.23	4/5/0	18.000	0.96	OUT	-1.170
Interior Area	psf	<W2	Standard Spacing is Adequate	15.91	4/5/0	16.000	0.99	IN	1.080

Covering Design Loads - Wall: 4

Zone	Units	Type	Description	Actual	Loc1	Allow.	Ratio	Dir.	Coef.
End Zone	psf	W1>	Non-std Spacing: 5/0/0 Required	21.21	0/0/0	27.000	0.79	OUT	-1.440
End Zone	psf	<W2	Standard Spacing is Adequate	15.91	0/0/0	16.000	0.99	IN	1.080
End Zone	psf	W1>	Non-std Spacing: 5/0/0 Required	21.21	39/9/0	27.000	0.79	OUT	-1.440
End Zone	psf	<W2	Standard Spacing is Adequate	15.91	39/9/0	16.000	0.99	IN	1.080
Interior Area	psf	W1>	Need Lower Girt	17.23	4/5/0	18.000	0.96	OUT	-1.170
Interior Area	psf	<W2	Standard Spacing is Adequate	15.91	4/5/0	16.000	0.99	IN	1.080



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 51 of 52

Covering Design Loads - Roof: A

Zone	Units	Type	Description	Actual	Locl	Allow.	Ratio	Dir.	Coef.
Entire Surface	psf	L	Standard Spacing is Adequate	20.64	0/0/0	38.000	0.54	IN	0.986
Unbalanced Snow	psf	*US1	Standard Spacing is Adequate	12.84	0/0/0	38.000	0.34	IN	0.986
Entire Surface	psf	SMS	Standard Spacing is Adequate	20.64	0/0/0	38.000	0.54	IN	0.986
Unbalanced Snow	psf	*US1	Standard Spacing is Adequate	9.64	0/0/0	38.000	0.25	IN	0.986
Corner Zone	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Corner Zone	psf	W1>	Non-std Spacing: 4/6/0 Required	40.40	4/5/0	42.000	0.96	OUT	-2.780
Side Zone	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Side Zone	psf	W1>	Standard Spacing is Adequate	27.15	4/5/0	34.000	0.80	OUT	-1.880
Corner Zone	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Corner Zone	psf	W1>	Non-std Spacing: 4/6/0 Required	40.40	4/5/0	42.000	0.96	OUT	-2.780
Side Zone	psf	<W2	Standard Spacing is Adequate	10.93	39/9/0	38.000	0.29	IN	0.680
Side Zone	psf	W1>	Standard Spacing is Adequate	27.15	39/9/0	34.000	0.80	OUT	-1.880
Corner Zone	psf	<W2	Standard Spacing is Adequate	10.93	39/9/0	38.000	0.29	IN	0.680
Corner Zone	psf	W1>	Non-std Spacing: 4/6/0 Required	40.40	39/9/0	42.000	0.96	OUT	-2.780
Side Zone	psf	<W2	Standard Spacing is Adequate	10.93	39/9/0	38.000	0.29	IN	0.680
Side Zone	psf	W1>	Standard Spacing is Adequate	27.15	39/9/0	34.000	0.80	OUT	-1.880
Corner Zone	psf	<W2	Standard Spacing is Adequate	10.93	39/9/0	38.000	0.29	IN	0.680
Corner Zone	psf	W1>	Non-std Spacing: 4/6/0 Required	40.40	39/9/0	42.000	0.96	OUT	-2.780
Side Zone	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Side Zone	psf	W1>	Standard Spacing is Adequate	27.15	4/5/0	34.000	0.80	OUT	-1.880
Interior Area	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Interior Area	psf	W1>	Standard Spacing is Adequate	15.36	4/5/0	34.000	0.45	OUT	-1.080

Covering Design Loads - Roof: B

Zone	Units	Type	Description	Actual	Locl	Allow.	Ratio	Dir.	Coef.
Entire Surface	psf	L	Standard Spacing is Adequate	20.64	0/0/0	38.000	0.54	IN	0.986
Unbalanced Snow	psf	US1*	Standard Spacing is Adequate	12.84	0/0/0	38.000	0.34	IN	0.986
Entire Surface	psf	SMS	Standard Spacing is Adequate	20.64	0/0/0	38.000	0.54	IN	0.986
Unbalanced Snow	psf	US1*	Standard Spacing is Adequate	9.64	0/0/0	38.000	0.25	IN	0.986
Corner Zone	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Corner Zone	psf	W1>	Non-std Spacing: 4/6/0 Required	40.40	4/5/0	42.000	0.96	OUT	-2.780
Side Zone	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Side Zone	psf	W1>	Standard Spacing is Adequate	27.15	4/5/0	34.000	0.80	OUT	-1.880
Corner Zone	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Corner Zone	psf	W1>	Non-std Spacing: 4/6/0 Required	40.40	4/5/0	42.000	0.96	OUT	-2.780
Side Zone	psf	<W2	Standard Spacing is Adequate	10.93	39/9/0	38.000	0.29	IN	0.680
Side Zone	psf	W1>	Standard Spacing is Adequate	27.15	39/9/0	34.000	0.80	OUT	-1.880
Corner Zone	psf	<W2	Standard Spacing is Adequate	10.93	39/9/0	38.000	0.29	IN	0.680
Corner Zone	psf	W1>	Non-std Spacing: 4/6/0 Required	40.40	39/9/0	42.000	0.96	OUT	-2.780
Side Zone	psf	<W2	Standard Spacing is Adequate	10.93	39/9/0	38.000	0.29	IN	0.680
Side Zone	psf	W1>	Standard Spacing is Adequate	27.15	39/9/0	34.000	0.80	OUT	-1.880
Corner Zone	psf	<W2	Standard Spacing is Adequate	10.93	39/9/0	38.000	0.29	IN	0.680
Corner Zone	psf	W1>	Non-std Spacing: 4/6/0 Required	40.40	39/9/0	42.000	0.96	OUT	-2.780
Side Zone	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Side Zone	psf	W1>	Standard Spacing is Adequate	27.15	4/5/0	34.000	0.80	OUT	-1.880
Interior Area	psf	<W2	Standard Spacing is Adequate	10.93	4/5/0	38.000	0.29	IN	0.680
Interior Area	psf	W1>	Standard Spacing is Adequate	15.36	4/5/0	34.000	0.45	OUT	-1.080

Panel Data

Wall/Roof	Type	Thickness	Finish	Color	Direction	Gable Dir	Max. Length
Wall: 1	Vee Rib	26	KXL (Kynar)	Cool Sierra Tan	Left to Right	Peak Out	39/0/0
Wall: 2	Vee Rib	26	KXL (Kynar)	Cool Sierra Tan	Left to Right	Peak Out	39/0/0
Wall: 3	Vee Rib	26	KXL (Kynar)	Cool Sierra Tan	Left to Right	Peak Out	39/0/0
Wall: 4	Vee Rib	26	KXL (Kynar)	Cool Sierra Tan	Left to Right	Peak Out	39/0/0
Roof: A	Panel Rib	26	Galvalume	Standard Color	System Generated	Not Applicable	40/0/0
Roof: B	Panel Rib	26	Galvalume	Standard Color	System Generated	Not Applicable	40/0/0

Fastener Data

Wall/Roof	Type	Length	Spacing	Washers	Insul. Block	Mod. Ctrl.	Ice Damming
Wall: 1	SS Capped	Standard Option	Standard Option	Yes	None	No	Yes
Wall: 2	SS Capped	Standard Option	Standard Option	Yes	None	No	Yes
Wall: 3	SS Capped	Standard Option	Standard Option	Yes	None	No	Yes
Wall: 4	SS Capped	Standard Option	Standard Option	Yes	None	No	Yes
Roof: A	Stainless Steel Capped	Standard Option	Standard Option	Yes	None	No	Yes
Roof: B	Stainless Steel Capped	Standard Option	Ice Damming	Yes	None	No	Yes



15-004329-01 Calculations Package

Date: 3/18/2015

Time: 05:28 PM

Page: 52 of 52

Appendices - Minimum Loads

Metal Building Systems Manual

S	W	S _s	S ₁	I1	I2	T _L	County Name
5(5000)	90°	0.564	0.170	4	6	6	NEW MEXICO
5(5000)	90	0.269	0.080	4	6	6	Bernalillo
							Catron

Appendices - TOEP - REW

Top of Endpost at Ridge Revision

$P_{\text{endpost}} = 3.92$ kips
 $L = 4.00$ ft
 $a = 1.63$ ft
 $P_{\text{urlin gage}} = 17$

Reaction, $R = \frac{1}{2} P_{\text{Endpost}} \left[1 + \frac{L}{t} \right] \dots$ kips per DP 3.16.1, H1
 Reaction, $R = 0.5 \times 3.92 \left[1 + (1.625 / 4) \right] = 2.76$ kips Use GFB

FB length = 27.38 in FB horizontal dim = 22.50 in
 FB angle = 35° $R / \cos \alpha = 3.35$ kips

Purlin bearing = 1.89 < 3.35, Failure per DP3.4, table 6
 Purlin bearing with washers = 2.52 < 3.35, Failure per DP3.4, table 6
 Use JCP051140 reinforcement plate

3-Plate Rake Beam Flange Bending per DP 3.16.1 - H1
 Flange width = 5.00 in Flange thickness = 0.1345 in

$M_n = F_y Z_p = F_y \frac{1}{4} t_f b_f^2 = 55 \times 0.25 \times 0.1345 \times 5 \times 5 = 46.23$

$R_n = \left[\frac{2}{a} \right] M_n = \left[\frac{2.00}{19.50} \right] 46.23 = 4.74$ kips

$\Omega = 1.67$ (ASD) $R_n / \Omega = \frac{4.74}{1.67} = 2.84 > 2.76, \text{OK}$



VP BUILDINGS

VARCO PRUDEN

a division of BlueScope Buildings North America, Inc.

DRAWING INDEX	
DRAWING TITLE	PAGES
Cover Sheet	1
Notes	2
Anchor Rod Plan	3 - 4
Primary Structural	5 - 9
Secondary Structural	10 - 17
Covering	18 - 24
Special Drawings	
Standard Erection Details	
Planograph Details	25 - 28

DRAWING RELEASE HISTORY		
TYPE	DATE	DESCRIPTION
Anchor Rod Drawings	03/19/15	FOR CONSTRUCTION
Final Erection Drawings	03/24/2015	FOR CONSTRUCTION

GENERAL NOTES

MATERIALS

3 PLATE WELDED SECTIONS
COLD FORMED LIGHT GAGE SHAPES
BRACE RODS
HOT ROLLED MILL SHAPES
HOT ROLLED ANGLES
HOLLOW STRUCTURAL SECTION (HSS)
CLADDING

ASTM DESIGNATION

A529, A572, A1011, A1018
A653, A1011
A572, A510
A36, A529, A572, A588, A992
A529, A572, A588, A992
A500
A653, A792

GRADE 55
GRADE 60
GRADE 50
GRADE 36 OR 50
GRADE 50
GRADE B
GRADE 50 OR GRADE 80

A325 & A490 BOLT TIGHTENING REQUIREMENTS

IT IS THE RESPONSIBILITY OF THE ERECTOR TO ENSURE PROPER BOLT TIGHTNESS IN ACCORDANCE WITH APPLICABLE REGULATIONS. SEE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS FOR MORE INFORMATION. SEE ERECTION GUIDE FOR BOLT TIGHTENING INSTRUCTIONS. THE FOLLOWING CRITERIA MAY BE USED TO DETERMINE THE BOLT TIGHTNESS (I.E.-SNUG TIGHT OR PRE-TENSION) UNLESS REQUIRED OTHERWISE BY LOCAL JURISDICTION OR CONTACT.

ALL A490 BOLTS SHALL BE "PRE-TENSIONED". A325 BOLTS IN PRIMARY FRAMING AND BRACING CONNECTIONS MAY BE "SNUG-TIGHT" EXCEPT AS FOLLOWS.

PRE-TENSION A325 BOLTS IF BUILDING SUPPORTS A CRANE GREATER THAN 5 TON CAPACITY.

PRE-TENSION A325 BOLTS IF BUILDING SUPPORTS MACHINERY THAT CREATES VIBRATION, IMPACT, OR STRESS REVERSALS ON CONNECTIONS.

PRE-TENSION A325 BOLTS IF LOCATED IN HIGH SEISMIC AREAS. FOR IBC BASED CODES, HIGH SEISMIC IS DESIGN CATEGORY D, E OR F. SEE CODES AND LOADS SECTION BELOW FOR DETAILS.

PRE-TENSION ANY CONNECTION WITH DESIGNATION A325-SC. SLIP CRITICAL (SC) CONNECTIONS MUST BE FREE OF PAINT, OIL, OR OTHER MATERIALS THAT REDUCE FRICTION AT CONTACT SURFACES. GALVANIZED OR LIGHTLY RUSTED SURFACES ARE ACCEPTABLE.

IN CANADA ALL A325 AND A490 BOLTS SHALL BE "PRE-TENSIONED", EXCEPT FOR SECONDARY MEMBERS AND FLANGE BRACES.

SECONDARY MEMBERS AND FLANGE BRACE CONNECTIONS ARE ALWAYS "SNUG TIGHTENED" UNLESS INDICATED OTHERWISE IN ERECTION DRAWING DETAILS.

CODES AND LOADS

WHEN MULTIPLE BUILDINGS ARE INVOLVED, SPECIFIC LOAD FACTORS FOR DIFFERING OCCUPANCIES, BUILDING DIMENSIONS, HEIGHTS, FRAMING SYSTEMS, ROOF SLOPES, ETC., MAY RESULT IN DIFFERENT LOAD APPLICATION FACTORS THAN INDICATED BELOW. SEE CALCULATIONS FOR FURTHER DETAILS. WIND LOADS ARE APPLIED TO OVERALL BUILDING ENVELOPE. COMMON WALLS BETWEEN CONNECTED SHAPES ARE NOT SUBJECT TO EXTERNAL WIND LOADS.

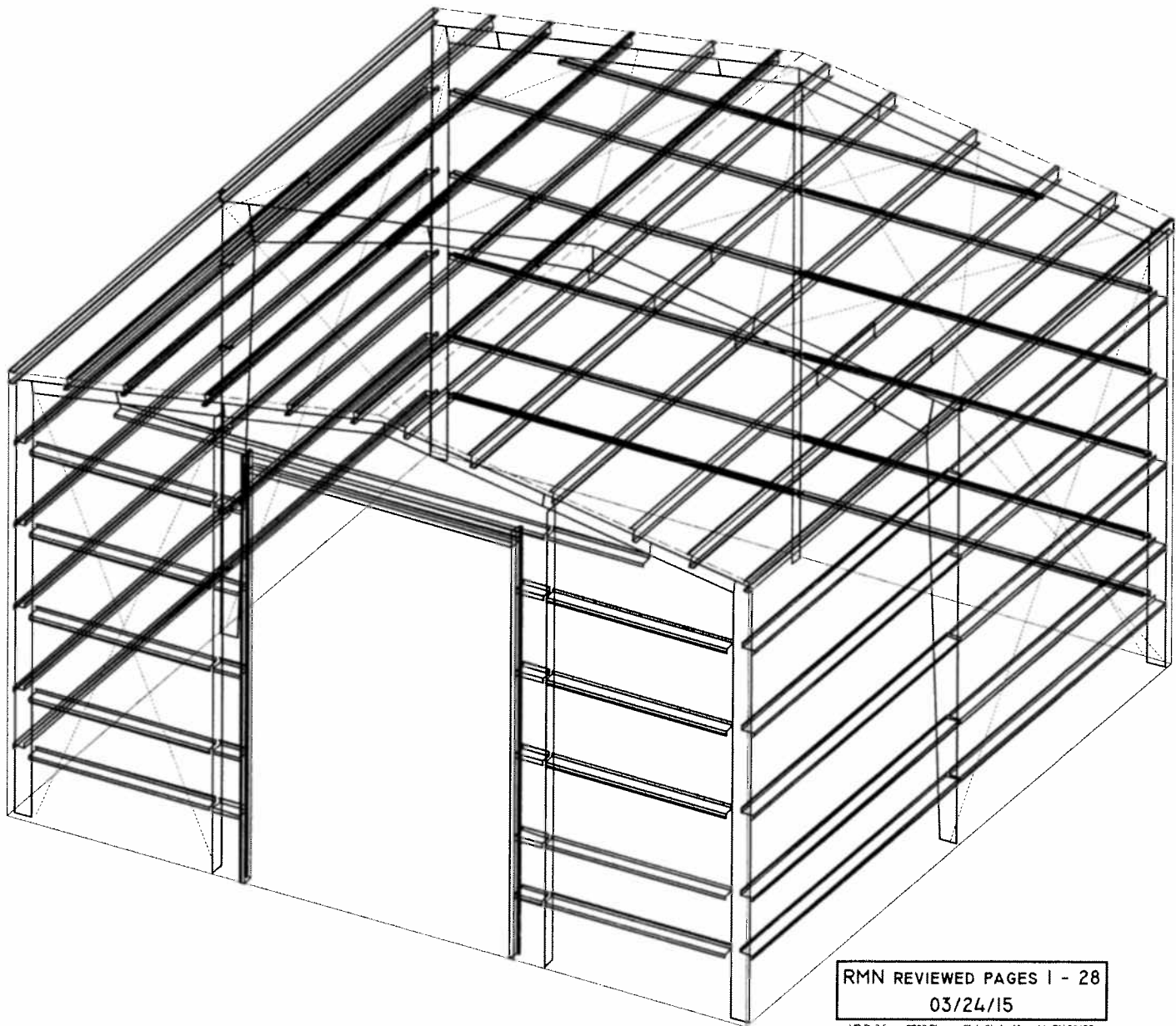
Building Code: 2009 New Mexico Commercial Building Code
Based on Building Code: 2009 International Building Code
Salt Storage : Building Risk/Occupancy Category: I (Low Hazard: Ag, Storage, Temp), Collateral Gravity: 3.00 psf (Not Including bldg wt)
LIVE LOADS AND RAINFALL
Roof Live Load 20.00 psf (Not Reducible)
Rainfall: 4.00 inches per hour
CONCRETE FOUNDATIONS Compressive Strength (Min.) - f_c: 3000 psi

SNOW LOAD
Ground Snow: 20.00 psf, Flat Roof Snow: 12.10 psf, Design Snow (Sloped): 12.10 psf, Specified Min. Roof Snow: 20.00 psf
Snow Exposure Category (Factor): 1 Fully Exposed (0.90)
Snow Importance: 0.800 Thermal Category (Factor): Unheated (1.20)

WIND LOAD
The 'Low Rise' Method is Used
Wind Speed: 90.00 mph, Wind Exposure: C
Basic Wind Pressure: 14.73 psf
Wind Importance Factor: 0.870, Topographic Factor: 1.0000
Wind Enclosure: Enclosed, 0.180
Note: All windows, doors, skylights and other covered openings must be designed for the specified above wind loads

EARTHQUAKE DESIGN DATA
Lateral Force Resisting Systems using Equivalent Force Procedure
Mapped Spectral Response - S_s: 56.40 %g, S₁: 17.00 %g
Seismic Design Category: D (See Bolt Tightening Note Above)
Seismic Snow Load: 0.00 psf
Seismic Importance: 1.000
Soil Profile Type: Stiff soil (D, 4)
Design Spectral Response - S_{ds}: 0.5071, S_{d1}: 0.2403

Ordinary Steel Moment Frames
Frame Redundancy Factor: 1.3000
Framing R-Factor: 3.5000, Frame Seismic Factor (C_s): 0.1449, Design Base Shear = 0.1449 W
Ordinary Steel Concentric Braced Frames
Brace Redundancy Factor: 1.3000
Bracing R-Factor: 3.2500, Brace Seismic Factor (C_s): 0.1560, Design Base Shear = 0.1560 W



RMN REVIEWED PAGES 1 - 28
03/24/15

VP Buildings: 3200 Players Club Circle Memphis TN 38125

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.



COVER SHEET

BUILDER GarVin Const Inc
CUSTOMER City of Albuquerque
LOCATION Albuquerque, New Mexico
PROJECT Facility Build COA Salt Storage
BUILDERS FOR



VP VERSION: 2014.2c

JOB # 15-004329-01
DATE 03/24/2015
DRAWN/CHECK CHAV
PAGE 1

BUILDER/CONTRACTOR RESPONSIBILITIES

VP Buildings follows the guidelines as outlined in the AISC and MBMA Codes of Standard Practice. VP Buildings standard product specifications, design, fabrication, quality criteria shall govern all work unless stipulated otherwise in the contract documents. In case of discrepancies between VP Buildings structural plans and plans for other trades, VP Buildings structural plans shall govern.

It is the responsibility of the Builder to obtain approvals and permits from all governing agencies and jurisdictions as required. Approval of VP Buildings drawings constitutes the builders acceptance of VP interpretation of the contract purchase order. Unless specific design criteria concerning interface design and details are furnished as part of the contract, VP Buildings design assumptions shall govern.

VP engineers are not Project Engineers or Engineer of Record for the overall project. VP engineering supply sealed engineering design data and drawings for VP supplied material as part of the overall project for use by others to obtain permits, approvals, and coordinate with other trades. The builder or A/E firm are responsible for the overall project coordination, including coordination with appropriate inspection and testing agencies. All interface and/or compatibility of any materials not furnished by VP are to be considered and coordinated by the builder or A/E firm.

CONSTRUCTION & ERECTION RESPONSIBILITY

The Builder is responsible for construction in strict accordance with VP Buildings "FOR CONSTRUCTION" drawings and all applicable product installation guides. VP is not responsible for work done from any other VP drawings that are not marked "FOR CONSTRUCTION", nor any drawings prepared by others.

As erected field assemblies of members shall be as specified in MBMA Code of Standard Practice (in Canada - CSA S16), which require L/500 tolerance of installed members. Occasional field work including shimming, cutting, coping, and drilling for final fit-up are considered part of erection. Specified field work and field welding conditions indicated on these drawings shall also be included in the erectors scope of work. See Erection Guide for shimming procedure. For building with top riding bridge cranes see Crane Data drawing for column plumb tolerance.

The building erector shall be properly licensed and experienced in erecting metal building systems. The Builder is responsible for having knowledge of, and shall comply with, all OSHA requirements and all other governing site safety criteria. The builder is responsible for designing, supplying, locating and installing temporary supports and bracing during erection of the building. VP bracing is designed for code required loads after building completion and shall not be considered as adequate erection bracing. See Erection Guide.

EXISTING STRUCTURES

VP must be advised of any existing structure that is within 20 ft. of VP's building. Loadings of both buildings may be affected when adjacent buildings are within this distance. VP cannot be responsible for the design or loading of existing buildings.

BRACING

Tension brace rods work in pairs to balance forces caused by initial tensioning. Care must be taken while tightening brace rods so as not to cause accidental or misalignment of components. All rods must be installed loose and then tightened. Rods should not exhibit excessive sag. For long or heavy rods, or angles it may be necessary to support the rods at mid-bay by suspending them from secondary members.

Bracing for seismic or wind loading of objects or equipment that are not a part of the VP structure must be designed by a qualified professional to deliver lateral loads to primary frames and rod bracing struts. Equipment bracing and suspension connections must not impose torsion or minor axis loads, or cause local distortion in any VP components. VP accepts no responsibility for design or installation of bracing systems not furnished by VP.

FIELD WELDING

All field welding shall be done at the direction of a design professional, and done in accordance with governing requirements (AWS in USA, CWB in Canada) by welders qualified to perform the welding as directed by the applicable welding procedure specification (WPS). A WPS shall be prepared by the contractor for each welding variation specified. The contractor is responsible for any special welding inspection as required by local jurisdiction. Filler metal shall be 70 ksi (480 MPa) tensile strength. For welds in high seismic force resisting system (Seismic Cat D, E or F), minimum Charpy V-Notch toughness shall meet AISC-341 criteria (20 ft-lbs min @ 0Deg F). Interpass temperatures shall not exceed 550Deg F (300Deg C).

DELIVERIES

It is the responsibility of the builder to have adequate equipment available at the job site to unload trucks in a safe and timely manner. The Builder will be responsible for all retention charges from carriers as a result of job site unloading delays.

Claims for damage or shorts MUST be noted on the Bill-of-Lading or delivery receipt and filed against the carrier by the consignee as per VP's Terms of Sales (F.O.B. Plant) under the Uniform Commercial Code. It is critical that damages or shorts be noted on the Bill-of-Lading or you have little recourse with the carrier. Immediately upon delivery of material, material quantities are verified by the Builder against quantities billed on the shipping document. Neither the Manufacturer nor the carrier is responsible for material shortages against quantities billed on the shipping document if such shortages are not noted on the shipping documents upon delivery of material and acknowledged by the carriers agent. For materials concealed in bundles, boxes, or crates, shortages must be reported immediately upon unpacking. Should products get wet, bundled and crated materials must be unpacked and unbundled immediately to provide drainage of trapped moisture. See Erection Guide for proper job site storage procedure.

SEALANTS

Sealants shall be applied in strict accordance with VP details or weather tightness will be compromised. Sealant must be applied in temperatures and weather conditions consistent with labeling.

INDEPENDENT MEZZANINES

Independent mezzanines must be designed by a professional engineer. The engineer must ensure that proper isolation from the VP building has been provided to avoid structural damage due to differential movements, or inadvertently apply loads to the VP structure. VP accepts no responsibility for the design of the independent mezzanine.

FIRE CODE COMPLIANCE

It is the responsibility of the project design professional and builder to comply with local fire code regulations including consideration of, but not limited to, building use and occupancy, all building construction materials, separation requirements, egress requirements, fire protection systems, etc. Builder shall advise VP of any special requirements to be furnished by VP.

FIELD MODIFICATIONS

Modifications to this building from details and instructions contained on these drawings must be approved in writing by VP Buildings engineers, or other licensed structural engineer. This includes, but is not limited to, removal of roof or wall cladding, removing or moving any flange braces or rod braces, cutting of openings for doors, windows or RTU's, correction of fabrication errors, etc. The owner shall not impose loads to this structure beyond what is specified for this building in the contract documents. VP Buildings accepts no responsibility for the consequences of any unauthorized additions, alterations, or added loads to this structure.

If the builder intends to invoice VP Buildings for modifications in excess of \$1000, The builder must notify VP Buildings immediately, and obtain a Work Authorization from VP Buildings prior to proceeding. All final claims must be submitted to VP Buildings with all supporting documentation within 30 days of the building completion. Claims submitted without work authorizations, or after 30 days will not be accepted. Correction of minor misfits, shimming and plumbing, moderate amount of reaming, drilling, chipping / cutting and minor welding are considered by Code of Standard Practice to be part of erection are not subject to claim reimbursement.

CONCRETE/MASONRY/CONVENTIONAL STUD WALLS

The engineer responsible for the design of the wall system is responsible for coordinating with, or specifying to VP Buildings, any wall to steel compatibility issues such as drift and deflection compatibility, special base details, and wall to VP steel connections. All fasteners, sealant and counter flashing of wall systems are to be provided by contractor. The engineer responsible for the wall shall design the anchorage to VP supporting elements consistent with Code required forces.

PANELS

Oil canning is an inherent characteristic of cold formed steel panels. It is the result of several factors that include induced stresses in the raw material delivered to VP, fabrication methods, installation procedures, and post installation thermal forces. Thru fastened panels will exhibit some dimpling when installed, especially when insulation is installed between panels and secondary supports. Dimpling can be minimized by careful installation, taking care not to over drive fasteners.

Roof rumble is a phenomenon that is caused by wind gusts lifting up on the roof panels and then springing back into place. All panels experience this action to some degree, especially with concealed dip Standing Seam panels. Roof rumble noise may be minimized by providing a layer of blanket insulation between the panels and any hard support surface such as steel secondary members, substrates such as plywood, steel decking, or rigid board insulation. A minimum of 3 inch thick blanket is recommended over steel secondary members, or 2 inch over substrates.

Oil canning, dimpling, and roof rumble do not affect the structural integrity or weather tightness of the panels and is not grounds for rejection of panels.

The Standing Seam joint detail is designed with an interlocking feature for ease of installation. However, it is imperative that installed Standing Seam panels be secured to the secondary structural members and properly seamed prior to departure from the job site each day.

SKYLIGHTS

Local building departments may require added fall restraint due to conditions that may affect the skylight structural integrity. It is the responsibility of the builder to determine and provide any added fall restraint under the skylight as may be required by your building department.

RAIN WATER RUNOFF

Drainage systems must be designed by the project professional to comply with code requirements. VP is not responsible for drainage designs, overflow scuppers, down piping, etc. The project professional and contractor are responsible to ensure that primary drains and overflow devices such as scuppers and auxiliary drains are provided as required for the required rain intensity at the building perimeter and at valley conditions to prevent ponding.

STEEL SHOP COAT

The purpose of VP's shop coat is to provide protection for the steel members during transportation, during temporary job site storage and during erection. Standard shop formulation is not designed to perform as a finish coat when exposed to environmental conditions. Members shall be kept free of the ground and properly drained during job site storage. It is the Builder's responsibility to ensure that if a finish coat is being applied over VP shop coat that the painting contractor verifies compatibility between his finish coat and VP's shop coat.

VP BUILDINGS ACCREDITATIONS AND APPROVALS

Fabricator Approvals

IAS AC472 Approvals: (www.iasonline.org/Metal_Building_Systems/MB.html)
Listed under BlueScope Buildings North America, Inc.
City of Los Angeles, CA #B00031; City of Houston, TX 767 & 429;
City of Phoenix, AZ C19-02008; Clark County 43 & 833

Design Approvals

IAS AC472 Approvals: (www.iasonline.org/Metal_Building_Systems/MB.html)
Listed under Varco Pruden Buildings, a Division of BlueScope Buildings North America, Inc.
Canadian CSA A660 Certifications
(http://eng.cwbgroup.org/Certification/Pages/CertifiedCompanySearch.aspx)
Listed under BlueScope Buildings North America, Inc.

Engineering Certifications of Authorization

USA--AR#576; FL#30427; ID#C-2470; IL#184-002649; KS#E-29; MS#E-0592;
MO#E-2010007736; NC#F-0998; OK#CA4170PE; SD#C-1787; TX#F4828; WV#C03059-00;
CAN--AB#P08900; NS#30123; ON#100148796; and YT#PP134

ICC Evaluation Reports (www.icc-es.org)

SSR Roof System - #ESR-2527

State of Florida Product Approvals (www.floridabuilding.org)

Approved Products Listed Under VP Buildings, Inc.
VP TextureClad - See Transamerican Structuroc, Inc.

Dade Co. Product Approval (www.miamidade.gov/buildingcode)

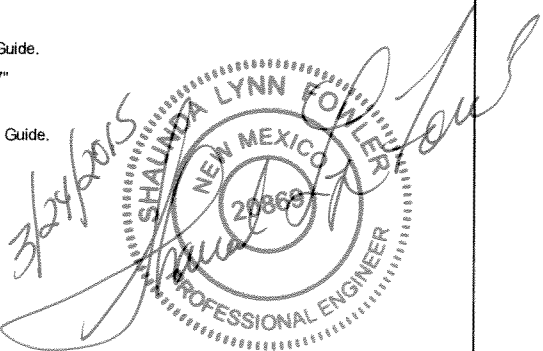
Approved Products Listed Under Varco Pruden Buildings, Inc.
VP TextureClad - See Transamerican Structuroc, Inc.

Underwriter's Laboratory Approvals (Available only when specified in contract)

SSR Roof-UL#TGKX-113; SSR Composite Roof Class 90-UL#TGKX-113A;
SSR Roof w/Super Block; Class 90-UL#TGKX-328;
Panel Rib Roof UL Class 60-UL#TGKX-60; Panel Rib Roof UL Class 90-UL#TGKX-64;
VP SLR II Roof Class 90-UL#TGKX-90, -180, -465, -435A, -176, -238, -238A, -238B

Factory Mutual Approved Assemblies (Available only when specified in contract)

SSR Roof Systems are approved in various type applications and listed in FM Approval Guide.
24 Ga SSR (0.0227" Nominal), is available in Class 1-60, 1-75, 1-90. 22Ga SSR (0.0277" Nominal), is available in Class 1-75, 1-90-, 1-120.
SLR II Roof Systems are approved in various type applications and listed in FM Approval Guide.
24 Ga SLR II (0.0227" Nominal), is available in Class 1-75 and 1-120.



FOR CONSTRUCTION

	THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.	THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS. THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.	VP Buildings 3200 Players Club Circle Memphis TN 38125		ERECTION NOTES	
REV	DATE	BY	DESCRIPTION		BUILDER	GarVin Const Inc
					CUSTOMER	City of Albuquerque
					LOCATION	Albuquerque, New Mexico
					PROJECT	Facility Build COA Salt Storage
			NTS		BUILDER'S P&W	
			3/20/2015		FILENAME: FT Fac Bld COA Sal	

VP BUILDINGS
WACO TEXAS

VP VERSION: 2014.2c

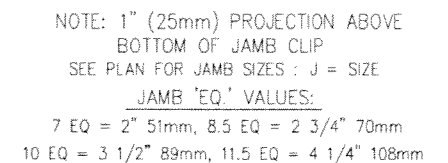
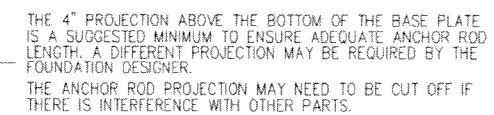
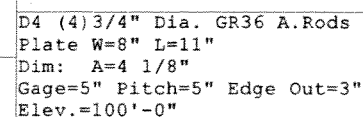
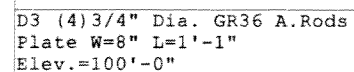
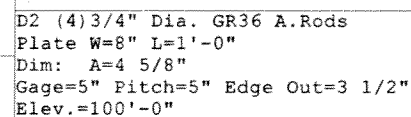
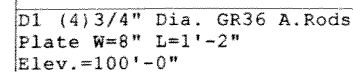
a division of BlueScope Buildings North America, Inc.

JOB #
15-004329-01

DATE
03/24/2015

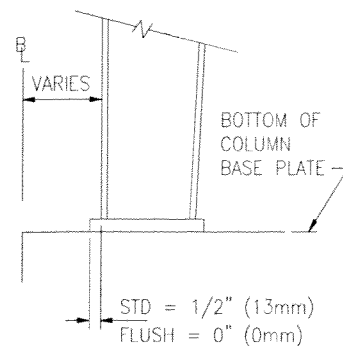
DRAWING CHECK
CHAV

PAGE
2



SUGGESTED ANCHOR ROD PROJECTION

FRAMED OPENING DETAIL



TYPICAL COLUMN
BASE PLATE DETAIL

1. ANCHOR RODS, NUTS, HARDENED WASHERS AND ANY OTHER EMBEDDED ITEMS ARE TO BE FURNISHED BY CONTRACTOR.
2. ANCHOR ROD DIAMETERS WERE DETERMINED BY ALLOWABLE SHEAR AND TENSION PER AISI SPECIFICATIONS ($F_y=36\text{KSI}$). (ASTM F1554 GRADE 36) ANCHOR ROD LENGTH, EFFECTS OF EMBEDDED ANCHOR ROD EDGE DIMENSIONS AND METHOD OF TRANSFERRING FORCES FROM ANCHOR RODS TO FOOTINGS ARE TO BE DETERMINED BY OTHERS.
3. UNLESS OTHERWISE SPECIFIED, ANCHOR RODS ARE DESIGNED AND DETAILED AS "CAST-IN-PLACE" ANCHOR RODS WITH "SNUG TIGHT" CONNECTIONS.
4. FOUNDATION MUST BE LEVEL, SQUARE AND SMOOTH. ANCHOR RODS MUST BE ACCURATELY PLACED AS SHOWN ON THIS DRAWING OR STEEL WILL NOT FIT. THE BUILDER IS RESPONSIBLE FOR ACCURATE SETTING OF ANCHOR RODS PER AISI CODE OF STANDARD PRACTICE, SEC 7.5 VARIATIONS ARE SUMMARIZED BELOW;
 - a. CENTERS OF ANY TWO AR'S WITHIN A COLUMN BASE GROUP; $\pm 1/8"$
 - b. CENTERS OF ADJACENT AR GROUPS; $\pm 1/4"$
 - c. TOPS OF AR'S; $\pm 1/2"$
 - d. ACCUMULATED DIM BETWEEN CENTERS OF AR GROUPS ALONG COLUMN LINE; $\pm 1/4"$ PER 100FT., NOT TO EXCEED 1" TOTAL
 - e. DIM FROM CENTER OF ANY AR GROUP FROM COLUMN LINE; $\pm 1/4"$
5. DESIGN LOADS AND REACTIONS ARE FURNISHED IN THE REACTIONS REPORT.

FOR CONSTRUCTION

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings			
3200 Players Club Circle Memphis TN 38125			
REV	DATE	BY	DESCRIPTION
NTS			
3/18/2015			17:40:08

ANCHOR ROD PLAN - DETAILS

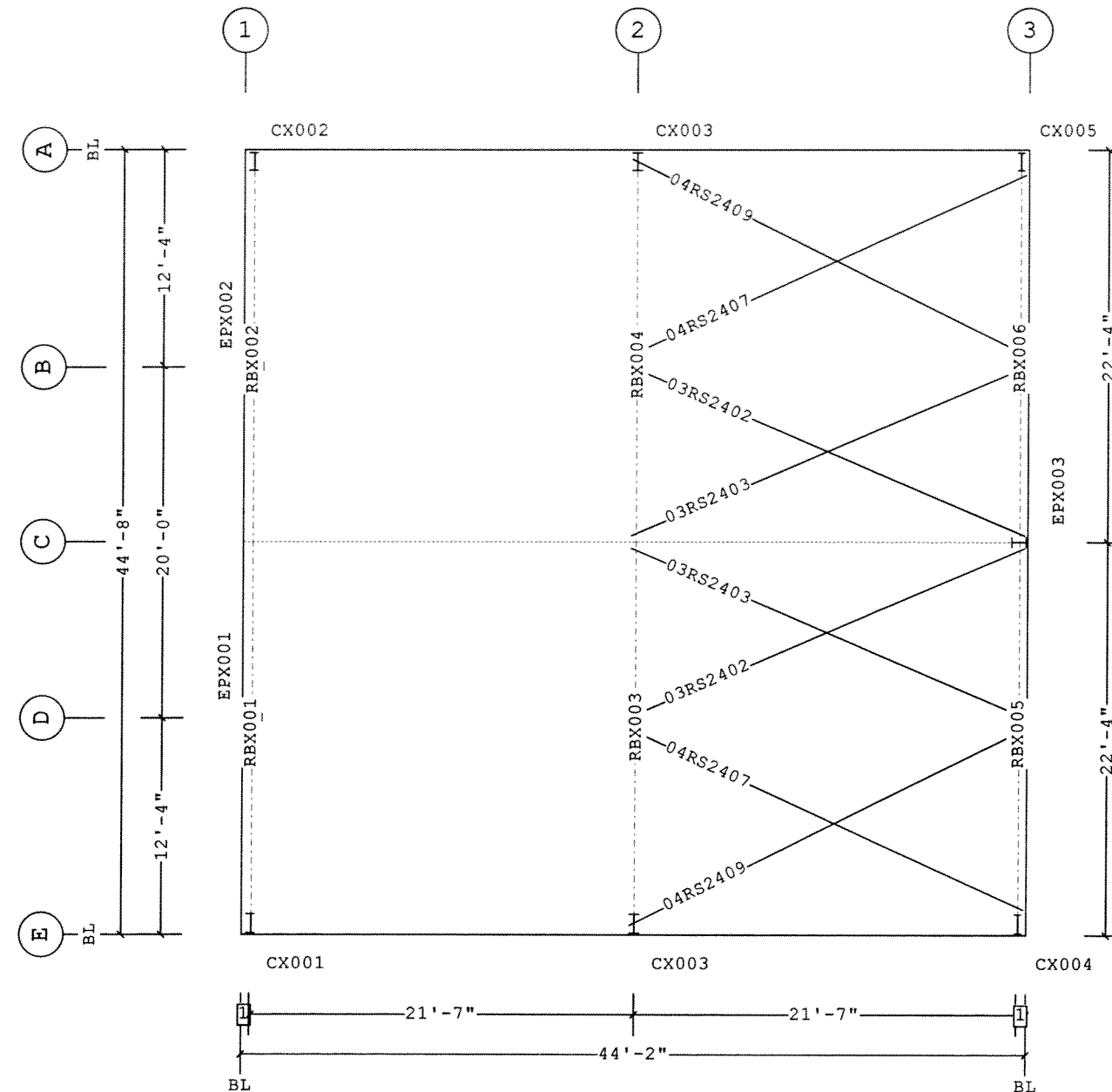
BUILDER	GarVin Const Inc
CUSTOMER	City of Albuquerque
LOCATION	Albuquerque, New Mexico
PROJECT	Facility Build COA Salt Storage
BLUE DESIGN	



JOB #	15-004329-01
DATE	03/19/15
DRAWN/CHECK	RMN
PAGE	

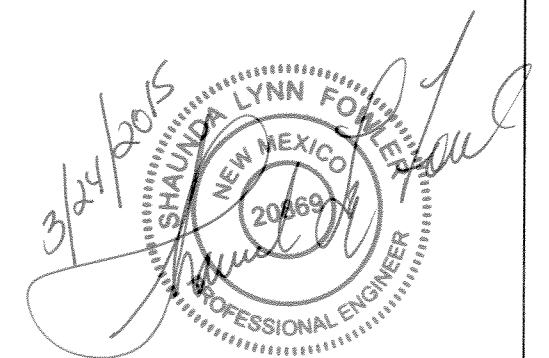


Bracing Part Schedule			
Part	Qty	Length	Detail
03RS2403	2	24'-3"	BR02H1
03RS2402	2	24'-2"	BR02H1
04RS2407	2	24'-7"	BR02H1
04RS2409	2	24'-9"	BR02H1



PRIMARY AND ROOF BRACING PLAN

1 6"
☐ Dimension Key



FOR CONSTRUCTION

1. USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE. 2. SLOT REINFORCEMENT PLATES NEED NOT BE LOCATED ON THE SAME SIDE OF THE WEB AS THE HILLSIDE WASHER.	THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.	THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS. THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING. DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.	VP Buildings 3200 Players Club Circle Memphis TN 38125		PRIMARY AND ROOF BRACING PLAN					
			REV	DATE	BY	DESCRIPTION	BUILDER	GarVin Const Inc		 VP BUILDINGS UNISOFT® JOB # 15-004329-01 DATE 03/24/2015 DRAWN/CHECK CHAV PAGE 5
							CUSTOMER	City of Albuquerque		
							LOCATION	Albuquerque, New Mexico		
							PROJECT	Facility Build COA Salt Storage		
							BUILDER'S POC			
NTS				VP VERSION: 2014.2c		a division of BlueScope Buildings North America, Inc.				
		3/20/2015		15:30:12		FILENAME: FT Fac Bld COA Sal				

3/20/2015

15:30:12

FILENAME: FT Fac Bld COA Sal

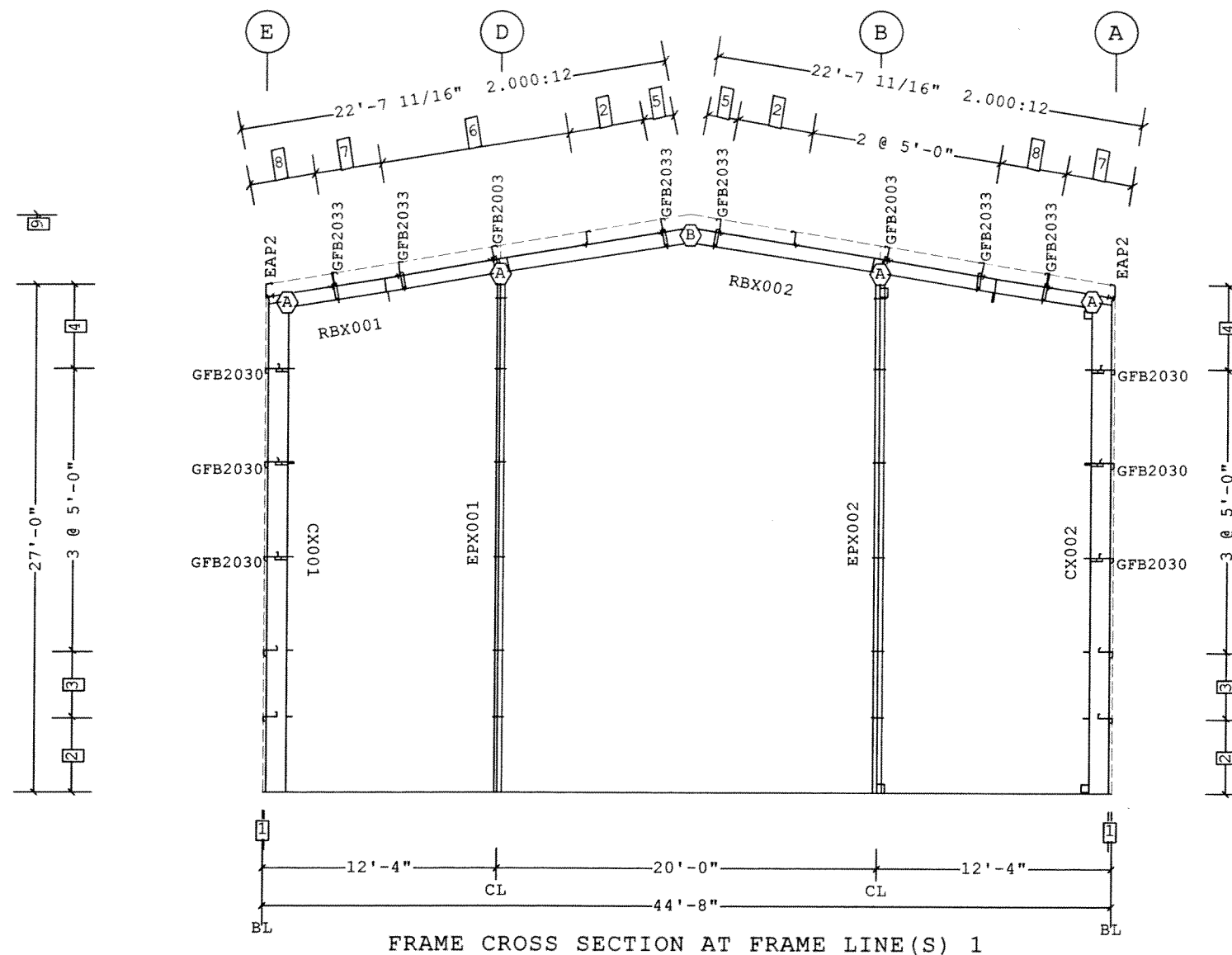
a division of BlueScope Buildings North America, Inc.

Frame Member Schedule									
Part	Mem	Width	Thick	WebThk.	Depth1	Depth2	Approx.Lgth	Approx.Weight	Detail
CX001	1	5.0000	.1345	.1345	1'-1"	1'-1"	26'-5 1/2"	306#	
RBX001	2	5.0000	.1345	.1345	9"	9"	21'-6 3/8"	202#	
	3	5.0000	.1345	.1345	9"	9"			
	4	5.0000	.1345	.1345	9"	9"			
RBX002	5	5.0000	.1345	.1345	9"	9"	21'-6 3/8"	202#	
	6	5.0000	.1345	.1345	9"	9"			
	7	5.0000	.1345	.1345	9"	9"			
CX002	8	5.0000	.1345	.1345	1'-1"	1'-1"	26'-5 1/2"	312#	
EPX001	9	5.0000	.2500	.1345	11"	11"	27'-7 3/8"	260#	BR25A3
EPX002	10	5.0000	.2500	.1345	11"	11"	27'-7 3/8"	265#	BR25A3

Frame Clearances
 Horiz. Clearance between members 1(CX001) and 8(CX002): 42'-2 9/16"
 Vert. Clearance at member 1(CX001): 25'-8 3/16"
 Vert. Clearance at member 8(CX002): 25'-8 3/16"
 Vert. Clearance at member 9(EPX001): 27'-6 15/16"
 Vert. Clearance at member 10(EPX002): 27'-6 15/16"
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)

Bolt Connection & Plate Schedule									
Id	Qty	Grade	Bolt Dia.	Bolt Length	Plate Thick.	Rows Out	Rows In	PartNo	
A	4	A325	1/2"	1 1/2"	3/8"	1	1	49080	
B	6	A325	1/2"	1 1/2"	1/4"	1	2	49080	

NOTE:
 THIS ENDWALL FRAME HAS BEEN DESIGNED UTILIZING SHEAR DIAPHRAGM OF THE PANEL FOR LATERAL STABILITY. REMOVAL OR CUTTING OF THE SHEETING OR SEGMENTS THEREOF IS PROHIBITED, UNLESS APPROVED BY THE ENGINEER.



- 9 30'-8 11/16" Ridge Ht.
- 8 3'-6 3/16"
- 7 3'-6 1/8"
- 6 2 @ 5'-0"
- 5 1'-7 7/16"
- 4 4'-6"
- 3 3'-6"
- 2 4'-0"
- 1 1 5/8"

Dimension Key

FOR CONSTRUCTION

1. USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE.

2. SLOT REINFORCEMENT PLATES NEED NOT BE LOCATED ON THE SAME SIDE OF THE WEB AS THE HILLSIDE WASHER.

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING. DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings

3200 Players Club Circle Memphis TN 38125

REV	DATE	BY	DESCRIPTION
NTS			

3/20/2015

15:30:14

BUILDERGarVin Const Inc

CUSTOMERCity of Albuquerque

LOCATIONAlbuquerque, New Mexico

PROJECTFacility Build COA Salt Storage

BUILDER'S PO#

FRAME CROSS SECTION AT FRAME LINE(S) 1

VP

VP BUILDINGS

VP CO PROJECT

JOB #15-004329-01

DATE03/24/2015

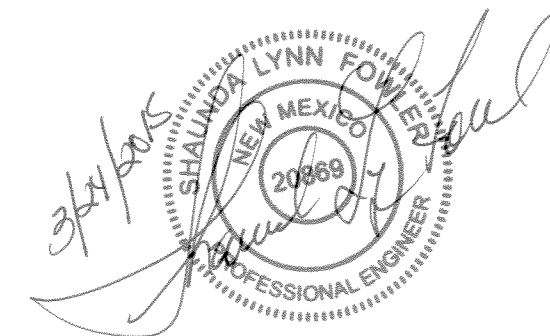
DRAWING/CHECKCHAV

PAGE6

VP VERSION2014.2c

FILENAMEFT Fac Bld COA Sal

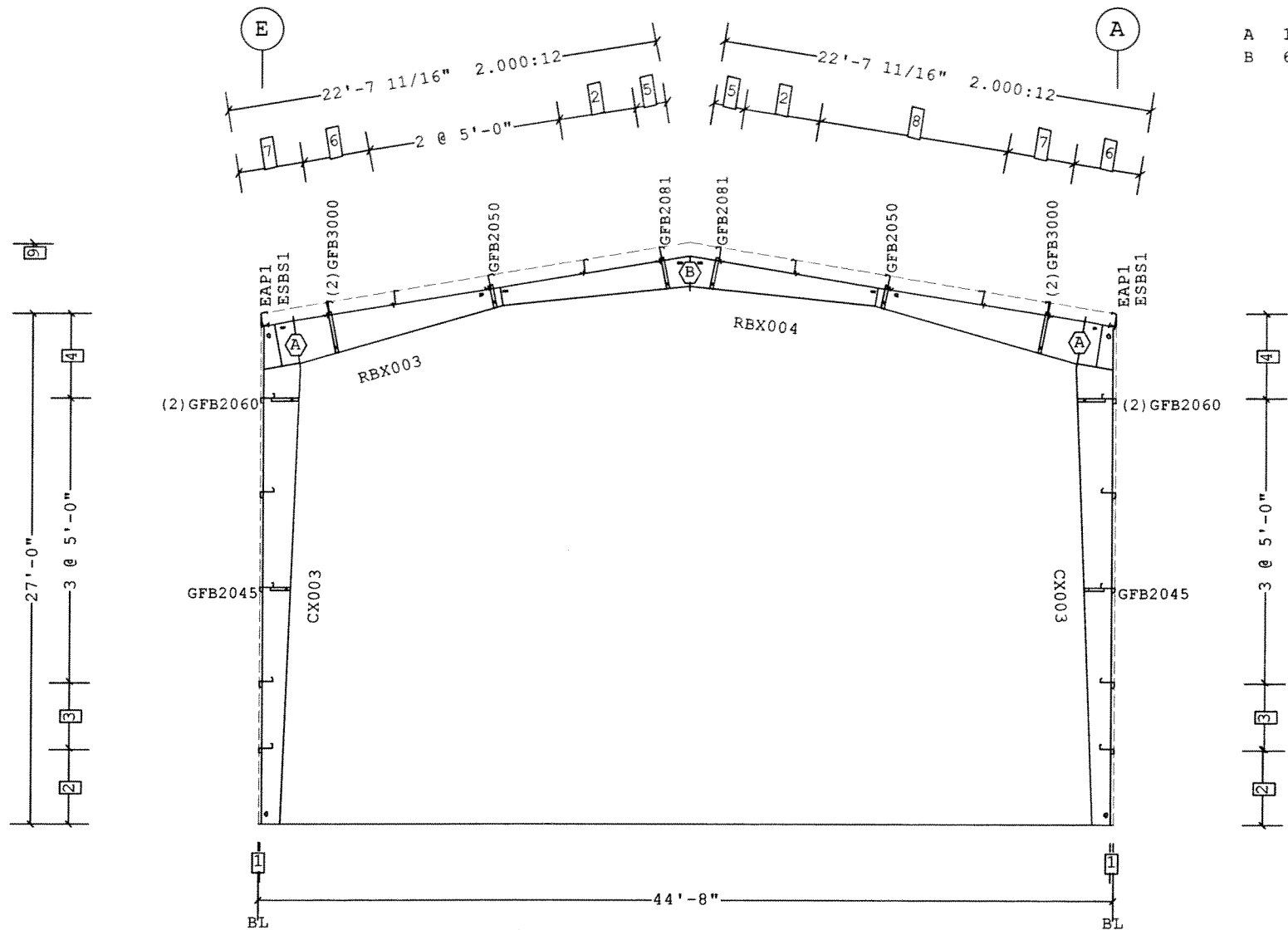
a division of BlueScope Buildings North America, Inc.



Frame Member Schedule								
Part	Mem	Width	Thick	WebThk.	Depth1	Depth2	Approx.Lgth	Approx.Weight
CX003	1	6.0000	.2500	.1345	1'-0"	1'-11"	26'-6 5/8"	536#
RBX003	2	5.0000	.1875	.1644	2'-3"	1'-0"	20'-11 3/16"	356#
	3	5.0000	.1875	.1345	1'-0"	1'-7"		
RBX004	4	5.0000	.1875	.1345	1'-7"	1'-0"	20'-11 3/16"	356#
	5	5.0000	.1875	.1644	1'-0"	2'-3"		
CX003	6	6.0000	.2500	.1345	1'-0"	1'-11"	26'-6 5/8"	536#

Frame Clearances
Horiz. Clearance between members 1(CX003) and 6(CX003): 40'-5 7/8"
Vert. Clearance at member 1(CX003): 24'-1 3/8"
Vert. Clearance at member 6(CX003): 24'-1 3/8"
Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)

Bolt Connection & Plate Schedule								
Id	Qty	Grade	Bolt	Bolt	Plate	Rows	Rows	PartNo
			Dia.	Length	Thick.	Out	In	
A	14	A325	3/4"	2 1/2"	3/8"	4	3	0097284
B	6	A325	3/4"	2 1/2"	3/8"	1	2	0097284



- 9 30'-8 11/16" Ridge Ht.
- 8 2 @ 5'-0"
- 7 3'-6 3/16"
- 6 3'-6 1/8"
- 5 1'-7 7/16"
- 4 4'-6"
- 3 3'-6"
- 2 4'-0"
- 1 1 5/8"

Dimension Key

FRAME CROSS SECTION AT FRAME LINE(S) 2

FOR CONSTRUCTION

1. USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE.
2. SLOT REINFORCEMENT PLATES NEED NOT BE LOCATED ON THE SAME SIDE OF THE WEB AS THE HILLSIDE WASHER.

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.
THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings			
3200 Players Club Circle Memphis TN 38125			
REV	DATE	BY	DESCRIPTION
NTS			

FRAME CROSS SECTION AT FRAME LINE(S) 2

BUILDER	GarVin Const Inc
CUSTOMER	City of Albuquerque
LOCATION	Albuquerque, New Mexico
PROJECT	Facility Build COA Salt Storage
BUILDER'S P.O.M.	



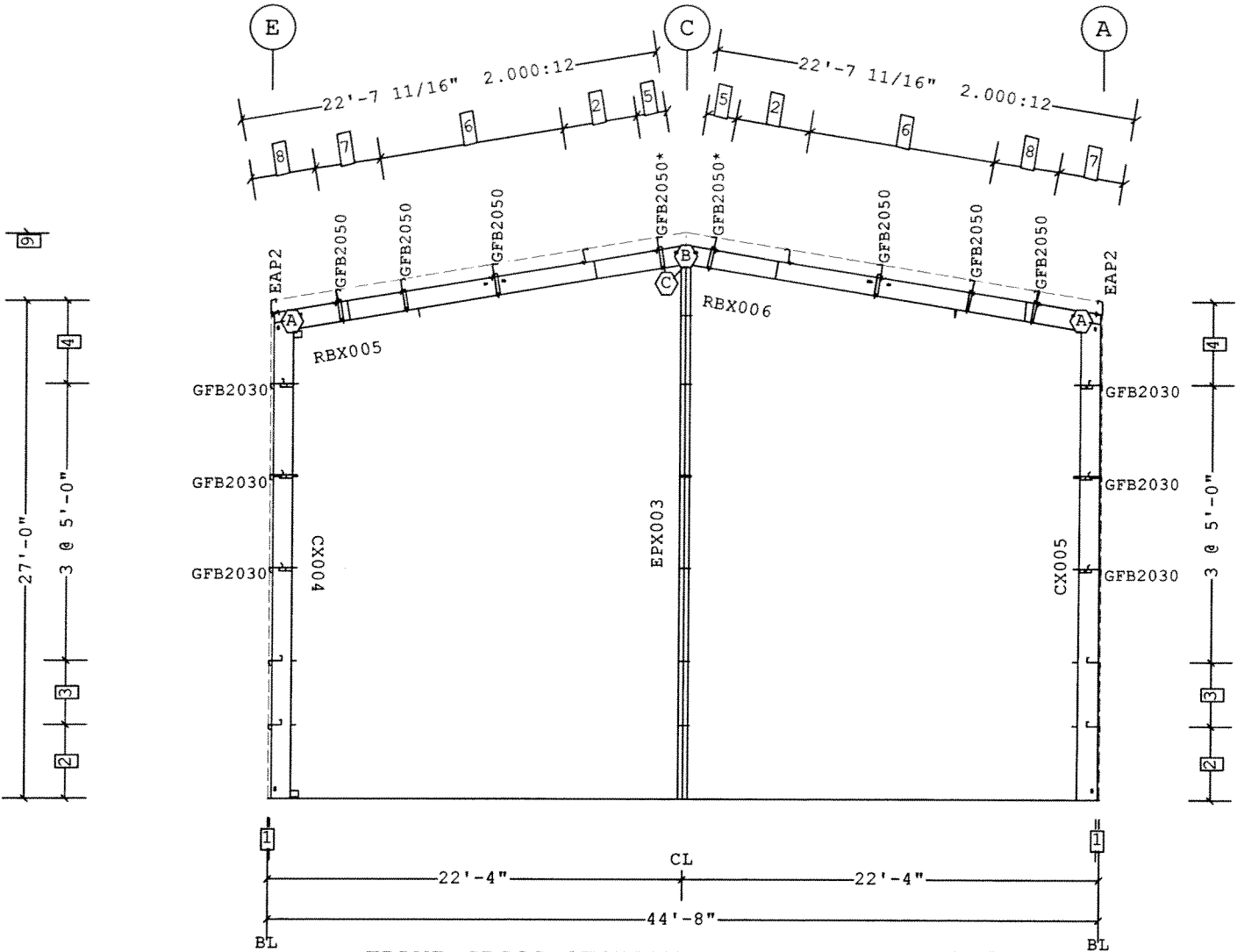
JOB #	15-004329-01
DATE	03/24/2015
DRAWN/CHECK	CHAV
PAGE	7

Frame Member Schedule								
Part	Mem	Width	Thick	WebThk.	Depth1	Depth2	Approx.Lgth	Approx.Weight
CX004	1	5.0000	.1345	.1345	1'-1"	1'-1"	26'-5 7/16"	313#
RBX005	2	5.0000	.1345	.1345	1'-0"	1'-0"	21'-6 7/8"	233#
	3	5.0000	.1345	.1345	1'-0"	1'-0"		
	4	5.0000	.1345	.1345	1'-0"	1'-0"		
	5	5.0000	.1345	.1345	1'-0"	1'-0"		
RBX006	6	5.0000	.1345	.1345	1'-0"	1'-0"	21'-6 7/8"	233#
	7	5.0000	.1345	.1345	1'-0"	1'-0"		
	8	5.0000	.1345	.1345	1'-0"	1'-0"		
CX005	8	5.0000	.1345	.1345	1'-1"	1'-1"	26'-5 7/16"	308#
EPX003	9	6.0000	.2500	.1345	10"	10"	28'-11 7/8"	317#

Frame Clearances
 Horiz. Clearance between members 1(CX004) and 8(CX005): 42'-2 9/16"
 Vert. Clearance at member 1(CX004): 25'-5 3/16"
 Vert. Clearance at member 8(CX005): 25'-5 3/16"
 Vert. Clearance at member 9(EPX003): 28'-11 7/8"
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)

Bolt Connection & Plate Schedule									
Id	Qty	Grade	Bolt Dia.	Bolt Length	Plate Thick.	Rows		Washer	PartNo
						Out	In		
A	4	A325	1/2"	1 1/2"	3/8"	1	1		49080
B	6	A325	1/2"	1 1/2"	3/8"	2	1		49080
C	4	A325	1/2"	1 1/2"	3/8"	1	1	Yes	49080

NOTE:
 THIS ENDWALL FRAME HAS BEEN DESIGNED UTILIZING SHEAR DIAPHRAGM OF THE PANEL FOR LATERAL STABILITY. REMOVAL OR CUTTING OF THE SHEETING OR SEGMENTS THEREOF IS PROHIBITED, UNLESS APPROVED BY THE ENGINEER.



- 9 30'-8 11/16" Ridge Ht.
- 8 3'-6 3/16"
- 7 3'-6 1/8"
- 6 2 @ 5'-0"
- 5 1'-7 7/16"
- 4 4'-6"
- 3 3'-6"
- 2 4'-0"
- 1 1 5/8"

Dimension Key



FOR CONSTRUCTION

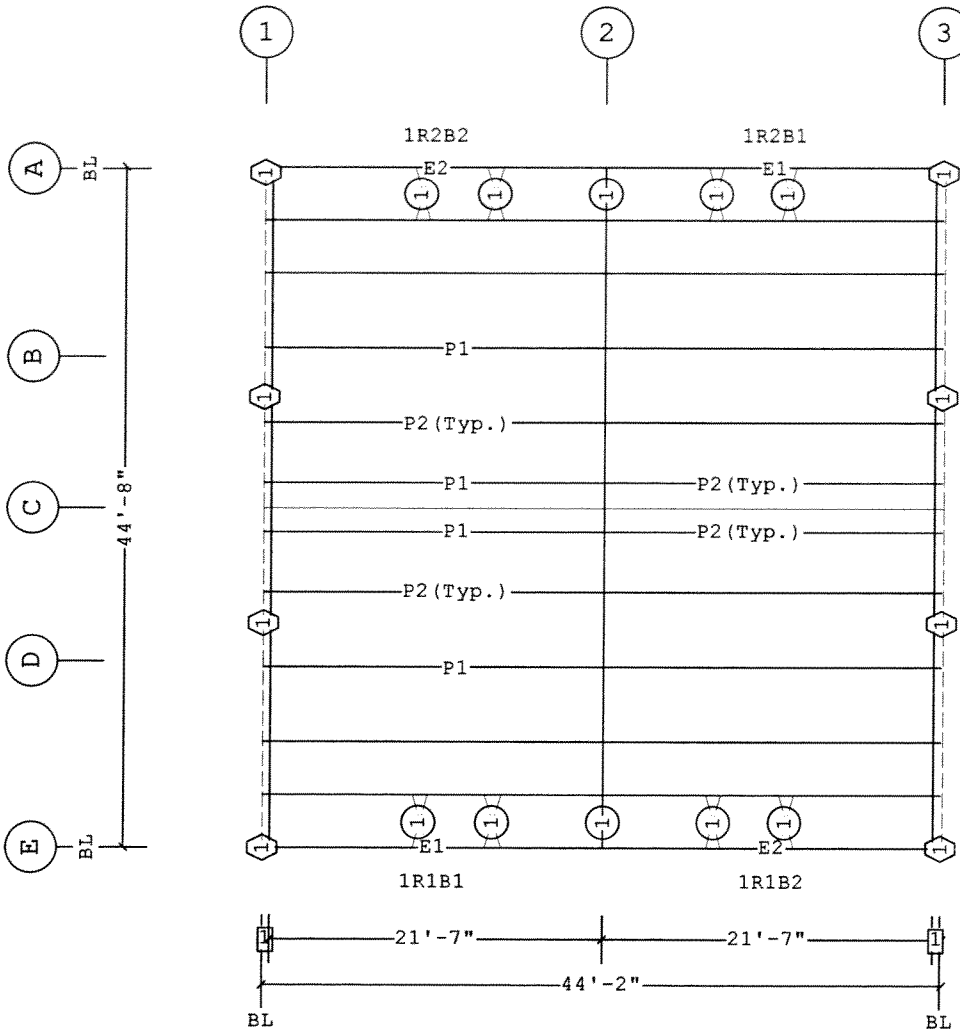
1. USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) TWO WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE. 2. SLOT REINFORCEMENT PLATES NEED NOT BE LOCATED ON THE SAME SIDE OF THE WEB AS THE HILLSIDE WASHER.	THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.	THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS. THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING. DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.	VP Buildings 3200 Players Club Circle Memphis TN 38125				FRAME CROSS SECTION AT FRAME LINE(S) 3					
			REV	DATE	BY	DESCRIPTION	BUILDER	GarVin Const Inc		JOB #	15-004329-01	
							CUSTOMER	City of Albuquerque		DATE	03/24/2015	
							LOCATION	Albuquerque, New Mexico		DRAWING CHECK	CHAV	
							PROJECT	Facility Build COA Salt Storage		PAGE	8	
				BUILDERS FOR		VPC VERSION:	2014.2c	a division of BlueScope Buildings North America, Inc.				
			NTS				3/20/2015		15:30:17		FILENAME: FT Fac Bld COA Sal	

Secondary Part Schedule

Mark	Part	Thick.	Depth	Lap	Detail
E1	00108ES2200417B02	0.0600	8 1/2"		RS12PF,RS12PE
E2	00208ES2200417B02	0.0600	8 1/2"		RS12PF,RS12PE
P1	08Z2500416B4B0	0.0680	8 1/2"	2'-10 1/2"	RS02T1,RS01T1
P2	08Z2500417B4B0	0.0600	8 1/2"	2'-10 1/2"	RS02T1,RS01T1,RS03J1

Part Mark Key
1 RCHB15

Secondary Bracing Schedule
Id Qty Mark No Spacing
1 18 PBA0310 3'-6 3/16"
See SED:
BR09K5, BR09RY, BR09K2



ROOF SECONDARY PLAN

1 6"
Dimension Key



FOR CONSTRUCTION

- UNLESS NOTED, USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS.
- FLANGE BRACES ARE AN INTEGRAL PART OF THE STABILITY OF THE STRUCTURAL SYSTEM AND MUST BE PROPERLY INSTALLED PRIOR TO ERECTION OF WALL AND ROOF SHEETS.
- REMOVAL OR ALTERATION OF ANY COMPONENT IS PROHIBITED.

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings
3200 Players Club Circle Memphis TN 38125

REV	DATE	BY	DESCRIPTION

NTS

ROOF SECONDARY PLAN

BUILDER GarVin Const Inc
CUSTOMER City of Albuquerque
LOCATION Albuquerque, New Mexico
PROJECT Facility Build COA Salt Storage



JOB # 15-004329-01
DATE 03/24/2015
DRAWN/CHECKER CHAV
PAGE 10

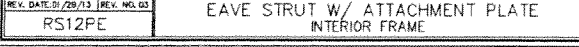
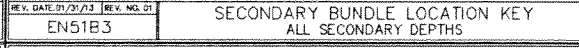
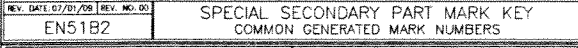
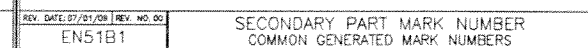
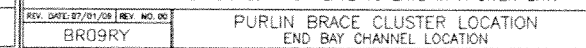
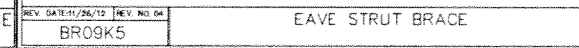
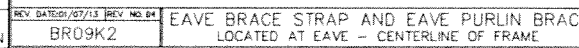
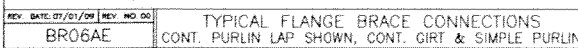
VPC VERSION: 2014.2c

a division of BlueScope Buildings North America, Inc.

3/20/2015

15:38:50

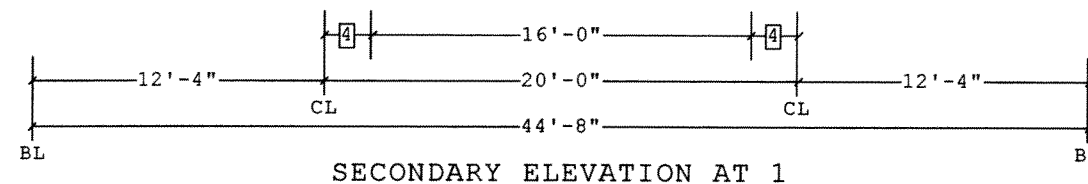
FILENAME: FT Fac Bld COA Sal



© 2006 The Authors
Journal compilation © 2006 Blackwell Publishing Ltd

1. UNLESS NOTED, USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS. 2. FLANGE BRACES ARE AN INTEGRAL PART OF THE STABILITY OF THE STRUCTURAL SYSTEM AND MUST BE PROPERLY INSTALLED PRIOR TO ERECTION OF WALL AND ROOF SHEETS. 3. REMOVAL OR ALTERATION OF ANY COMPONENT IS PROHIBITED.	THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.	THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS. THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.	VP Buildings 3200 Players Club Circle Memphis TN 38125		ROOF SECONDARY SED'S						
			REV	DATE	BY	DESCRIPTION	BUILDER	GarVin Const Inc		 VP BUILDINGS UNEPOLYCEEN	JOB # 15-004329-01
							CUSTOMER	City of Albuquerque			DATE 03/24/2015
							LOCATION	Albuquerque, New Mexico			DRAWING CHECK CHAV
							PROJECT	Facility Build COA Salt Storage			PAGE 11
			NTS				BUILDER'S POW			VPC VERSION: 2014.2c	
			3/20/2015	15:38:50	FILENAME FT Fac Bld COA Sal		a division of BlueScope Buildings North America, Inc.				

Mark	Part	Thick.	Depth	Detail
G1	00108ZS101071710	0.0600	8 1/2"	WS01H2,WSR004
G2	00208ZS051011710	0.0600	8 1/2"	WS04E2,WS01H2
G3	08Z0107417EG10	0.0600	8 1/2"	WS20F2,WS01H2
G4	08Z1909413EE10	0.0880	8 1/2"	WS01H2
H1	00108JS1600017	0.0600	8 1/2"	WS20F9
J1	00208JS2511211	0.1130	8 1/2"	WS20F9,WS20F2,WS20B2,WS20B8



Part	Qty	Length	Detail
05RU2805	1	28'-5"	BR02K1,BRR050
05RU2705	1	27'-5"	BR02K1,BRR050

☐ Dimension Key

Part Mark Key

Shape Name = Salt Storage , Wall = 1

FOR CONSTRUCTION

1. UNLESS NOTED, USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS.
2. FLANGE BRACES ARE AN INTEGRAL PART OF THE STABILITY OF THE STRUCTURAL SYSTEM AND MUST BE PROPERLY INSTALLED PRIOR TO ERECTION OF WALL AND ROOF SHEETS.
3. REMOVAL OR ALTERATION OF ANY COMPONENT IS PROHIBITED.

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings 3200 Players Club Circle Memphis TN 38125			
REV	DATE	BY	DESCRIPTION
NTS			

SECONDARY ELEVATION AT 1

BUILDER	GarVin Const Inc
CUSTOMER	City of Albuquerque
LOCATION	Albuquerque, New Mexico
PROJECT	Facility Build COA Salt Storage
BUILDER'S POC	



VP BUILDINGS

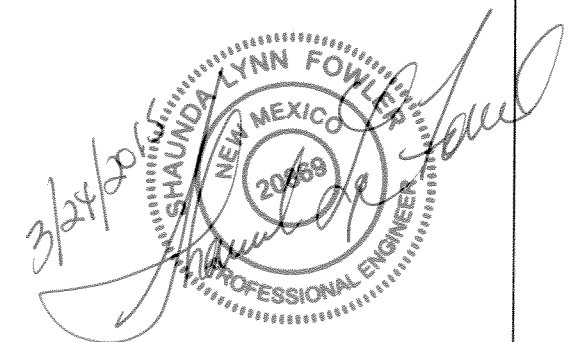
JOB #	15-004329-01
DATE	03/24/2015
DRAWN/CHECK	CHAV
PAGE	12

3/20/2015

15:38:54

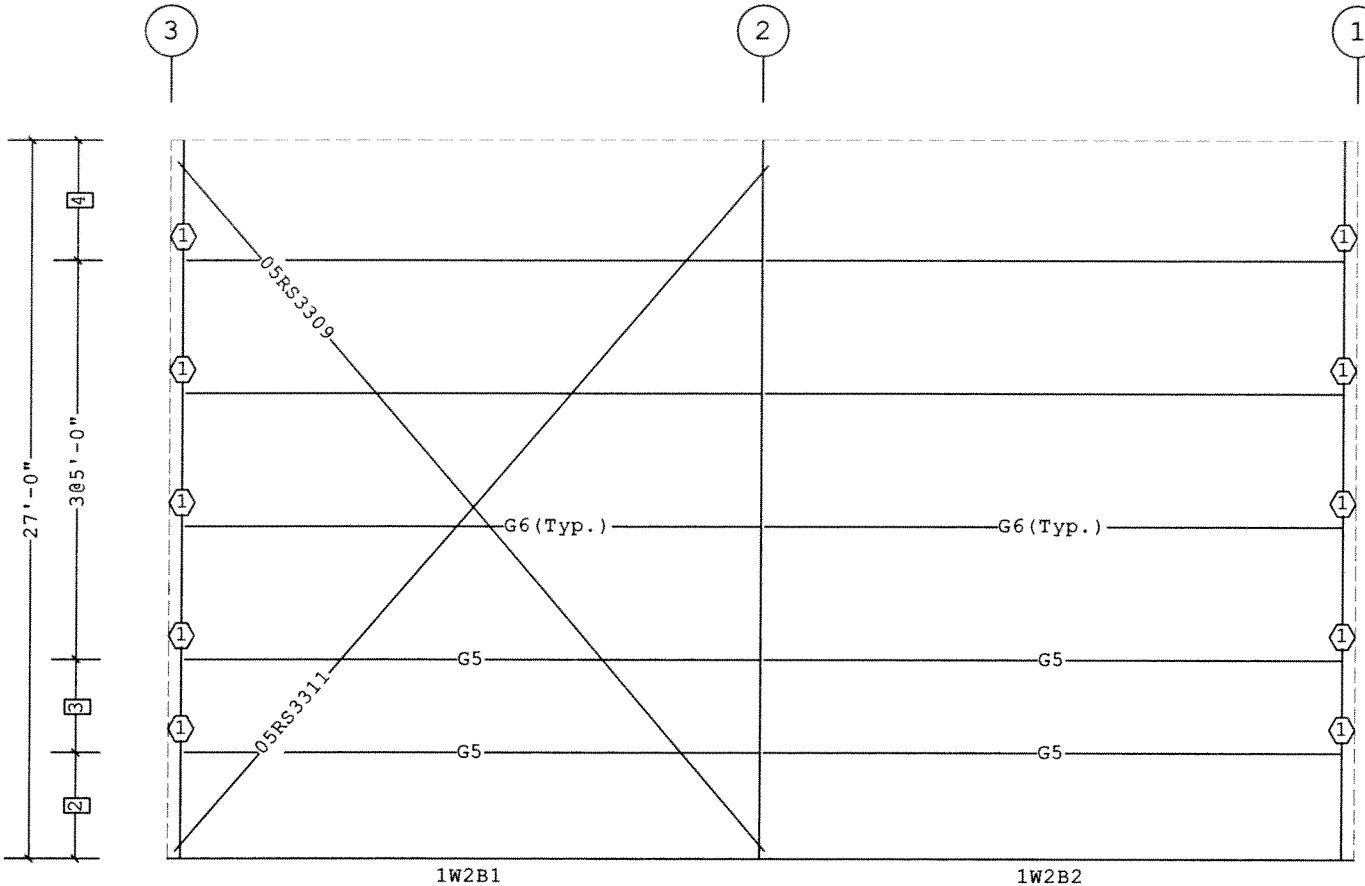
FILENAME: FT Fac Bld COA Sal

a division of BlueScope Buildings North America, Inc.



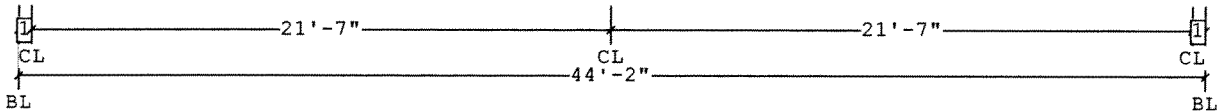
Secondary Part Schedule

Mark	Part	Thick.	Depth	Detail
G5	08Z2104416EE10	0.0680	8 1/2"	WSR004,WS01H2
G6	08Z2104415EE10	0.0730	8 1/2"	WSR004,WS01H2



Bracing Part Schedule

Part	Qty	Length	Detail
05RS3311	1	33'-11"	BR02H1,BR02J1,BRR050
05RS3309	1	33'-9"	BR02H1,BR02J1,BRR050



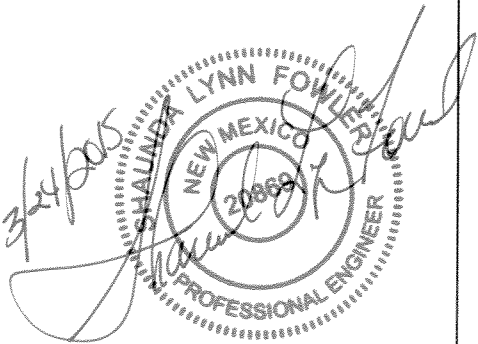
SECONDARY ELEVATION AT A

- 4 4'-6"
- 3 3'-6"
- 2 4'-0"
- 1 6"

1 GFA106

Dimension Key

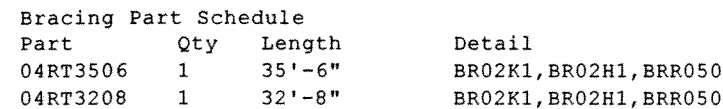
Part Mark Key



FOR CONSTRUCTION

1. UNLESS NOTED, USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS. 2. FLANGE BRACES ARE AN INTEGRAL PART OF THE STABILITY OF THE STRUCTURAL SYSTEM AND MUST BE PROPERLY INSTALLED PRIOR TO ERECTION OF WALL AND ROOF SHEETS. 3. REMOVAL OR ALTERATION OF ANY COMPONENT IS PROHIBITED.		THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.		THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS. THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.		VP Buildings		SECONDARY ELEVATION AT A		VP BUILDINGS UNISO PROVEN JOB # 15-004329-01 DATE 03/24/2015 DRAWN/CHECKED CHAV VPC VERSION: 2014.2c PAGE 13 a division of BlueScope Buildings North America, Inc.					
						3200 Players Club Circle Memphis TN 38125									
						REV	DATE					BY	DESCRIPTION	BUILDER	GarVin Const Inc
														CUSTOMER	City of Albuquerque
														LOCATION	Albuquerque, New Mexico
				PROJECT	Facility Build COA Salt Storage										
NTS				BUILDER'S PO#											
3/20/2015		15:38:55		FILENAME: FT Fac Bld COA Sal											

Mark	Part	Thick.	Depth	Detail
G7	00308ZS201071610	0.0680	8 1/2"	WS01H2,WSR004
G8	00408ZS201071510	0.0730	8 1/2"	WSR004,WS01H2
G9	00508ZS140371710	0.0600	8 1/2"	WS04E2,WS01H2



3	3'-9"		
2	3'-6"	2	GC182060
1	4'-0"	1	GFA200

☐ Dimension Key

Part Mark Key

Shape Name = Salt Storage , Wall = 3

FOR CONSTRUCTION

1. UNLESS NOTED, USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS.
2. FLANGE BRACES ARE AN INTEGRAL PART OF THE STABILITY OF THE STRUCTURAL SYSTEM AND MUST BE PROPERLY INSTALLED PRIOR TO ERECTION OF WALL AND ROOF SHEETS.
3. REMOVAL OR ALTERATION OF ANY COMPONENT IS PROHIBITED.

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.
--

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings			
3200 Players Club Circle Memphis TN 38125			
REV	DATE	BY	DESCRIPTION
NTS			

BUILDER	GarVin Const Inc
CUSTOMER	City of Albuquerque
LOCATION	Albuquerque, New Mexico
PROJECT	Facility Build COA Salt Storage
BUILDER'S PO#	

VP BUILDINGS
VARCO PRUDEN

JOB #	15-004329-01
DATE	03/24/2015
DRAWN/CHECK	CHAV
PAGE	14

3/20/2015

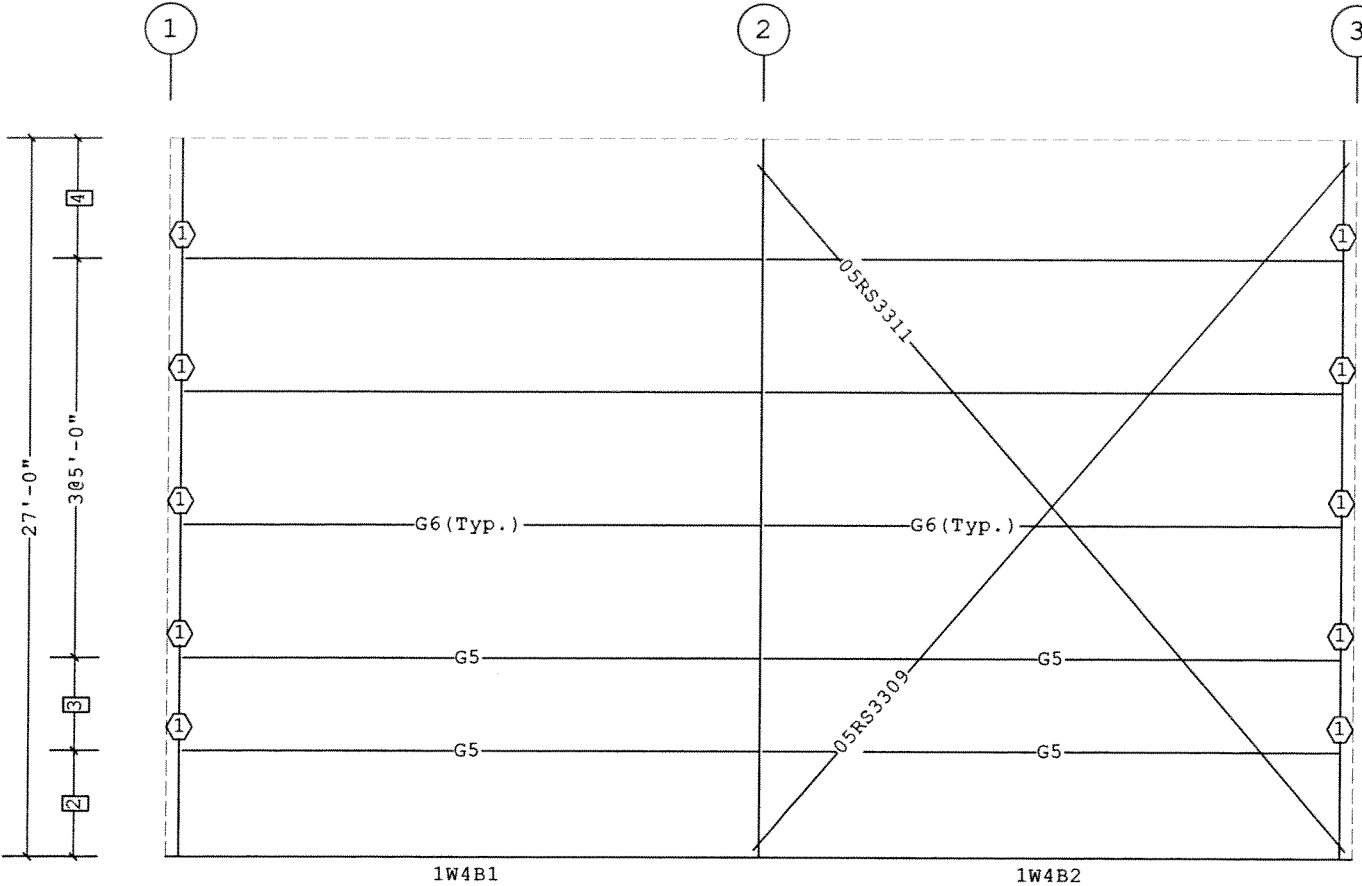
15:38:56

FILENAME: FT Fac Bld COA Sal

a division of BlueScope Buildings North America, Inc.

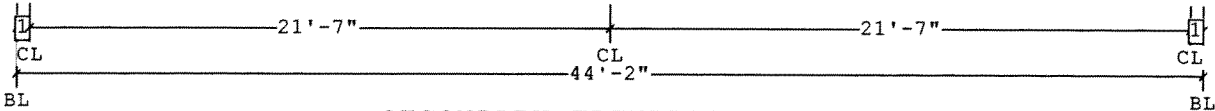
Secondary Part Schedule

Mark	Part	Thick.	Depth	Detail
G5	08Z2104416EE10	0.0680	8 1/2"	WSR004,WS01H2
G6	08Z2104415EE10	0.0730	8 1/2"	WSR004,WS01H2



Bracing Part Schedule

Part	Qty	Length	Detail
05RS3309	1	33'-9"	BR02H1,BR02J1,BRR050
05RS3311	1	33'-11"	BR02H1,BR02J1,BRR050



SECONDARY ELEVATION AT E

- 4 4'-6"
- 3 3'-6"
- 2 4'-0"
- 1 6"

Dimension Key

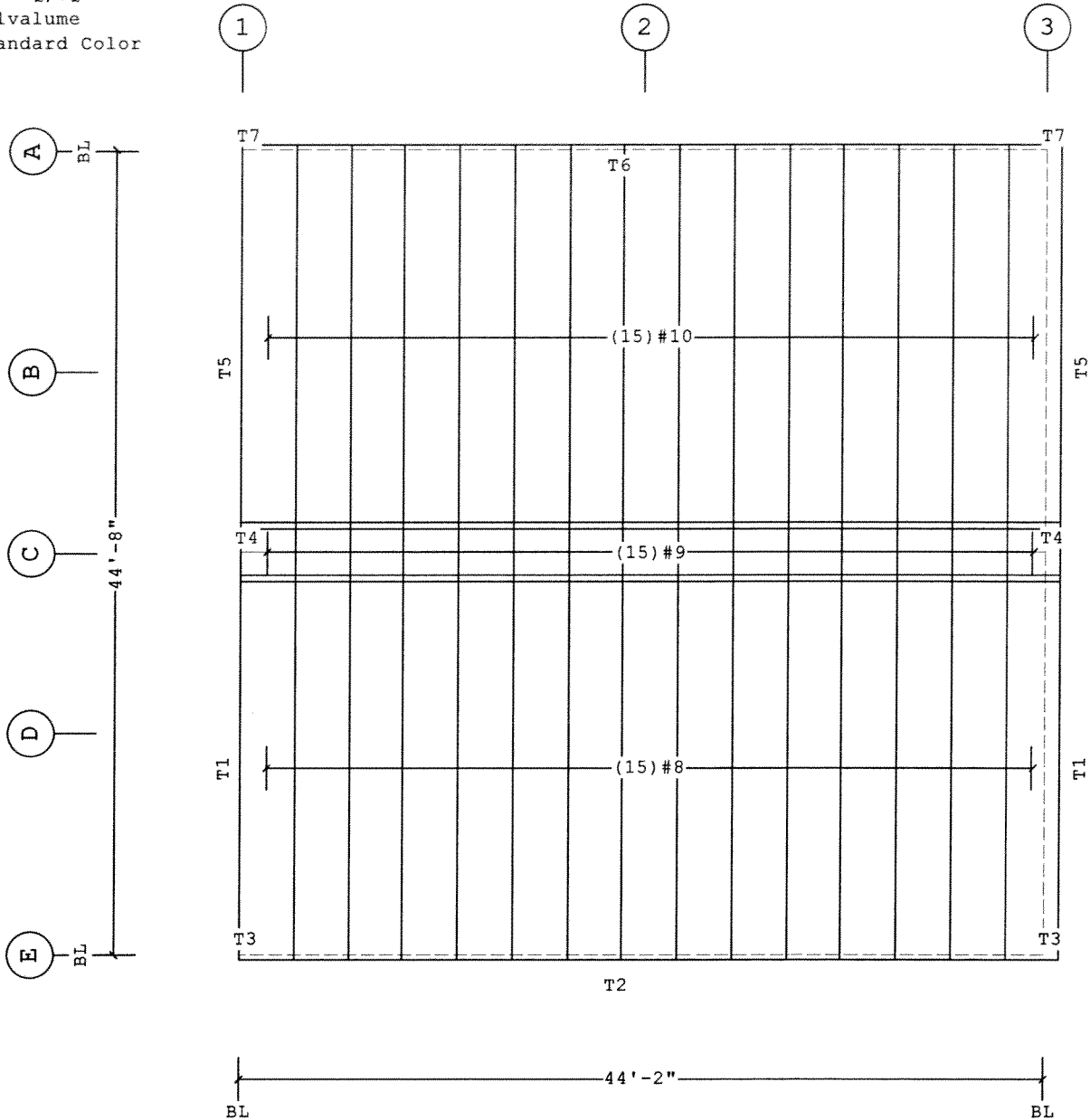
1 GFA106

Part Mark Key

FOR CONSTRUCTION

1. UNLESS NOTED, USE 1/2 X 1 1/2 A325-N BOLT (49080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS. 2. FLANGE BRACES ARE AN INTEGRAL PART OF THE STABILITY OF THE STRUCTURAL SYSTEM AND MUST BE PROPERLY INSTALLED PRIOR TO ERECTION OF WALL AND ROOF SHEETS. 3. REMOVAL OR ALTERATION OF ANY COMPONENT IS PROHIBITED.		THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.		THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS. THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.		VP Buildings 3200 Players Club Circle Memphis TN 38125		SECONDARY ELEVATION AT E	
REV		DATE		BY		DESCRIPTION		BUILDER GarVin Const Inc	
								CUSTOMER City of Albuquerque	
								LOCATION Albuquerque, New Mexico	
								PROJECT Facility Build COA Salt Storage	
								BUILDER'S PO#	
						NTS		VP BUILDINGS UNINCORPORATED	
3/20/2015		15:38:57				FILENAME: FT Fac Bld COA Sal		JOB # 15-004329-01	
								DATE 03/24/2015	
								DRAWN/CHECK CHAV	
								PAGE 15	

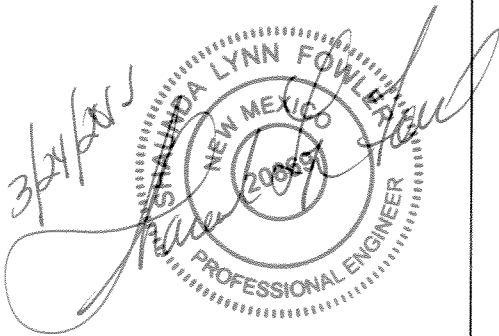
Covering Schedule
Id Qty Length
#8 15 21'-7 3/4"
#9 15 3'-4"
#10 15 21'-7 3/4"
Oper. Code:1=SQ,SQ
Oper. Code:3=SQ,SQ
Finish:G=Galvalume
Color:TD=Standard Color



ROOF COVERING PLAN

Trim Schedule		Color	Details
Id	Parts		
T1	(3)RKF16	Cool Straw Gold	RC03B1,RC30B1,RS10R1
T2	(3)EG162,(5)GRA10,(4)PCA10A,PCA05A,(16)STR2	Cool Straw Gold	RC03B1,RC04B2,RC32B1,RC39A3,WC04H1,WC11F1
T3	BS1,FPRF1,GGC2,MCC1	Cool Straw Gold	RC38N1
T4	RRC20,SPC20	Cool Straw Gold	RC38C4
T5	(3)RKF16	Cool Straw Gold	RC03B1,RC30B1,RS10R1
T6	(3)EG162,(5)GRA10,(4)PCA10A,PCA05A,(16)STR2	Cool Straw Gold	RC03B1,RC04B2,RC32B1,RC39A3,WC04H1,WC11F1
T7	BS1,FPRF1,GGC2,MCC1	Cool Straw Gold	RC38N1

Fastener Schedule		Description
Part	Location	
57400	Panel to Structural	(T-2) #12-14 x 1 1/4", 5/16" Hex Hd, SS Cap w/Washer
57600	Panel to Panel	(T-1) 1/4-14 x 7/8", 5/16" Hex Hd, SS Cap w/Washer



FOR CONSTRUCTION

1. PRE-DRILLING 1/8 DIAMETER HOLES FOR STRUCTURAL FASTENERS MAY BE REQUIRED FOR HEAVY GAGE NESTED ZEE'S AND/OR FASTENERS TO STRUCTURAL BEAMS
2. STEEL PANELS ARE AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED.
3. PANELS SHOWN WITH A LENGTH LESS THAN 5 FT MAY HAVE TO BE FIELD CUT.
4. SEE JOB DETAILS FOR COVERING AND TRIM FASTENER SPECIFICATION.

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings
3200 Players Club Circle Memphis TN 38125

REV	DATE	BY	DESCRIPTION

NTS

3/20/2015

15:52:23

ROOF COVERING PLAN

BUILDER	GarVin Const Inc
CUSTOMER	City of Albuquerque
LOCATION	Albuquerque, New Mexico
PROJECT	Facility Build COA Salt Storage

BUILDER'S PDM



VPC VERSION: 2014.2c

JOB#	15-004329-01
DATE	03/24/2015
DRAWN/CHECK	CHAV
PAGE	18

FILENAME: FT Fac Bld COA Sal

a division of BlueScope Buildings North America, Inc.

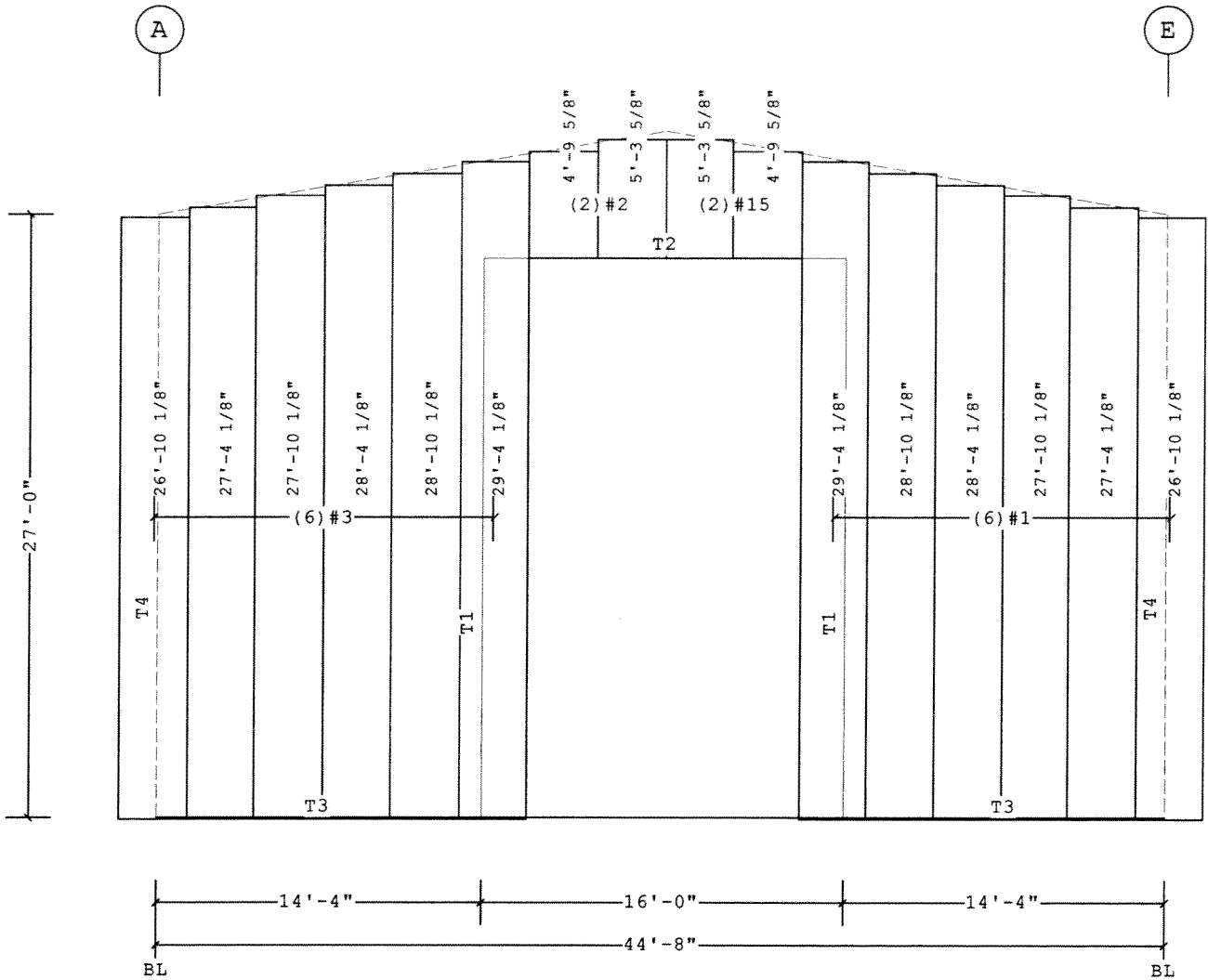
Covering Schedule

Id	Qty	Type	Start Length	Gage	OP	Fin.	Color	Increment	Direction
#15	2	VR	5'-3 5/8"	26	1	K	TS	-6"	Left to Right
#1	6	VR	29'-4 1/8"	26	1	K	TS	-6"	Left to Right
#2	2	VR	5'-3 5/8"	26	1	K	TS	-6"	Right to Left
#3	6	VR	29'-4 1/8"	26	1	K	TS	-6"	Right to Left

Oper. Code:l=SQ,SQ
Finish:K=KXL (Kynar)
Color:TS=Cool Sierra Tan

Trim Schedule

Id	Parts	Color	Details
T1	DFT14,DFT12,JT14,JT12	Cool Straw Gold	WC24B1
T2	DFT12,DFT05,HTS14,HTS03	Cool Straw Gold	WC24B2
T3	(1.1)BA125,(3)BT10	Cool Straw Gold	EN52B1,ENV007,RC00A1,WC01AB,WC04H1
T4	(1.5)AFT16,(1.5)AFT12,CTE16,CTE12	Cool Sierra Tan	WC20B2



COVERING ELEVATION AT 1

Fastener Schedule

Part	Location	Description
0097584-113	Panel to Structural	(T-2) #12-14 x 1 1/4", 5/16" Hex Hd, SS Cap w/Washer
0097581-113	Panel to Structural	(T-1) 1/4-14 x 7/8", 5/16" Hex Hd, SS Cap w/Washer

Shape Name = Salt Storage , Wall = 1

- PRE-DRILLING 1/8 DIAMETER HOLES FOR STRUCTURAL FASTENERS MAY BE REQUIRED FOR HEAVY GAGE NESTED ZEE'S AND/OR FASTENERS TO STRUCTURAL BEAMS
- STEEL PANELS ARE AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED.
- PANELS SHOWN WITH A LENGTH LESS THAN 5 FT MAY HAVE TO BE FIELD CUT.
- SEE JOB DETAILS FOR COVERING AND TRIM FASTENER SPECIFICATION.

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings 3200 Players Club Circle Memphis TN 38125			
REV	DATE	BY	DESCRIPTION
NTS			

COVERING ELEVATION AT 1

BUILDER	GarVin Const Inc
CUSTOMER	City of Albuquerque
LOCATION	Albuquerque, New Mexico
PROJECT	Facility Build COA Salt Storage
BUILDER'S P.O.	



JOB #	15-004329-01
DATE	03/24/2015
DRAWN/CHECK	CHAV
PAGE	19

Covering Schedule

Id	Qty	Type	Start Length	Gage	OP	Fin.	Color	Direction
#4	15	VR	26'-11 3/4"	26	1	K	TS	Left to Right

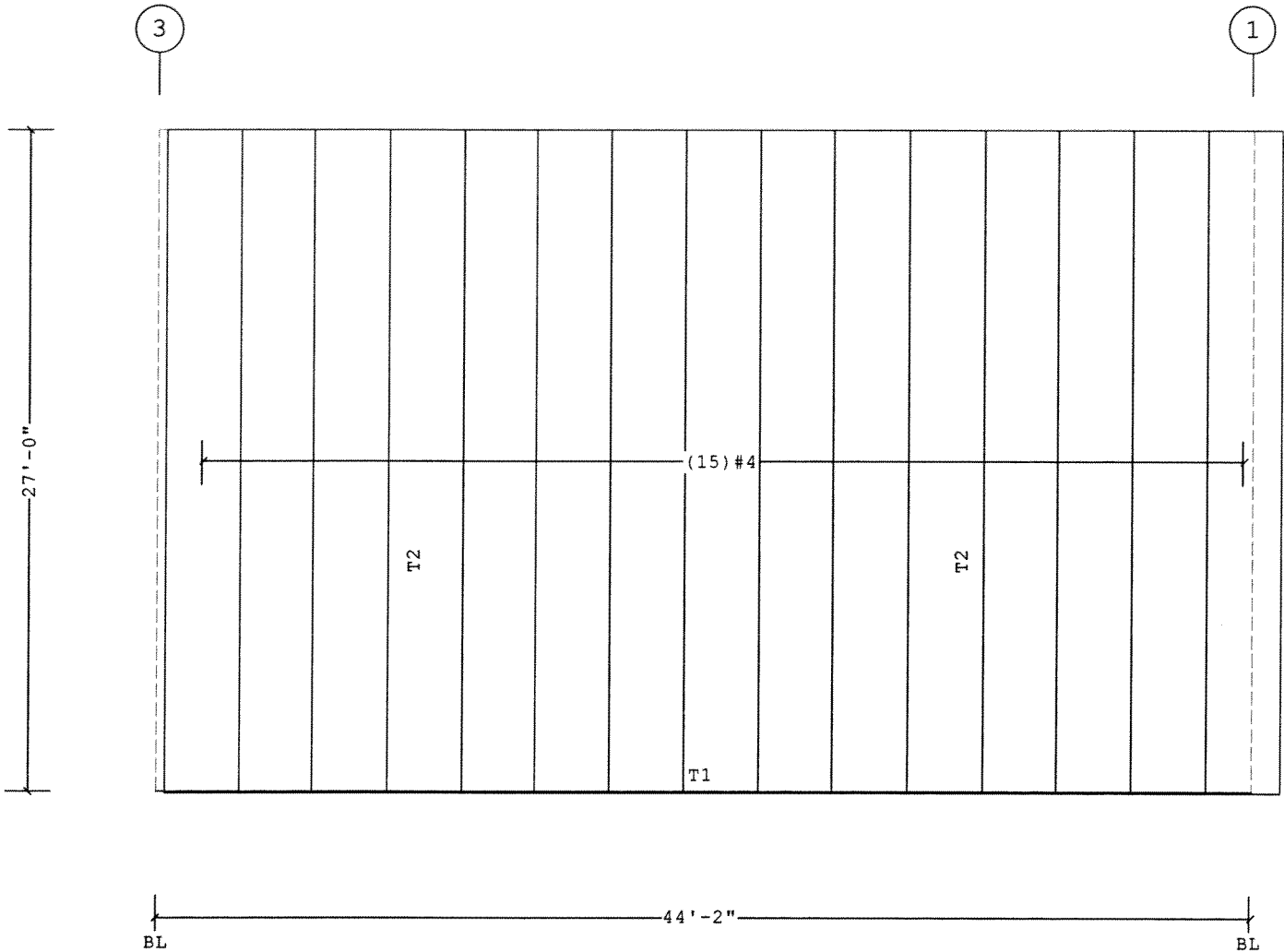
Oper. Code:l=SQ,SQ

Finish:K=KXL (Kynar)

Color:TS=Cool Sierra Tan

Trim Schedule

Id	Parts	Color	Details
T1	(1.8)BA125, (5)BT10	Cool Straw Gold	EN52B1,ENV007,RC00A1,WC01AB,WC04H1
T2	5CE75, (3)CP510,DN1, (6)DST1	Cool Sierra Tan	RC38P1

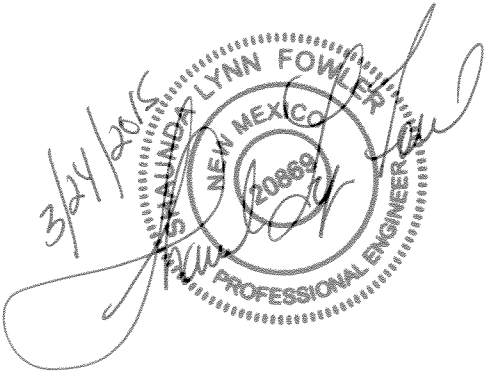


COVERING ELEVATION AT A

Fastener Schedule

Part	Location	Description
0097584-113	Panel to Structural	(T-2) #12-14 x 1 1/4", 5/16" Hex Hd, SS Cap w/Washer
0097581-113	Panel to Panel	(T-1) 1/4-14 x 7/8", 5/16" Hex Hd, SS Cap w/Washer

FOR CONSTRUCTION



1. PRE-DRILLING 1/8 DIAMETER HOLES FOR STRUCTURAL FASTENERS MAY BE REQUIRED FOR HEAVY GAGE NESTED ZEE'S AND/OR FASTENERS TO STRUCTURAL BEAMS
2. STEEL PANELS ARE AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED.
3. PANELS SHOWN WITH A LENGTH LESS THAN 5 FT MAY HAVE TO BE FIELD CUT.
4. SEE JOB DETAILS FOR COVERING AND TRIM FASTENER SPECIFICATION.

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings

3200 Players Club Circle Memphis TN 38125

REV	DATE	BY	DESCRIPTION

NTS

3/20/2015

15:52:27

COVERING ELEVATION AT A

BUILDER	GarVin Const Inc
CUSTOMER	City of Albuquerque
LOCATION	Albuquerque, New Mexico
PROJECT	Facility Build COA Salt Storage
BUILDER'S PDM	

VP BUILDINGS

UNINCORPORATED

VPC VERSION 2014.2c

a division of BlueScope Buildings North America, Inc.

JOB #	15-004329-01
DATE	03/24/2015
DRAWN/CHECK	CHAV
PAGE	20

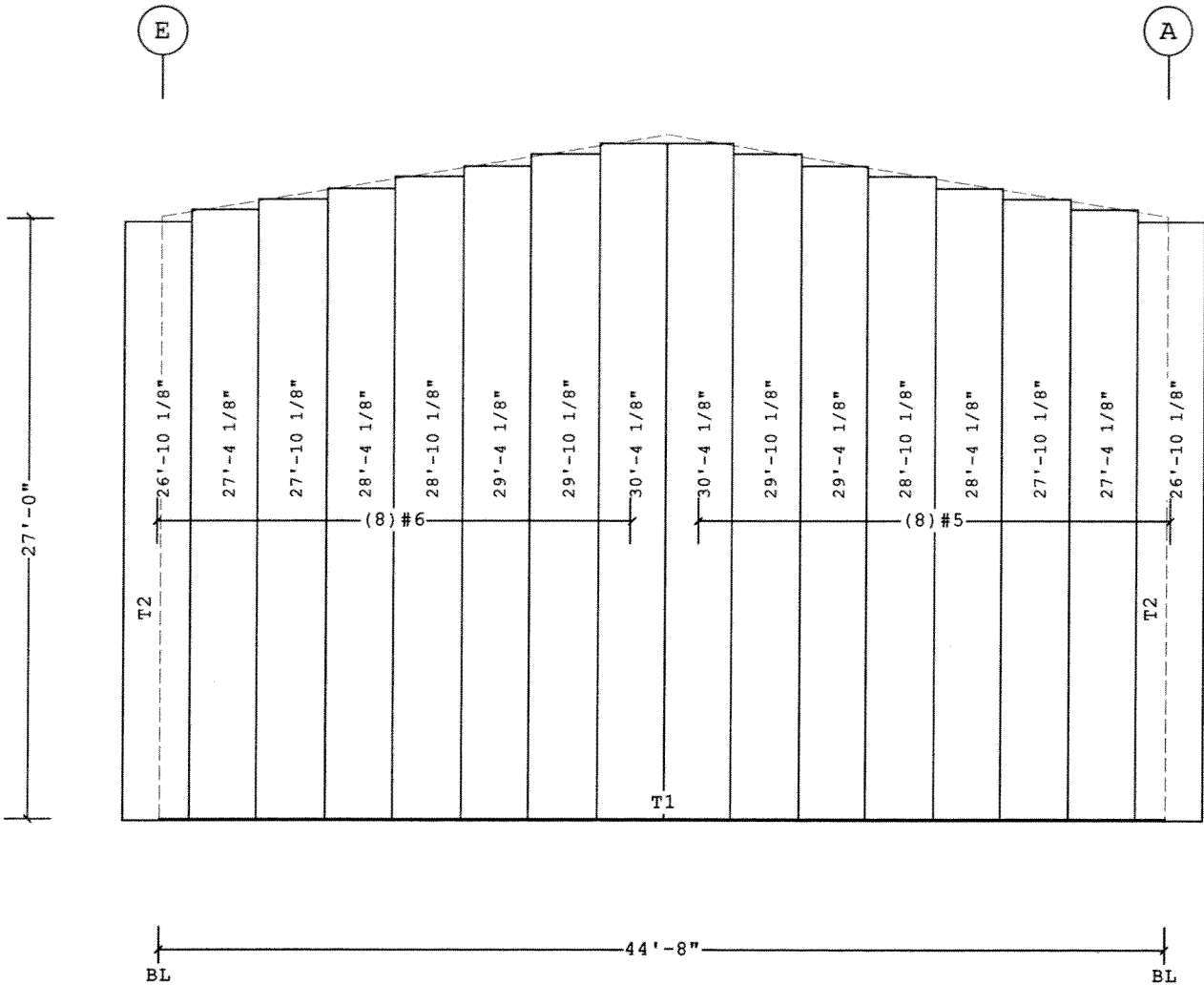
Covering Schedule

Id	Qty	Type	Start Length	Gage	OP	Fin.	Color	Increment	Direction
#5	8	VR	30'-4 1/8"	26	1	K	TS	-6"	Left to Right
#6	8	VR	30'-4 1/8"	26	1	K	TS	-6"	Right to Left

Oper. Code:1=SQ,SQ
Finish:K=KXL (Kynar)
Color:TS=Cool Sierra Tan

Trim Schedule

Id	Parts	Color	Details
T1	(1.8)BA125,(5)BT10	Cool Straw Gold	EN52B1,ENV007,RC00A1,WC01AB,WC04H1
T2	(1.5)AFT16,(1.5)AFT12,CTE16,CTE12	Cool Sierra Tan	WC20B2



COVERING ELEVATION AT 3

Fastener Schedule

Part	Location	Description
0097584-113	Panel to Structural	(T-2) #12-14 x 1 1/4", 5/16" Hex Hd, SS Cap w/Washer
0097581-113	Panel to Panel	(T-1) 1/4-14 x 7/8", 5/16" Hex Hd, SS Cap w/Washer



FOR CONSTRUCTION

1. PRE-DRILLING 1/8 DIAMETER HOLES FOR STRUCTURAL FASTENERS MAY BE REQUIRED FOR HEAVY GAGE NESTED ZEE'S AND/OR FASTENERS TO STRUCTURAL BEAMS 2. STEEL PANELS ARE AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED. 3. PANELS SHOWN WITH A LENGTH LESS THAN 5 FT MAY HAVE TO BE FIELD CUT. 4. SEE JOB DETAILS FOR COVERING AND TRIM FASTENER SPECIFICATION.	THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.	THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS. THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING. DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.	VP Buildings 3200 Players Club Circle Memphis TN 38125				COVERING ELEVATION AT 3				
			REV	DATE	BY	DESCRIPTION	BUILDER	GarVin Const Inc			JOB #
							CUSTOMER	City of Albuquerque			15-004329-01
							LOCATION	Albuquerque, New Mexico			DATE
							PROJECT	Facility Build COA Salt Storage			03/24/2015
			NTS				BUILDER'S PO#			DRAWN/CHECK	PAGE
										CHAV	21
			3/20/2015				15:52:28	FILENAME: FT Fac Bld COA Sal		VPC VERSION: 2014.2c	
							a division of BlueScope Buildings North America, Inc.				

Covering Schedule

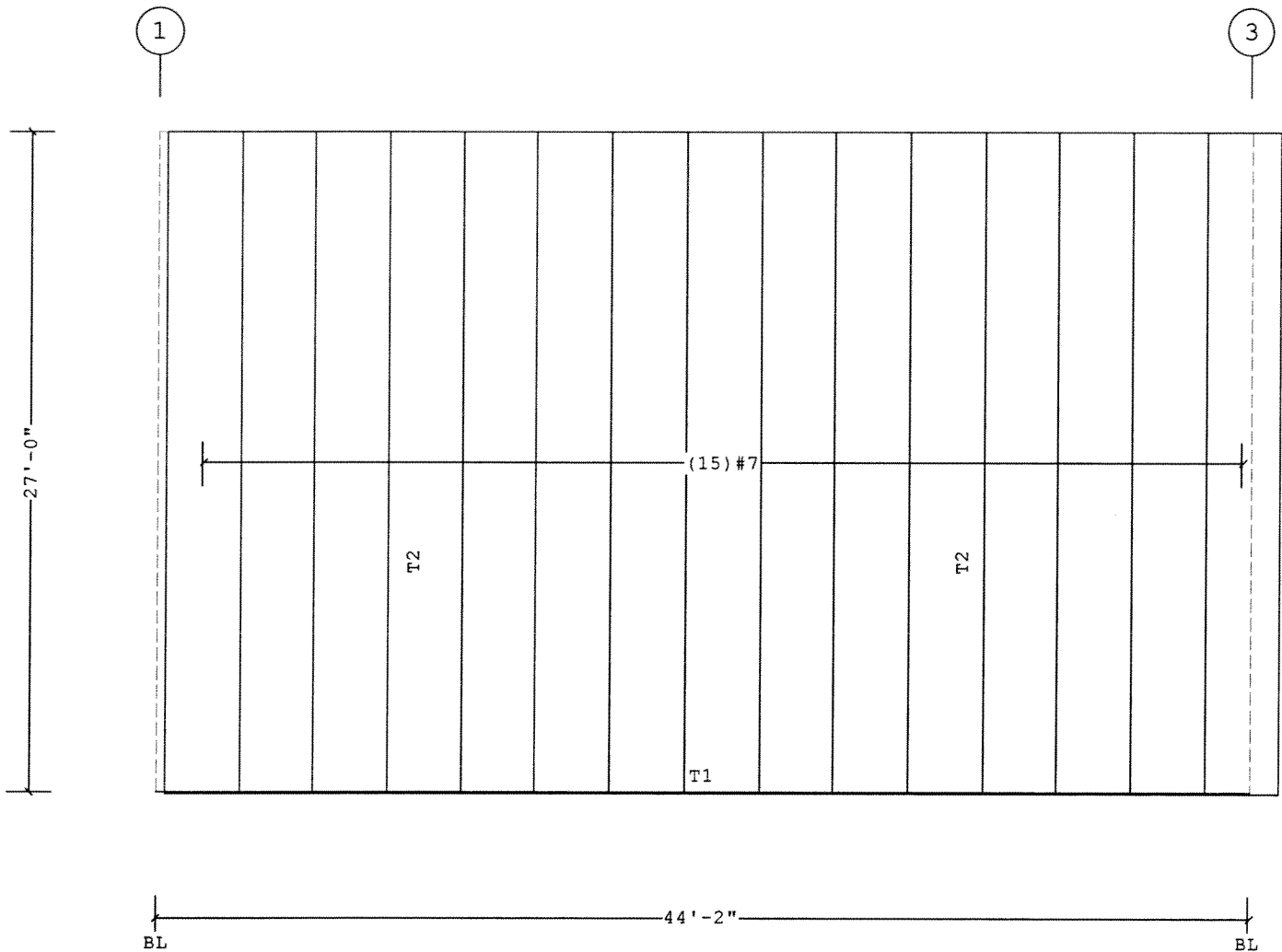
Id	Qty	Type	Start Length	Gage	OP	Fin.	Color	Direction
#7	15	VR	26'-11 3/4"	26	1	K	TS	Left to Right
Oper. Code:1=SQ,SQ								
Finish:K=KXL (Kynar)								
Color:TS=Cool Sierra Tan								

Trim Schedule

Id	Parts	Color
T1	(1.8)BA125,(5)BT10	Cool Straw Gold
T2	5CE75,(3)CP510,DN1,(6)DST1	Cool Sierra Tan

Details

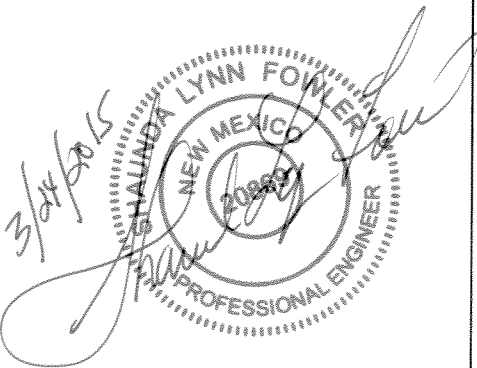
EN52B1,ENV007,RC00A1,WC01AB,WC04H1
RC38P1



COVERING ELEVATION AT E

Fastener Schedule

Part	Location	Description
0097584-113	Panel to Structural	(T-2) #12-14 x 1 1/4", 5/16" Hex Hd, SS Cap w/Washer
0097581-113	Panel to Panel	(T-1) 1/4-14 x 7/8", 5/16" Hex Hd, SS Cap w/Washer



FOR CONSTRUCTION

- PRE-DRILLING 1/8 DIAMETER HOLES FOR STRUCTURAL FASTENERS MAY BE REQUIRED FOR HEAVY GAGE NESTED ZEE'S AND/OR FASTENERS TO STRUCTURAL BEAMS
- STEEL PANELS ARE AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED.
- PANELS SHOWN WITH A LENGTH LESS THAN 5 FT MAY HAVE TO BE FIELD CUT.
- SEE JOB DETAILS FOR COVERING AND TRIM FASTENER SPECIFICATION.

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings
3200 Players Club Circle Memphis TN 38125

REV	DATE	BY	DESCRIPTION
NTS			

COVERING ELEVATION AT E

BUILDER	GarVin Const Inc
CUSTOMER	City of Albuquerque
LOCATION	Albuquerque, New Mexico
PROJECT	Facility Build COA Salt Storage
BUILDER'S PDM	



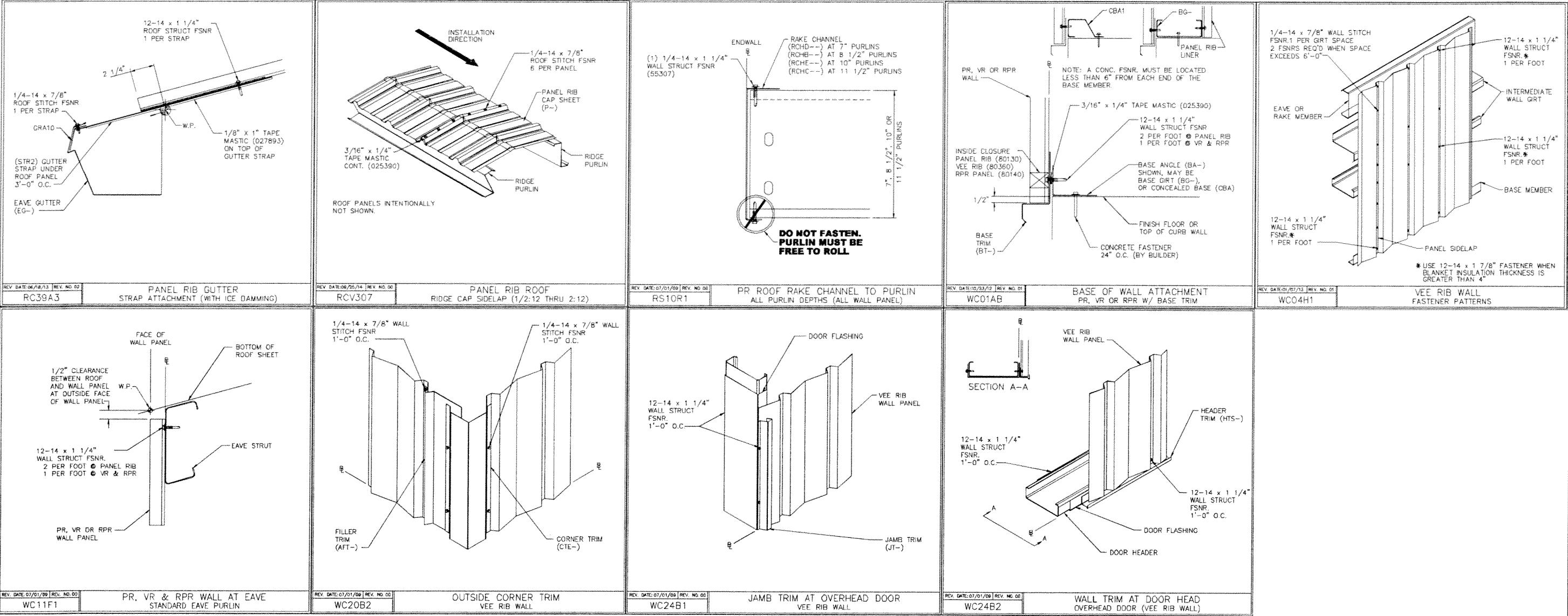
VPC VERSION: 2014.2c
a division of BlueScope Buildings North America, Inc.

JOB #	15-004329-01
DATE	03/24/2015
DRAWN/CHECK	CHAV
PAGE	22

3/20/2015

15:52:29

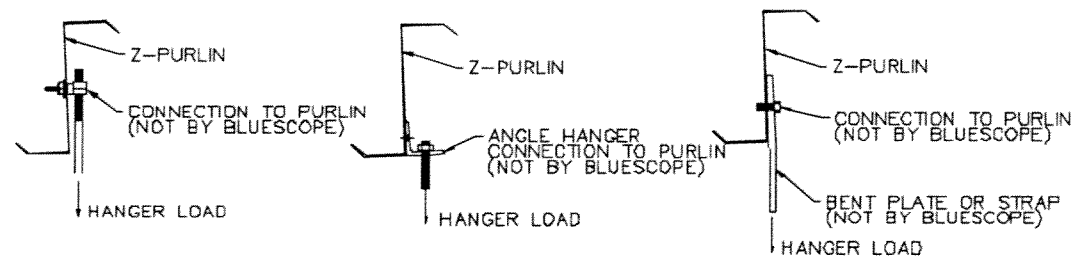
FILENAME: FT Fac Bld COA Sal



3/24/2015
SHAUNDA LYNN FOWLER
NEW MEXICO
20869
PROFESSIONAL ENGINEER

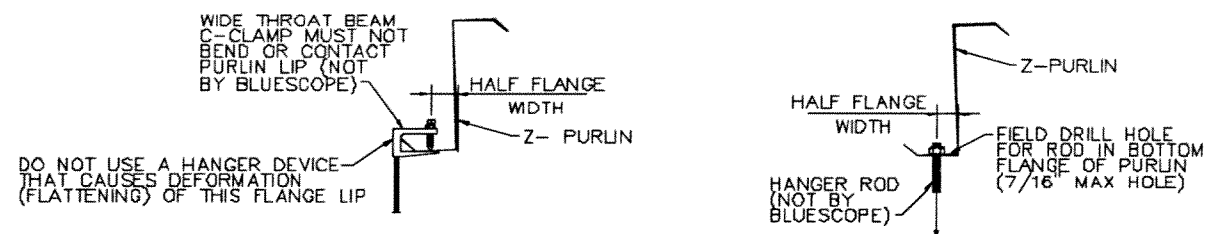
FOR CONSTRUCTION

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.		THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS. THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.		VP Buildings 3200 Players Club Circle Memphis TN 38125		COVERING & TRIM SED'S	
REV	DATE	BY	DESCRIPTION	BUILDER	GarVin Const Inc		JOB # 15-004329-01
				CUSTOMER	City of Albuquerque		DATE 03/24/2015
				LOCATION	Albuquerque, New Mexico		DRAWING CHECK CHAV
				PROJECT	Facility Build COA Salt Storage		PAGE 24
NTS				BUILDER'S PCW		VP VERSION	2014.2c
3/20/2015				15:52:34		FILENAME: FT Fac Bld COA Sal	



WEB HANGERS

FOR 1/2" DIAM. BOLT TO PURLIN CONNECTION-- MAX HANGER LOAD=1500lbs
PURLIN MUST BE SPECIFICALLY DESIGNED FOR LOADS GREATER THAN 500 LB. SEE NOTE #2.



VERIFY OVERALL PURLIN DESIGN CAN TAKE APPLIED LOADS. SEE NOTE #2

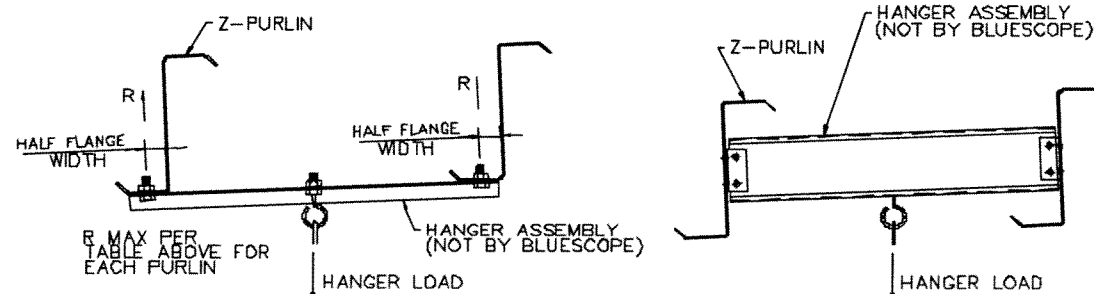
MAXIMUM LOAD SUSPENDED FROM BOTTOM FLANGE (LOCATED AT HALF-FLANGE WIDTH)			
THICKNESS	MAX LOAD	THICKNESS	MAX LOAD
0.060"	110lbs	0.088"	200lbs
0.068"	120lbs	0.098"	250lbs
0.073"	140lbs	0.113"	250lbs
0.079"	180lbs		

FOR LOADS LOCATED MORE THAN HALF FLANGE WIDTH
FROM WEB, USE HALF OF THE LOADS SHOWN ABOVE.

BOTTOM FLANGE CLAMP HANGER
(TOP FLANGE SIMILAR)

BOTTOM FLANGE ROD HANGER
(TOP FLANGE SIMILAR)

DO NOT USE ANY OF THE DETAILS ABOVE IF ROOF SLOPE IS GREATER THAN 4:12



DOUBLE PURLIN HANGERS

VERIFY OVERALL PURLIN DESIGN CAN SUPPORT APPLIED LOADS.

GENERAL NOTES

1. CONCENTRATED LOADS GREATER THAN 500lbs ON ANY SINGLE PURLIN MUST BE EXPLICITLY LOCATED AND DESIGNED FOR DURING DESIGN OF BUILDING SYSTEM.
2. SPECIFIED COLLATERAL LOADS MAY BE CONVERTED TO SAFE CONCENTRATED LOADS AS FOLLOWS, WHERE P = MAX CONCENTRATED LOAD (lbs); W = UNIFORM COLLATERAL LOAD (PSF) x PURLIN SPACING (ft) = lbs/ft; L = PURLIN SPAN (ft). HANGERS SHOULD BE SPACED APPROX. EQUAL.

$$P \text{ MAX} = 0.5wl$$

$$P \text{ MAX} = 0.4wl$$

$$P \text{ MAX} = 0.25wl$$

$$P \text{ MAX} = 0.2wl$$

$$P \text{ MAX} = 0.15wl$$

6 OR MORE HANGERS PER PURLIN
P MAX= W x HANGER SPACING

EXAMPLE: A PIPE IS SUSPENDED FROM A PURLIN AT 3 LOCATIONS EQUALLY SPACED
BAY SPACING = 24'-0"
SPECIFIED COLLATERAL LOAD = 5 PSF
W = 5 PSF x 5 FT = 25 PLF L = 24'-0"
P MAX = 0.25 x 25 PLF x 24'-0" = 150 LBS AT EACH LOCATION
THE PURLIN CAN SUPPORT 3 LOADS UP TO 150 LBS EACH. PICK A HANGER CONNECTION CAPABLE OF SUPPORTING ACTUAL APPLIED LOADS.

3. FOR LOADS GREATER THAN 250 lbs, PURLINS MUST BE "BLOCKED" AT LOCATION OF LOAD TO PREVENT PURLIN ROTATION.
4. EQUIPMENT LOADS SHOULD BE OBTAINED FROM CERTIFIED EQUIPMENT DRAWINGS AND MANUFACTURER'S DATA.
5. Z-PURLINS WILL DEFLECT UNDER SNOW AND WIND LOADS. ITEMS THAT MAY BE DAMAGED DUE TO DEFLECTIONS, (EX. GAS LINES), VERIFY THAT PIPES OR SUSPENDED EQUIPMENT ARE COMPATIBLE WITH EXPECTED DEFLECTION RANGES ($\pm L/180$).
6. THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) REQUIRES SPRINKLER HANGERS TO BE DESIGNED FOR A MINIMUM LOAD OF FIVE TIMES THE WEIGHT OF THE WATER-FILLED PIPE PLUS 250 POUNDS. THE HANGER ITSELF MUST BE ABLE TO SUPPORT THIS LOADING. IT IS NOT NECESSARY TO DESIGN THE SUPPORTING MEMBER FOR THIS LOAD IN COMBINATION WITH THE DESIGN LOADS.
7. SUSPENDED LOADS WILL NEED TO BE BRACED (TO THE PRIMARY FORCE RESISTING SYSTEM) FOR LATERAL STABILITY DUE TO EARTHQUAKES.
8. HANGER DESIGN IS NOT THE RESPONSIBILITY OF BLUESCOPE.
9. TOP FLANGE HANGERS SHOULD BE AVOIDED ON BUILDINGS WITHOUT INSULATION SPACER BLOCKS ON TOP OF THE TOP FLANGE. IF TOP FLANGE HANGERS ARE REQUIRED, PLACE THE HANGERS AT THE ROOF PANEL MAJOR CORRUGATION LOCATION TO AVOID DAMAGING THE ROOF PANEL WITH THE HANGER WHEN THE ROOF PANEL IS LOADED OR WALKED ON.
10. WHEN BEAM C-CLAMPS OR OTHER ROD HANGERS ARE USED ON THE TOP FLANGE, THE ROD SHOULD NOT EXTEND ABOVE THE TOP OF THE CLAMP TO AVOID DAMAGING THE ROOF PANEL WITH THE ROD WHEN THE ROOF PANEL IS LOADED OR WALKED ON.
11. DO NOT HANG ANY TYPE OF CRANE, HOIST, CONVEYOR OR ANY MOVING LOADS FROM THE Z-PURLINS.
12. DO NOT HANG ANY LOAD FROM BBNA SUPPLIED PURLIN BRACES OR BRIDGING.
13. DO NOT WELD ANY PART OF THE Z-PURLIN.
14. HOLES MUST NOT EXCEED 9/16" DIAMETER UNLESS AUTHORIZED BY BBNA ENGINEER. DRILL OR REAM HOLES WHEN REQUIRED- DO NOT FLAME CUT

CONCENTRATED LOADS ON ROOF Z-PURLIN HANGER DETAILS

REV	DATE	BY	DESCRIPTION
1	02/26/10	REVERTT	REVISION DATE
2	11/20/13	REBENTON	REVISION DATE

GROUP NUMBER: 80-054-01

B B-081465 07

FOR CONSTRUCTION

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING. DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings
3200 Players Club Circle Memphis TN 38125

REV	DATE	BY	DESCRIPTION
1			
2			
3			

NTS

3/20/2015

16:15:18

Planograph B-081465

BUILDER GarVin Const Inc
CUSTOMER City of Albuquerque
LOCATION Albuquerque, New Mexico
PROJECT Facility Build COA Salt Storage
BUILDER'S P.O.M.



VPC VERSION: 2014.2c

a division of BlueScope Buildings North America, Inc.

JOB# 15-004329-01
DATE 03/24/2015
DRAWN/CHK CHAV
PAGE 25

FILENAME: FT Fac Bld COA Sal

BENT CLIPS			
DRAWN BY:	CHECKED BY:	GROUP NUMBER:	
NF	RJR	B B-081765	
FIRST RELEASE DATE:	REVISION DATE:	02	
01/28/13	03/25/14		

FOR CONSTRUCTION

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS.

THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING. DETAILS REFERENCED IN THIS DRAWING. ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

VP Buildings				Planograph B-081765	
3200 Players Club Circle Memphis TN 38125				BUILDER	GarVin Const Inc
				CUSTOMER	City of Albuquerque
				LOCATION	Albuquerque, New Mexico
				PROJECT	Facility Build COA Salt Storage
				BUILDERS POW	
NTS				BUILDERS POW	
3/20/2015				VP VERSION	2014.2c
16:16:19				FILENAME	FT Fac Bld COA Sal
				JOB #	15-004329-01
				DATE	03/24/2015
				DRAWING CHECK	CHAV
				PAGE	26



a division of BlueScope Buildings North America, Inc.

ROOF/WALL STRUCTURAL FASTENER
(T-2) #12-14 x 1 1/4", 5/16" HEX HD, SS CAP W/WASHER
MARK
NUMBER COLOR
097584 ____ SEE COLOR SUFFIX CHART BELOW
57400 GALVALUME
57499 SPECIAL COLOR

ROOF/WALL STRUCTURAL FASTENER
(T-2) #12-14 x 1 1/2", 5/16" HEX HD, SS CAP W/WASHER
MARK
NUMBER COLOR
097585 ____ SEE COLOR SUFFIX CHART BELOW
57800 GALVALUME
57899 SPECIAL COLOR

WALL STRUCTURAL FASTENER
(T-2) #17/#12-14 x 1 7/8", STAND OFF 5/16" HEX HD, SS CAP W/WASHER
MARK
NUMBER COLOR
097597 ____ SEE COLOR SUFFIX CHART BELOW

ROOF/WALL STITCH FASTENER
(T-1) 1/4-14 x 7/8", 5/16" HEX HD, SS CAP W/WASHER
MARK
NUMBER COLOR
097581 ____ SEE COLOR SUFFIX CHART BELOW
57600 GALVALUME
59229 SPECIAL COLOR

ROOF STITCH FASTENER
(T-1) 1/4-14 x 1 1/8", 5/16" HEX HD, SS CAP W/WASHER
MARK
NUMBER COLOR
097582 ____ SEE COLOR SUFFIX CHART BELOW
57650 GALVALUME
32200 SPECIAL COLOR

COLOR SUFFIX CHART

SUFFIX	COLOR	SUFFIX	COLOR
100 =	COOL ARCTIC WHITE	112 =	COOL GRANITE GRAY
101 =	COOL EGYPTIAN WHITE	113 =	COOL SIERRA TAN
102 =	COOL COTTON WHITE	115 =	COOL COLBALT BLUE
103 =	COOL COLONIAL RED	116 =	COOL ZINC GRAY
104 =	COOL STRAW GOLD	117 =	COOL COPPER PENNY
105 =	COOL DARK BRONZE	118 =	COOL METALLIC SILVER
106 =	COOL WEATHERED COPPER	119 =	COOL JADE GREEN
107 =	COOL BERMUDA GREEN	120 =	COOL BRIGHT RED
108 =	COOL HEMLOCK GREEN	121 =	COOL PARCHMENT
109 =	COOL LEAF GREEN	122 =	COOL OLD TOWN GRAY
110 =	COOL EBONY	UNPNTD =	UN PAINTED
111 =	COOL IMPERIAL BLUE	SPR =	SPECIAL REQUEST

ROOF STITCH FASTENER
(T-AB) #17-14 x 1", 5/16" HEX HD, SS CAP W/WASHER
MARK
NUMBER COLOR
HWRELF ____ SEE COLOR SUFFIX CHART BELOW

MISC. STRUCTURAL FASTENERS
MARK
NUMBER
55307 (T-3) 1/4-14 x 1 1/4", 3/8" HEX HD
55309 (T-3) 1/4-14 x 2", 3/8" HEX HD
55310 (T-3) 1/4-14 x 3", 5/16" HEX HD
55311 (T-3) 1/4-14 x 4", 5/16" HEX HD
56101 (T-4.5) #12-24 x 1 1/4", 5/16" HEX HD
56104 (T-5) #12-24 x 1 1/2", 5/16" HEX HD
59227 (T-5) 1/4-28 x 3", 5/16" HEX HD
59228 (T-5) 1/4-28 x 4", 5/16" HEX HD
55308 (T-AB) #17-14 x 1", 5/16" HEX HD, SS CAP W/WASHER, (BAG of 50)
58015 (T-1) 1/4-14 x 1 1/8", 5/16" HEX HD, SS CAP W/ 7/8" WASHER

RIVETS
BULB TITE STRUCTURAL BLIND RIVET
MARK
NUMBER DESCRIPTION COLOR
55160 VP200 RIVET (RV6604-6-8W OLYMPIC BULD TITE) ALUMINUM
55181 VP205 RIVET (RV6604-6-4W OLYMPIC BULD TITE) COOL ARCTIC WHITE
55185 VP205 RIVET (RV6604-6-4W OLYMPIC BULD TITE) COOL DARK BRONZE

SEALANT
MARK
NUMBER DESCRIPTION
016688 GRAY SKINNING
016688 GRAY SKINNING
025392 WHITE NON-SKINNING
80507 BRONZE SKINNING
80531 FLEXIBLE FLASHING
 SILICONE ADHESIVE (GRAY)

TAPE MASTIC
MARK
NUMBER DESCRIPTION
042715 1/8" X 1 1/2" X 40' ROLL
80345 1/8" X 1" X 28" BOX OF 100
 200 LINEAL FEET OF COVERAGE PER BOX
80347 1/8" X 1" X 9" (50) AND 3" (150) BOX
 100 LINEAL FEET OF COVERAGE PER BOX
027893 1/8" X 1" X 25' ROLL
025390 3/16" X 1/4" X 40' ROLL
HWRELM 1/8" X 1 1/2" X 30' ROLL

PANEL CLOSURES
MARK
NUMBER DESCRIPTION
80130 PANEL RIB 3' INSIDE CLOSURE
80140 PANEL RIB 3' OUTSIDE CLOSURE
80360 VEE RIB 3' INSIDE CLOSURE
80362 VEE RIB 3' OUTSIDE CLOSURE
80140 RPR 3' INSIDE PANEL CLOSURE
80130 RPR 3' OUTSIDE PANEL CLOSURE
80135 SSR FOAM INSIDE CLOSURE
80136 SSR HARD RUBBER INSIDE CLOSURE
HWRFC HWR FOAM INSIDE CLOSURE
HWRHRC HWR HARD RUBBER INSIDE CLOSURE

POP RIVETS
POP RIVET 1/8 x 3/8"
MARK
NUMBER COLOR
097580 ____ SEE COLOR SUFFIX CHART BELOW
55400 GALVALUME
55429 SPECIAL COLOR

VP COMMON WAREHOUSE PARTS				
DRAWN BY	CHECKED BY	GROUP NUMBER: - -		
BJW	RJR			
FIRST RELEASE DATE	REVISION DATE	B	S-081767	02
01/22/13	03/12/14			

FOR CONSTRUCTION

THE VP ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF VP AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY VP. THE VP ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY VP EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY VP.	THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF VP BUILDINGS. IT IS PROVIDED SOLELY FOR ERECTING THE BUILDING DESCRIBED IN THE APPLICABLE PURCHASE ORDER AND SHALL NOT BE MODIFIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN APPROVAL OF VP BUILDINGS. THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE VP BUILDINGS ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.	VP Buildings 3200 Players Club Circle Memphis TN 38125				Planograph S-081767			
		REV	DATE	BY	DESCRIPTION	BUILDER	GarVin Const Inc		
						CUSTOMER	City of Albuquerque		
						LOCATION	Albuquerque, New Mexico		
						PROJECT	Facility Build COA Salt Storage		
						BUILDER'S PGM			
		NTS							
3/20/2015		16:17:38		FILENAME:		FT Fac Bld COA Sal			
						VFC VERSION: 2014.2c			
						a division of BlueScope Buildings North America, Inc.			

Electrical

sensorswitch

LWS(H) LWS(H)(2P)



LARGE AREA WALL SWITCH SENSOR LINE VOLTAGE • PASSIVE INFRARED (PIR)

SPECIFICATIONS

FEATURES

- 100% Digital PIR Detection,
- Excellent RF Immunity
- Single and 2-Pole Versions
- Relay Contact Protection
- Interchangeable Hot & Load Wires - Impossible to Wire Backwards
- No Neutral Required / No Minimum Load
- Small Motion Detection to 40 ft (12.19 m)
- Compatible w/ LEDs, Electronic & Magnetic Ballasts, CFLs, & Incandescents
- Adjustable Time Delay
- LampMaximizerSM Minimum On Time (disabled by default)
- Push-Button Programmable
- Non-Volatile Settings Memory
- Green LED Activity Indicator

PHYSICAL SPECS

- SIZE 4.96" H x 3.10" W x 1.70" D (12.60 cm x 7.87 cm x 4.32 cm)
- WEIGHT 7 oz
- MOUNTING Single Gang Switch Box
- MOUNTING HEIGHT LWS-PDT Series: 30 to 48 in LWSH-PDT Series: 48 to 84 in
- SWITCH FUNCTIONALITY UP = Auto On/ Auto Off Mode DOWN = Turns Lights Off
- COLORS White, Ivory

ELECTRICAL SPECS

- OPERATING VOLTAGE 120/277, 347 VAC
- 13 Amps / Pole
- (347 VAC must be same phase)
- MOTOR LOAD 1/4 HP
- FREQUENCY 50/60 Hz

ENVIRONMENTAL SPECS

- OPERATING TEMP 14° to 160° F (-10° to 71° C)
- RELATIVE HUMIDITY 20 to 90% non-condensing
- UL COMPLIANT
- ROHS COMPLIANT

OVERVIEW

The **LWS(H)** Series Large Area Wall Switch sensor uses Passive Infrared for detecting small motions up to 40 ft (12.19 m) away. The **LWS** version is designed for standard switch height mounting of 3 to 4 feet and has a single level view pattern that extends wall to wall. The **LWSH** version is designed for switches mounted at 4 to 7 feet and has a 3 level view pattern that spans 120 degrees wide.

Large Area Wall Switch sensors are ideal products to use when retrofitting classrooms, storage centers, or spaces where obstructions exist and low voltage systems are cost prohibitive. These sensors are available in a single or 2-pole version and in two colors (Ivory and White). The **LWS(H)** sensor surface mounts making it ideal for retrofits in older facilities, and can control up to 13 Amps each pole.

SENSOR OPERATION

The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, a self-contained relay switches the lighting on. The sensor is line powered and can switch a large range of line voltages.

An internal timer keeps the lights on during brief periods of inactivity and turns the lights off when it expires. The default time delay is 10 minutes. This timer is programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. Patented LampMaximizer technology is also present in this sensor, providing an additional minimum on time (disabled by default) to be used if desired. Finally, as an added safety measure, a 10 second grace period allows the lights to be voice reactivated after initially shutting off. This state-of-the-art design requires no field calibration or sensitivity adjustments.

OPTIONS

VANDAL-RESISTANT LENS (V)

- Ideal for high abuse or public areas
- Decreases detection range by 50%

347 VAC (347)

- Allows sensor to be powered from and switch 347 VAC

COLOR

- White, Ivory
- Must be specified when ordered

LOW TEMP/HIGH HUMIDITY (LT)

- Sensor electronics are coated for corrosion resistance
- Operates down to -40° F/C



TITLE 20 / 24
5 YEAR WARRANTY

ORDERING INFO LWS(H) [POLES] [VOLTAGE] [COLOR] [TEMP/HUMIDITY]

POLES

Blank = 1 Pole
2P = 2 Pole

VOLTAGE

Blank = 120/277 VAC
347 = 347 VAC

COLOR

WH = White
IV = Ivory

TEMP/HUMIDITY

Blank = Standard
LT = Low Temp

COVERAGE PATTERN

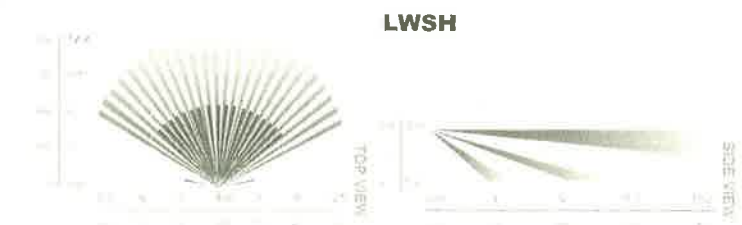
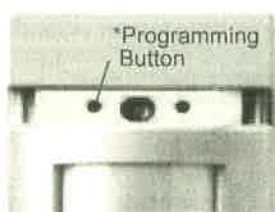
LARGE AREA WALL SWITCH LENS

- Small motion (e.g. hand movements) detection up to 40 ft (12.19 m)
- Wall-to-Wall coverage
- LWS - 30 to 48 in (76.20 to 121.92 cm) high mounting
- LWSH - 48 to 84 in (121.92 to 213.36 cm) high mounting



PROGRAMMING

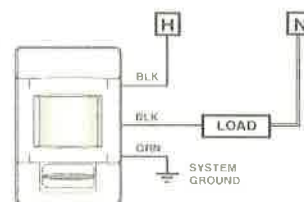
- Pull up the top of the LWS(H) to expose the programming button*.
- Use the enclosed tool to program.
- Refer to Instruction Card IC16.001 for default settings and directions on programming the sensor via the button.



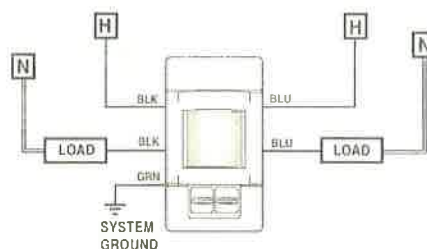
WIRING (DO NOT WIRE HOT)

- BLACK* - Line Input 1
- BLACK* - Load Output 1
- BLUE* - Line Input 2
- BLUE* - Load Output 2
- GREEN - Ground (required)

Single Pole



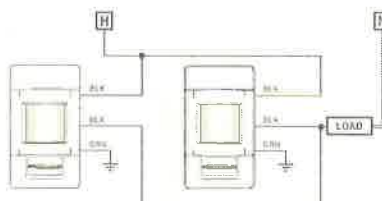
2-Pole



347 VAC OPTION (347)

Black wires are replaced w/ Red wires

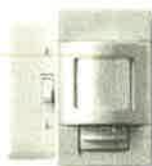
3-Way Switch Retrofit Configuration



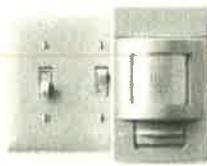
Existing travelers are used to wire sensors in parallel.

OPTIONAL WALL PLATES

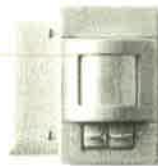
The WS BPX plate comes with the 2-pole models. Others can be ordered separately.



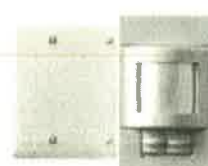
WS SPX I/W



WS SPX3 I/W



WS BPX I/W



WS BPX3 I/W

WARNING

Fire Hazard Caution: Maximum Lamps 1500 Watts, Type 347 VAC.

Attention: Risque d'incendie : Puissance Maximales Des Lampes 1500 Watts, Type 347 VAC.

Warning: The units are intended to be installed by a qualified person with properly rated branch circuit protectors as per applicable local and national regulations (CEC, NEC).

sensorswitch

An Acuity Brands Company

WARRANTY: Sensor Switch warrants these products to be free of defects in manufacture and workmanship for a period of 60 months. Sensor Switch, upon prompt notice of such defect, will, at its option, provide a Returned Material Authorization number and repair or replace returned product.

LIMITATIONS AND EXCLUSIONS: This Warranty is in full lieu of all other representation and expressed and implied warranties (including the implied warranties of merchantability and fitness for use) and under no circumstances shall Sensor Switch be liable for any incidental or consequential property damages or losses.

TS-LWS-003B

PROGRAMMING INSTRUCTIONS

Please read all 7 steps before programming

1. Enter programming mode by pressing & holding programming button until LED flashes rapidly. Release button.
2. Enter a specific programming function by pressing button the number of times as the desired function number from the tables to the right (e.g., press twice for function 2, time delay).
3. LED will flash back the selected function's current setting (e.g., 5 flashes for 10 minute time delay). To change setting, proceed to step 4 before flash back sequence repeats 10 times. To exit the current function or to change to a different function, wait for sequence to repeat 10 times then return to step 1.
4. Press button the number of times indicated in the particular function's detailed table for the NEW desired setting (e.g., press 3 times for 5 min). As confirmation of setting change, LED flashes back the NEW setting 10 times before exiting.
5. Exit programming mode by pressing and holding button again until LED flashes rapidly. Release button.
6. Re-enter function number as final confirmation that its setting changed.
7. LED will flash twice indicating acceptance of NEW settings. If two flashes are not seen, repeat 7 step process.

SHORTCUT PROGRAMMING METHOD

For all functions except 1 (Pole Selection) and 9 (Restore Factory Defaults), a shorter programming method that requires following only steps 2, 3, and 4 can be used.

Note: The LED flash back sequence used for programming readout and confirmation repeats only 3 times when the shortcut method is used.

DETAILED FUNCTION TABLES

1 = Pole Selection⁶

- | | |
|---|----------------------|
| 1 1st Pole* | 2 2nd Pole** |
| 3 Both Poles 1 & 2 (also copies Pole 1 to Pole 2)** | |
| 4 Disable Button Mode | 5 Enable Button Mode |

2 = Occupancy Time Delay

- | | | |
|-----------|-------------|------------|
| 1 30 sec | 4 7.5 min | 7 15.0 min |
| 2 2.5 min | 5 10.0 min* | 8 17.5 min |
| 3 5.0 min | 6 12.5 min | 9 20.0 min |

4 = Test Mode / 100 hr Burn-In / Auto Set-Point

- | | |
|--|-------------------------------------|
| 1 Normal* | 4 Run Auto Set-Point ^{1,2} |
| 2 Run 100 hr Burn-In | 5 Blink back Set-Point ³ |
| 3 Run 100 hr then Auto-Setpoint ^{1,2} | 6 Test Mode ^{1,4} |

5 = Ten's Digit of Set-Point²

- | | | | |
|---------|----------|------------------|----------|
| 1 10 fc | 4 40 fc | 7 200 fc | 10 0 fc* |
| 2 20 fc | 5 50 fc | 8 Disable | |
| 3 30 fc | 6 100 fc | 9 Not applicable | |

6 = One's Digit of Set-Point²

- | | | | |
|--------|---------|--------|---------|
| 1 1 fc | 4 4 fc | 7 7 fc | 10 0 fc |
| 2 2 fc | 5 5 fc* | 8 8 fc | |
| 3 3 fc | 6 6 fc | 9 9 fc | |

7 = Sunlight Discount Factor^{1,2}

- | | | | |
|-------|--------|-------|---------|
| 1 x/1 | 4 x/4* | 7 x/7 | 10 x/10 |
| 2 x/2 | 5 x/5 | 8 x/8 | |
| 3 x/3 | 6 x/6 | 9 x/9 | |

8 = Incremental Set-Point Adjustment²

- | | |
|-----------------|-----------------|
| 1 Decrease 1 fc | 2 Increase 1 fc |
|-----------------|-----------------|

9 = Restore Factory Defaults

- | | |
|-----------------|----------------------------|
| 1 Keep Current* | 2 Restore Factory Defaults |
|-----------------|----------------------------|

10 = Minimum On Time¹

- | | | |
|------------|----------|----------|
| 1 0 min*** | 3 30 min | 5 60 min |
| 2 15 min* | 4 45 min | |

12 = Dual Technology (Microphonics™)⁵

- | | | | |
|-----------|-------|----------|-------|
| 1 Normal* | 2 Off | 3 Medium | 4 Low |
|-----------|-------|----------|-------|

* Indicates default setting

** Indicates additional settings for 2-pole sensors

*** Special Default for LWS(H) sensors

NOTES

¹ Programming function will effect both poles regardless of which Pole is currently selected

² Programming function only present on products with Photocell option (model numbers with suffix P)

³ The LED will blink back the ten's digit, then pause, then blink back the one's digit. For a "0" the LED will blink very rapidly. The sequence is repeated 3 times.

⁴ Test Mode will disable Minimum On Time, set Occupancy Time Delays to 30 sec, and shorten all photocell transitions rates. Mode will expire after 10 min or if function 4 is set back to Normal.

⁵ Programming function only available with products with Dual Technology (model numbers containing PDT)

⁶ Settings 1-3 related to Pole Selection not available with HM(R) products

FUNCTION DEFINITIONS

1 POLE SELECTION

POLE 1 / POLE 2 / BOTH POLES

The particular relay that subsequent programming will effect

BUTTON MODE

When enabled, allows user to switch the relay by pressing the push-button for test purposes (e.g., in order to test wiring). The particular relay(s) to be switched is determined by the previous pole selection.

2 OCCUPANCY TIME DELAY

The length of time an occupancy sensor will keep the lights on after it last detects occupancy (assuming minimum on time has been met)

4 TEST MODE / 100 HOUR BURN-IN / AUTO SET-POINT

TEST MODE

Disables Minimum On Time, sets Occupancy Time Delay to 30 sec, and shortens all photocell transition rates. Mode will expire after 10 min or if function 4 is set back to Normal.

100 HOUR BURN-IN

Overrides relay on (typically for lamp seasoning) for 100 hrs of powered operation. LED blinks rapidly during burn-in period.

AUTO SET-POINT

Photocell calibration procedure for detecting optimum lighting control level. When engaged, LED will blink rapidly then lights will cycle up to three times as sensor measures amount of light it is controlling.

5 TEN'S DIGIT OF SET-POINT

The ten's digit of the target light level that is to be maintained by the device (in foot-candles)

6 ONE'S DIGIT OF SET-POINT

The one's digit of the target light level that is to be maintained by the device (in foot-candles)

7 SUNLIGHT DISCOUNT FACTOR

Value used to improve the tracking accuracy of a photocell during periods of high daylight. Decreasing the value will lower the controlled level of the lights

8 INCREMENTAL SET-POINT ADJUSTMENT

Alters the target light level that is to be maintained by the device (in foot-candles)

9 RESTORE FACTORY DEFAULTS

Returns the sensor to its default settings

10 MINIMUM ON TIME

The length of time required for lamps to be on in order to prevent all short cycling that shortens lamp life. If occupancy time delay expires prior to Minimum On time being satisfied, the lamps will remain on until time has been met.

12 DUAL TECHNOLOGY (MICROPHONICS™)

A second method of occupancy detection that allows the sensor to hear occupants

NOTE:

For information on additional advanced settings, including resetting unit to factory defaults, contact:

Technical Support: 1.800.535.2465

DOC# IC16.001
Date Code 0512

LWS(H) / WVR / HM(R) SERIES OCCUPANCY SENSOR PROGRAMMING INSTRUCTIONS

AcuityControls

Sensor Switch

1.800.535.2465

Electrical Contractors
4330 Broadway S.E.
Albuquerque, NM 87105

(505) 873-3380
Fax 873-3590
N.M. License #60276

FB Job #15-701-2
CIP-Salt Dome Building Phase 2
Submittal #2-Broken Arrow Electric-Lighting



FacilityBUILD

SUBMITTAL REVIEW

- ☒ Approval
- ☐ Approved As Noted
- ☐ Resubmit see comments
- ☐ Rejected

General Contractors review is for general performance with the design and contract documents. Markings or comments shall not be construed as relieving the Subcontractor from compliance with the project specifications, nor departure therefrom. The Subcontractor remains responsible for details and accuracy, for confirming and correlating quantities and dimensions, for selecting fabrication process, for technique to assembly, and for performing his work in a safe manner.

By: [Signature] Date: 3/5/15

Electrical Contractors
4330 Broadway S.E.
Albuquerque, NM 87105

(505) 873-3380
Fax 873-3590
N.M. License #60276

FB Job #15-701-2
CIP-Salt Dome Building Phase 2
Submittal #2-Broken Arrow Electric-Lighting



SUBMITTALS

GEAR/LIGHTING

1815 Broadway BLVD, NE.
Albuquerque NM 87102

BROKENARROW ELECTRIC
4330 Broadway SE
Albuquerque, NM 87105

DEALERS ELECTRICAL SUPPLY CO.
4220 SECOND STREET NW
ALBUQUERQUE, NM 87107

Date: 2-3-2015

LIGHTING SUBMITTALS COVER SHEET

Project Name: SALT STORAGE BUILDING

Project Number: N/A

Electrical Contractor: BROKEN ARROW

Description:

LIGHT FIXTURE SCHEDULE

SPECIFICATION SECTIONS: **FIXTURE SCHEDULE**

Lighting Rep: I.W.I

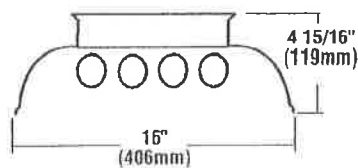
Contact: : Bill Jolley 505-821-0056 ext 105

Distributor: Dealers Electrical Supply Co

Contact: Gary L Chavez: 505-880-1344

2 Lamp

3 Lamp



4 Lamp



ARRA
Funding Compliant



ORDERING INFORMATION

TYPICAL ORDER EXAMPLE: **F20 3 32 SS010 EM UE**

Prefix	Lamps	Lamp Type		Ballasts	Options	Voltage
F20	2 3 4	T5 Lamps 28 - 28W 45"	T8 Lamps 32 - 32W 48" 59 - 59W 96"	SS5R - T5 Programmed Start SS5HO - T5 High Output SS0 - T8 Instant Start SS0D - T8 Dimming (specify type) SSOL - T8 Low Watt SSOHL - T8 High Ballast Factor SSOHLR - T8 Program Start High Ballast Factor SSOR - T8 Programmed Start SS010 - T8 <10% THD (For dual ballasts add "2" Example: SS02)	F - Fusing EM - Emergency Pack EMDL - Emergency Pack - Damp Location PM - Prewired Plug-in Assembly (specify circuitry. See Options/Accessories Section) U - Uplight reflector CEE - CEE Approved Components installed	120 - 120V 277 - 277V 347 - 347V UE - Universal Electronic (120-277V)
		T5HO Lamps 54HO - 54W 45"	T8HO Lamps 44HO - 44W 48" 86HO - 86W 96"			
		Note: For tandem configurations suffix number above with "2"				

ACCESSORY ORDERING INFORMATION

Description	Order Number	Description	Order Number
Wire Guard - 2 lamp - 4 foot	IWG F202	Chain Hanger	CH12
Wire Guard - 3 lamp - 4 foot	IWG F203	Chain Hanging Set (36" Length)	CHS
Wire Guard - 4 lamp - 4 foot	IWG F204		

(For 8' tandem add "2" IWG per fixture)



Project Name _____ Fixture Type _____
Catalog # _____

01/21/14
© 2014
LSI INDUSTRIES INC



TYPE A-LAMP

T5 High Output

54 W, 835 nm Bipin T5 HO ALTO UNP

Philips T5 HO lamps are environmentally-responsible, ultra-slim and have extraordinary light output and longer life.

Product data

General Characteristics

System Description	High Output
Base	Miniature Bipin
Base Information	Green [Green Base]
Bulb	T5 [16 mm]
Life to 10% fail	21000 hr
Preheat EL,3h	
Rated Avg. Life	30000 hr
LSF HF Preheat	99 %
2000h Rated,3h	
LSF HF Preheat	99 %
4000h Rated,3h	
LSF HF Preheat	99 %
6000h Rated,3h	
LSF HF Preheat	99 %
8000h Rated,3h	
LSF HF Preheat	99 %
12000h Rated,3h	
LSF HF Preheat	97 %
16000h Rated,3h	
LSF HF Preheat	84 %
20000h Rated,3h	

Light Technical Characteristics

Color Code	835 [CCT of 3500K]
Color Rendering Index	85 Ra8
Color Designation	White
Color Temperature	3500 K
Luminous Flux EL	4450 Lm
25°C, Rated	
Luminous Flux EL	4450 Lm
25°C, Nominal	
Initial Lumens	5000 Lm
Lum Efficacy Rated	82 Lm/W
HF 25°C	

Lum Efficacy Rated	93 Lm/W
HF 35°C	
LLMF HF 2000h	96 %
Rated	
LLMF HF 4000h	95 %
Rated	
LLMF HF 6000h	94 %
Rated	
LLMF HF 8000h	93 %
Rated	
LLMF HF 12000h	92 %
Rated	
LLMF HF 16000h	91 %
Rated	
LLMF HF 20000h	90 %
Rated	
Design Temperature	35 °C
Chromaticity Coordinate X	409 -
Chromaticity Coordinate Y	394 -

Electrical Characteristics

Watts	54 W
Lamp Wattage EL	54.1 W
25°C, Rated	
Lamp Wattage EL	54.1 W
25°C, Nominal	
Lamp Wattage EL	53.8 W
35°C	
Lamp Voltage EL	120 V
25°C	
Lamp Voltage EL	118 V
35°C	
Lamp Current EL	0.455 A
25°C	

PHILIPS

T5 High Output

Lamp Current EL 0.460 A
35°C
Dimmable Yes

Environmental Characteristics

Energy Efficiency A
Label (EEL)
Mercury (Hg) 1.4 mg
Content

Measuring Conditions

Calibration Current 0.460 A
HF Generator Rated 235 V
Voltage
Resistor 255 ohm

Product Dimensions

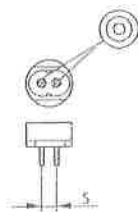
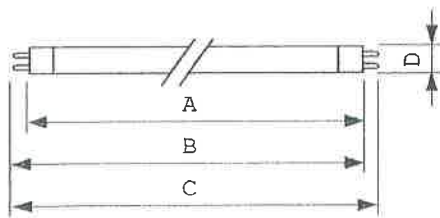
Base Face to Base 1149.0 (max) mm
Face A

Insertion Length B 1153.7 (min), 1156.1 (max) mm
Overall Length C 1163.2 (max) mm
Diameter D 17 (max) mm

Product Data

Product number 290288
Full product name 54W/835 Min Bipin T5 HO ALTO
UNP
Short product name 54W/835 Min Bipin T5 HO ALTO
UNP
Pieces per Sku 1
eop_pck_cfg 40
Skus/Case 40
Bar code on pack 46677290283
Bar code on case 50046677290288
Logistics code(s) 927993183522
tpd_ilcos_cd FDH-54/35/1B-L/P-G5-16/850
eop_net_weight_pp 104.500 gr

Dimensional drawing



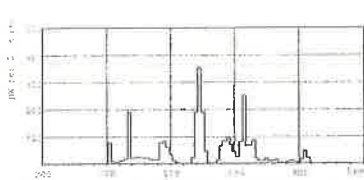
G5

54W/835 Min Bipin T5 HO ALTO UNP

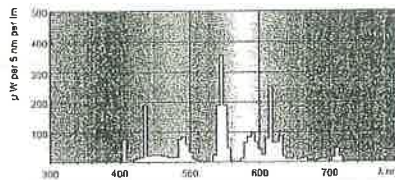
Product	A (Max)	B (Min)	B (Max)	C (Max)	D (Max)
TLS HO FS4T5/835 HO Alto	1149.0	1153.7	1156.1	1163.2	17

105 High Output

Photonic



Lightcolor 835



Lightcolor 835



© 2014 Koninklijke Philips N.V. (Royal Philips)
All rights reserved.

Specifications are subject to change without notice. Trademarks are the property of Koninklijke Philips N.V. (Royal Philips) or their respective owners.

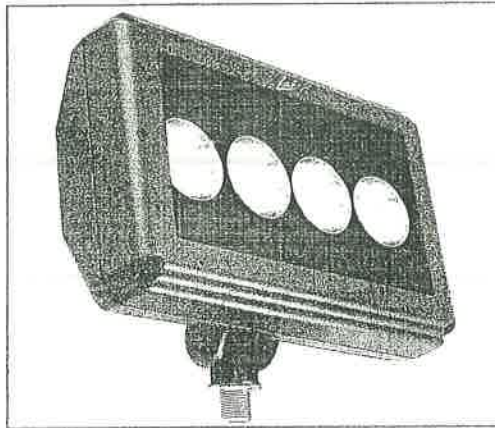
www.philips.com/lighting

2014, April 6
data subject to change

JOB NAME: SALT STORAGE BUILDING

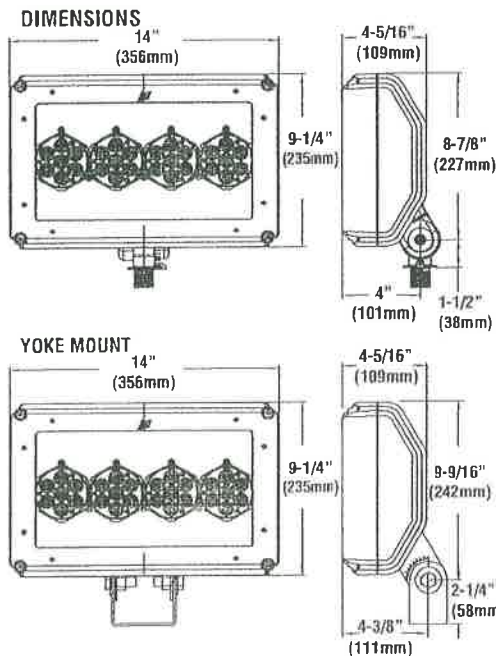
TYPE: B

LED FLOOD LIGHT - MEDIUM (XFLM) PART NUMBER: XFLM WF LED 49 HO CW UE BRZ



DOE LIGHTING FACTS

Department of Energy has verified representative product test data and results in accordance with its Lighting Facts Program. Visit www.lightingfacts.com for specific catalog strings.



EPA 1.1

This product, or selected versions of this product, meet the standards listed below. Please consult factory for your specific requirements.



US & Int'l. patents pending

HOUSING – Architecturally styled, one-piece, die-cast aluminum, 360 alloy, low copper housing with .156" nominal wall thickness. One-piece vulcanized silicone gasket seals the door frame to the housing and is concealed when fixture is closed.

DOOR FRAME – One-piece, die-cast aluminum, 360 alloy, low copper, .156" nominal wall thickness door frame secures to housing via four, stainless steel recessed captive torx T-30 screws. 3/16" thick clear tempered glass lens is sealed to door frame by a one-piece silicone gasket and ten black zinc plated clips.

EXPECTED LIFE – Minimum 60,000 to 100,000 hours depending upon the ambient temperature of the installation location. See LSI web site for specific guidance.

LEDS – Features an array of select, high brightness, high efficiency LED chips; CW - 5000K color temperature, 70 CRI (nominal) or NW - 4000K color temperature, 80 CRI (nominal) or WW - 3500K color temperature, 80 CRI (nominal).

OPTICS / DISTRIBUTION – Choice of 6 high performance distributions; HF, VF, MF, NF, WF, or SP.

PRESSURE STABILIZING VENT – Luminaire assembly incorporates a pressure stabilizing vent breather to prevent seal fatigue and failure.

DRIVER – Driver components are fully encased in potting for moisture resistance. Complies with IEC and FCC standards. Optional 0-10V dimming driver available, with controls by others.

OPERATING TEMPERATURE – -40°C to 40°C (-40°F to +104°F)

ELECTRICAL – Universal voltage power supply, 120-277 VAC (50/60 HZ input) and 347-480 VAC. Drivers feature two-stage surge protection (including separate surge protection built into electronic driver) meets IEEE C62.41.2-2002, Scenario 1, Location Category C, 10KV

MOUNTING – Standard mount is a heavy duty die cast knuckle assembly with 3/4-14 NPS male threaded arm that provides 185° range of motion. Knuckle locking plate teeth and arm allow for tilt / aiming in 7.5° increments. Aiming angle markings in 15° increments allow reliable error free aiming. Standard knuckle mount tested to withstand up to 3G vibration load rating per ANSI C136.31. Optional YM- Yoke Mount is also available. Mounting accessories include Stanchion Mount, Post-Top Adapter, Junction Box, & Wall Mount for recessed or surface mount applications.

SHIPPING WEIGHT – 18 pounds.

FINISH – Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling.

WARRANTY – LSI LED fixtures carry a limited 5-year warranty.

PHOTOMETRICS – Please visit our web site at www.lsi-industries.com for detailed photometric data.

LISTING – UL listed to UL 1598, UL 8750 and other U.S. and International safety standards. Suitable for wet locations. For a list of the specific products in this series that are DLC listed, please consult the LED Lighting section of our website or the Design Lights website at www.designlights.org.

XFLM Photometric Technical Summary and Comparison											
Catalog Number	NEMA Type	Field Angle H° V°	Beam Angle H° V°	Max CD	Lumens	Watts	LPW				
XFLM-HF-LED-49-HO-CW-UE	5H X 3V	77 36	54 16	19,801	6,584	64	103				
XFLM-MF-LED-49-HO-CW-UE	4H X 4V	60 60	33 32	16,753	8,573	64	103				
XFLM-WF-LED-49-HO-CW-UE	5H X 5V	73 72	44 44	9,912	5,744	64	90				
XFLM-VF-LED-49-HO-CW-UE	3H X 5V	38 77	18 53	18,627	6,548	64	102				
XFLM-NF-LED-49-HO-CW-UE	4H X 4V	48 47	24 23	24,681	6,298	64	98				
XFLM-SP-LED-49-HO-CW-UE	3H X 3V	36 34	17 15	51,976	6,986	64	109				
XFLM-HF-LED-28-HO-CW-UE	5H X 3V	77 35	54 16	11,456	3,717	36	103				
XFLM-MF-LED-28-HO-CW-UE	4H X 4V	60 60	33 32	9,650	3,732	36	104				
XFLM-WF-LED-28-HO-CW-UE	5H X 5V	74 74	45 44	5,572	3,407	36	95				
XFLM-VF-LED-28-HO-CW-UE	3H X 5V	36 76	17 53	11,181	3,678	36	102				
XFLM-NF-LED-28-HO-CW-UE	4H X 3V	48 46	24 23	15,904	4,149	36	115				
XFLM-SP-LED-28-HO-CW-UE	3H X 3V	35 34	17 16	34,100	4,501	36	125				

LED Chips are frequently updated therefore values may increase.



Project Name _____ Fixture Type _____
Catalog # _____

01/20/15

© 2015

LSI INDUSTRIES INC.

LED FLOOD LIGHT - MEDIUM (XFLM)



LUMINAIRE ORDERING INFORMATION

TYPICAL ORDER EXAMPLE: **XFLM SP LED 28 HO CW UE BRZ**

Luminaire Prefix	Distribution	Light Source	# of LEDs	Drive Current	Color Temp.	Line Voltage	Luminaire Finish	Options
XFLM - Medium LED Flood	HF - Horizontal Flood MF - Medium Flood VF - Vertical Flood SP - Spot NF - Narrow Flood WF - Wide Flood	LED	28 49	HO - High Output	CW - Cool White NW - Neutral White WW - Warm White	UE - Universal Voltage (120-277v) 347-480 Univ Voltage (347-480v)	BRZ - Bronze BLK - Black PLP - Platinum Plus WHT - White SVG - Satin Verde Green GPT - Graphite MSV - Metallic Silver	PC120 - Photocell 120v PCHV - Photocell 208-277v PC347 - Photocell 347v ¹ YM - Yoke Mount DIM - 0-10v Dimming

FOOTNOTES:

1- PCI option is not available in 480V.

BRACKET ORDERING INFORMATION

Bracket Designation	Bracket Type	Bracket Configuration	Length	Bracket Finish	Options	Est. Weight (lbs.)
BKA - Bracket Aluminum	XFLM	SMC - Stanchion Mount	23"	BRZ - Bronze BLK - Black PLP - Platinum Plus	None	7
		J4R WM - Wall Mount	4"	BUF - Buff WHT - White GPT - Graphite SVG - Satin Verde Green MSV - Metallic Silver		2
		J4R WM SCE - Wall Mount Side Conduit Entry				

TYPICAL ORDER EXAMPLE: **BKA XFLM SMC 23 BLK**

ACCESSORY ORDERING INFORMATION

(Accessories are field installed)

Description	Order Number	Description	Order Number
JB - Junction Box	122534CLR	PS - Polycarbonate Shield	122541
BD - Barn Doors	122539CLR	PT - Post Top Adaptor	122542CLR
GS - Glare Shield	122540CLR	TA - Thread Adaptor 1/2" (No Finish)	122543

ARCHITECTURAL JUNCTION BOX (JB) - Cast aluminum body and extruded matching cover. One-piece EPDM cover gasket. Internal ground screw provided. 3/4" NPSM fixture mount with sealing locknut. Two 1/2" NPSM for conduit entry. For above grade installation only. Available in standard finishes.



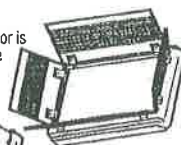
POST TOP ADAPTOR (PT) - One-piece cast aluminum - mounts on pole with 2" pipe tenon (2-3/8" OD x 3-1/2" minimum length) or 2-1/2" pipe tenon (2-7/8" OD x 3-1/2" minimum length). Fixture threads into adaptor and attaches to pole with allen set screws. Post Top Adaptor allows mounting of one or two fixtures and 360° horizontal adjustment. Available in standard finishes.



1/2" THREADED ADAPTOR (TA) - Machined aluminum pipe reducer adapts 3/4" pipe thread (7-stem) to 1/2" pipe thread provided by others.



BARN DOORS (BD) - Extruded aluminum doors with anti-reflection baffles. Each door is attached with two aluminum clamps with set screws to maintain position. Doors are individually removable. Assembly mounts to die-cast door frame holes. Caution: Not recommended for ground-mounted fixtures in vandal-prone areas. Available in standard finishes.

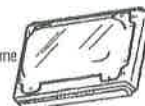


GLARE SHIELD (GS) - Formed 16 ga. steel. Mounts to die-cast door frame holes and may be used with polycarbonate shield accessory. Available in standard finishes.



POLYCARBONATE SHIELD (PS)

1/8" clear convex, UV stabilized, thermofomed polycarbonate. Mounts to die-cast door frame holes. May be used with glare shield accessory. Caution: Use only when vandalism is anticipated. Useful life is limited by UV discoloration from sunlight.

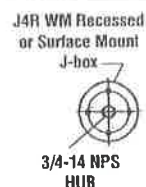
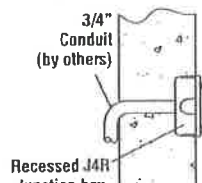


MOUNTING BRACKETS

STANCHION MOUNT (SMC) - 3" OD x .250" x 22.65" cast aluminum with 3/4" NPSM fixture mount, and a standard 2 3/8" tenon. Wiring and internal ground lug accessible through hand hole. Available in standard finishes.



WALL MOUNT J-BOX (J4R WM or J4R WM SCE) - Accessory includes J4R J-Box, 5075D4 3/4-14 NPS canopy, canopy gasket, & 4 cap screws. J4R WM SCE version for surface mount conduit applications includes 2ea 1/2" conduit entries & includes conduit plugs.



Project Name _____ Fixture Type _____
Catalog # _____

01/20/15
© 2015
LSI INDUSTRIES INC.



Submittal

Salt Storage

Type: Gear

Electrical Contractor: Broken Arrow Electric

Distributor: CED
2416 Comanche N.E.
Albuquerque, NM 87107

Sales Person: Mark Baumgartner

Date: 2/2/2015



Powering Business Worldwide

Main Table of Contents

1.0 Loadcenters & Circuit Breakers	3
1.1 Technical Documents	10

Loadcenters & Circuit Breakers

Detail Bill of Material

Project Name: SALT STORAGE
General Order No:

Negotiation No: K8280715X4K1
Alternate No: 0000

Item No.	Qty	Product	Description
	1	CH LOAD CENTERS	Ground Bar Kit - 5 Terminal

Catalog No GBK5
Designation

Qty	List of Materials
1	Ground Bar Kit - 5 Terminal

Item No.	Qty	Product	Description
	2	BR RESIDENTIAL BREAKERS	Type BR Breaker 60A/2 Pole Com. Trip 120/240V 22K

Catalog No BRH260
Designation

Qty	List of Materials
2	Type BR Breaker 60A/2 Pole Com. Trip 120/240V 22K

Item No.	Qty	Product	Description
	7	BR RESIDENTIAL BREAKERS	Type BR Breaker 20A/1 Pole 120/240V 22K

Catalog No BRH120
Designation

Qty	List of Materials
7	Type BR Breaker 20A/1 Pole 120/240V 22K

Item No.	Qty	Product	Description
	1	BR LOAD CENTERS	1Ph/BR Loadcenter 125A Mod-Line 12/24 Cir. Al Bus

Catalog No BR1224N125R
Designation

Qty	List of Materials
1	1Ph/BR Loadcenter 125A Mod-Line 12/24 Cir. Al Bus

Eaton Selling Policy 25-000 applies.

All orders must be released for manufacture within 90 days of date of order entry. If approval drawings are required, drawings must be returned approved for release within 60 days of mailing. If drawings are not returned accordingly, and/or if shipment is delayed for any reason, the price of the order will increase by 1.0% per month or fraction thereof for the time the shipment is delayed.



Powering Business Worldwide

TYPE BR LOADCENTER RATINGS:

Enclosure:	Outdoor NEMA 3R
Incoming Main:	Convertible (BR)
Loadcenter Electrical Rating:	120/240 VAC, Single Phase
Bus Bar Ampere:	125 Amps Max
Number of Spaces & Circuits:	See Table on Page 2
Incoming Wire Range:	See Convertible Kit Wire Range on Page 2
Bus Bar Material:	Tin Plated Aluminum (Standard)
Trim Type:	Outdoor Surface
Trim Paint:	ANSI 61 Light Gray
Short Circuit Rating:	See Branch Breaker Ratings
Box Dimensions:	14.3"W x 5.2"D x "A" (See Table on page 2)

FEATURES:

Steel Backpan - For reliable breaker mounting.

Single keyhole mounting - One keyhole at top and bottom for mounting and leveling.

Split Neutral Bar Assembly - For better management of load wires.

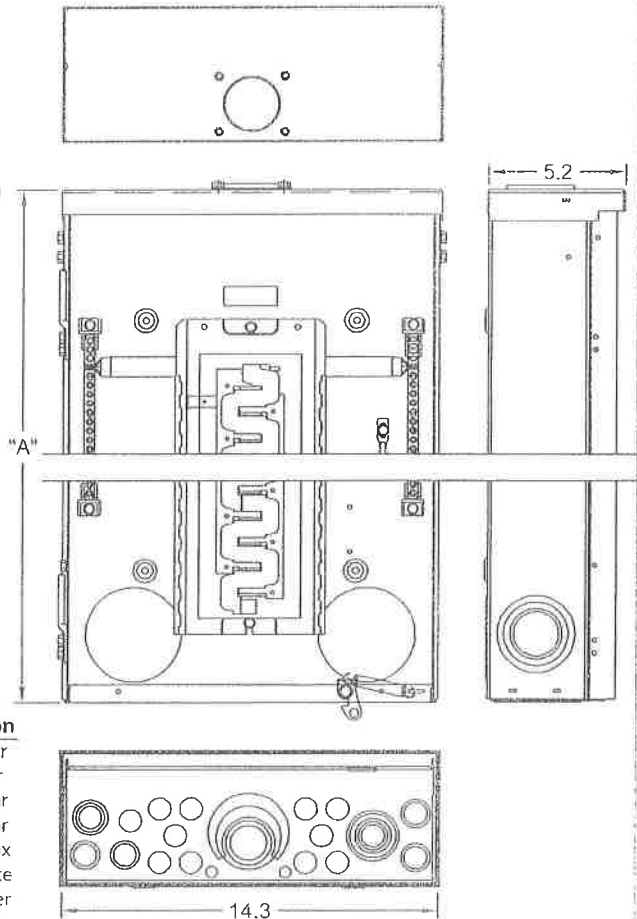
Drywall marking on Enclosure - Indicates mounting depth for flush applications

Top or bottom feed - Acceptable for either top or bottom applications.

Warranty - 10 year limited warranty on all BR Loadcenters and Breakers.

OPTIONAL ACCESSORIES:

Catalog Number	Description
GBK5	5 POS #14-4 Ground Bar
GBK10	10 POS #14-4 Ground Bar
GBK14	14 POS #14-4 Ground Bar
GBK21	21 POS #14-4 Ground Bar
NL20	Neutral/Ground Lug #2/0 max
BRFP	1" Filler Plate
BREQS125	Hold-down kit for Type BR breaker
BR230SUR	BR 2P 30A Circuit Breaker w/ Surge Protection



TITLE BR 1" LOADCENTER, BR CONVERTIBLE, OUTDOOR NEMA 3R, 120/240 VAC, 1 PHASE

DRAFTER/DESIGNER
M. Egan

DATE (YYYY/MM/DD)
2014/06/27

EATON CORPORATION - CONFIDENTIAL AND PROPRIETARY
NOTICE TO PERSONS RECEIVING THIS DOCUMENT AND/OR TECHNICAL INFORMATION
THIS DOCUMENT, INCLUDING THE DRAWING AND INFORMATION CONTAINED THEREON, IS CONFIDENTIAL AND IS THE EXCLUSIVE
PROPERTY OF EATON CORPORATION, AND IS HEREBY ON LOAN AND SUBJECT TO RECALL BY EATON AT ANY TIME. BY TAKING
POSSESSION OF THIS DOCUMENT, THE RECIPIENT ACKNOWLEDGES AND AGREES THAT THIS DOCUMENT CANNOT BE USED IN ANY
MANNER ADVERSE TO THE INTERESTS OF EATON AND THAT NO PORTION OF THIS DOCUMENT MAY BE COPIED OR OTHERWISE
REPRODUCED WITHOUT THE PRIOR WRITTEN CONSENT OF EATON. IN THE CASE OF CONFLICTING CONTRACTUAL PROVISIONS THIS
NOTICE SHALL GOVERN THE STATUS OF THIS DOCUMENT.

© 2014 Eaton Corporation. All Rights Reserved

SIZE
A

DRAWING
NUMBER

98-1094

REVISION
001



UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN
INCHES

SCALE
1=6

SHEET
1 OF 2

080_AFI4_PORT_ACAD_CUSTOMER.DWG

GO/NEG-Alt-Date:
K8280715X4K1-0000-2/2/2015

Item Number:
BR1224N125R

Job Name:
SALT STORAGE

Designation:



Powering Business Worldwide

LOADCENTER DETAILS

Catalog #	Dim "A"	Main Brkr Amps*	Spaces / Circuits	Bus Material	Wire Size Range Cu/Al 60°C or 75°C*	Notes
BR1224N125R	18.75	N/A	12/24	Alum.	see below	
BR1224NC125R	18.75	N/A	12/24	Cu.	see below	
BR1224N125RG	18.75	N/A	12/24	Alum.	see below	14 ground terminals included
BR1624N125R	21	N/A	16/24	Alum.	see below	
BR2024N125R	25	N/A	20/24	Alum.	see below	
BR2024NC125R	25	N/A	20/24	Cu.	see below	

*Varies Depending on Main Breaker or Main Lug Only Application of Loadcenter

Main Breaker Kits

Catalog Number	Ampere Rating	Wire Size Range
BR2100N	100	#2-300 kcmil
BRH2100N	100	#2-300 kcmil
BRHH2100N	100	#2-300 kcmil
BR2125N	125	#2-300 kcmil
BRH2125N	125	#2-300 kcmil
BRHH2125N	125	#2-300 kcmil

Main Lug Kits

Catalog Number	Ampere Rating	Wire Size Range
BRSF125	100	#6-2/0
BRSF125	125	#6-2/0

Note: Catalog Numbers may have additional characters at the end which describe alternate details, including but not limited to the following: S, F, W, G, GK, PK, PB, SF, RN, MI, V and #s. Contact sales for those specific details when necessary.

TITLE BR 1" LOADCENTER, BR CONVERTIBLE, OUTDOOR NEMA 3R, 120/240 VAC, 1 PHASE		DRAFTER/DESIGNER M. Egan	DATE (YYYYMMDD) 2014/06/27
EATON CORPORATION - CONFIDENTIAL AND PROPRIETARY NOTICE TO PERSONS RECEIVING THIS DOCUMENT AND/OR TECHNICAL INFORMATION THIS DOCUMENT, INCLUDING THE DRAWING AND INFORMATION CONTAINED THEREON, IS CONFIDENTIAL AND IS THE EXCLUSIVE PROPERTY OF EATON CORPORATION AND IS MERELY ON LOAN AND SUBJECT TO RECALL BY EATON AT ANY TIME. BY TAKING POSSESSION OF THIS DOCUMENT, THE RECIPIENT ACKNOWLEDGES AND AGREES THAT THIS DOCUMENT CANNOT BE USED IN ANY MANNER ADVERSE TO THE INTERESTS OF EATON AND THAT NO PORTION OF THIS DOCUMENT MAY BE COPIED OR OTHERWISE REPRODUCED WITHOUT THE PRIOR WRITTEN CONSENT OF EATON. IN THE CASE OF CONFLICTING CONTRACTUAL PROVISIONS THIS NOTICE SHALL GOVERN THE STATUS OF THIS DOCUMENT. © 2014 Eaton Corporation, All Rights Reserved		SIZE A	DRAWING NUMBER 98-1094
		UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES SCALE 1"=1"	REVISION 001 SHEET 2 OF 2



DSD_AFI_N_POR : _ACAD_CUSTOMER.DWG

GO/NEG-AIT-Date:
K8280715X4K1-0000-2/2/2015

Job Name:
SALT STORAGE

Item Number:
Catalog Number:
BR1224N125R

Designation:

Technical Documents

Type CH Loadcenters and Circuit Breakers

DS100H1



Description

Group 1—for use with 70, 100 and 125A MLO and MCB loadcenters and circuit breaker enclosures, and the following 150 and 200A panels: CH8B150RF, CH8B200RF

Group 2—for use with 150, 200 and 225A MLO and MCB loadcenters and circuit breaker enclosure except for the following 150 and 200A panels: CH8B150RF, CH8B200RF

Adapter kit—allows installing a Group 1 hub on devices arranged for Group 2 hubs

Group 1—small blank hub closure plate

Group 2—large blank hub closure plate

Conduit Size Inches (mm)	Ordering Quantity ²⁾	Catalog Number
0.75 (19.1)	1	DS075H1
1.00 (25.4)	1	DS100H1
1.25 (31.8)	1	DS125H1
1.50 (38.1)	1	DS150H1
2.00 (50.8)	1	DS200H1
2.00 (50.8)	1	DS200H2
2.50 (63.5)	1	DS250H2
3.00 (76.2)	1	DS300H2
—	1	DS900AP
—	1	DS900CP1
—	1	DS900CP2

GBK14



Description (See Legend)

	Length Inches (mm)	Ordering Quantity ²⁾	Catalog Number
	2.54 (64.5)	1	GBK5 ²⁾
	3.59 (91.2)	1	GBK520 ²⁾
	4.29 (109.0)	1	GBK10 ²⁾
	5.34 (135.6)	1	GBK1020 ²⁾
	4.61 (117.1)	1	GBK13 ²⁾
	5.69 (144.5)	1	GBK14 ²⁾
	6.74 (171.2)	1	GBK1420 ²⁾
	8.14 (206.8)	1	GBK21 ²⁾
	9.19 (233.4)	1	GBK2120 ²⁾
	7.94 (201.7)	1	CH9GP21 ²⁾

Ground Bar Legend

- = (3) #14-#10 Cu/Al or (1) #14-#4 Cu/Al
- = (1) #6-2/0 Cu/Al
- = (1) 1/0-14 or (3) #10-12 Cu/Al
- = (1) #14-1/0 Cu/Al or (3) #14-#10 Cu/Al
- = Mounting hole

Maximum Amperes	Three-Phase Loadcenter Types of Panels	Kit Catalog Number ⁶⁾
125	12-32 circuit main lug	CHGRD1
225	Main lug and CHH main breaker panels	CHGRD2
	CC main CB panels	CHGRD3

Description

Split neutral kit for 22 circuit 125A maximum	CHSN125C
Split neutral kit for 32 circuit 200A maximum	CHSN225J
Split neutral kit for 42 circuit 200A maximum	CHSN225K
Replacement neutral for all C type boxes	CHN125C
Replacement neutral for all D type boxes	CHN125D
Replacement neutral for all L type boxes	CHN225L
Isolated Neutral Assembly (computer circuits)	BINA

Notes

- ²⁾ Must be purchased in multiples of ordering quantities indicated.
- ²⁾ Distance between mounting holes is 1-3/4 inches (44.5 mm).
- ³⁾ For single- and three-phase 400A loadcenters.
- ⁴⁾ Distance between mounting holes is 2-13/32 inches.
- ⁵⁾ Cannot be used in Safety Breaker Panels. Classic Plus Panels only.

Type BR Loadcenters and Circuit Breakers

Overview

Product Selection Guide

Description

Service

Single-phase, three-wire, 120/240 Vac

Three-phase, four-wire, 208Y/120 Vac

Three-phase, three-wire, 240 Vac delta

Short-Circuit Current Rating

10 kAIC: All single- and three-phase loadcenters 70–225 A, 8 to 42 circuits

22 kAIC: All convertible loadcenters using 125 A rated Type BRH main breakers or selected factory-installed 125 A rated Type BRH main breaker

25 kAIC: All convertible and factory-installed single-phase loadcenters rated 150 and 200 A using Type CSR main breakers

Main Breaker/Main Lug Loadcenters

Single-phase

Main breaker: 100, 125, 150, 200, 225, 400, 600 A

Main lugs: 70, 125, 150, 200, 225, 400, 600 A

Three-phase

Main breaker: 100, 125, 150, 200, 225, 400, 600 A

Main lugs: 100, 125, 150, 200, 225, 400, 600 A

Convertible Loadcenters

Main breaker: single-phase up to 200 A and three-phase up to 225 A

Main lugs: single-phase up to 200 A and three-phase up to 150 A

Branch Breakers

Types BR, BRH and BRHH: 10–150 A, single-, two- and three-pole; selected amperage available in switching duty, HACR, shunt trip and high magnetic setting

Type GFCB: 15–60 A

Types BJ and BJH: 125–225 A; two- and three-pole

Type BD Twin: 10–50 A; two of one-pole; take one 1-inch (25.4 mm) space

Type BQ and BQC Multibreaker: 15–30 A, two of two-pole or one two-pole and two one-pole; takes two 1-inch (25.4 mm) spaces

Type BRW: 15–30 A; two-pole water heater breakers

Type BRSN: 15–30 A; two-pole switching neutral breakers

Type BR 15–100 A; two-pole, 240 Vac delta breakers

BR-AFCI arc fault circuit interrupter

Enclosures

NEMA Type 1 indoor

NEMA Type 3R outdoor

NEMA 4X

Meets or exceeds UL requirements for indoor or outdoor applications

Loadcenter and Breaker Accessories

Branch circuit breaker:

Auxiliary components

Lockoffs

Hold-down kits

Lockdogs

Handle ties

Complete line of ground bar kits 5, 10, 14 and 21 circuit, some with additional #2/0 lugs; each terminal will accommodate: (3) #14–#10 Cu/Al or (1) #14–#4 Cu/Al

Main and sub-feed lugs 125, 150, 225 A—two- and three-pole

Shunt trips

Surge protection:

Single-phase plug-on surge protector

Three-phase bottle type surge protector

Single-phase bottle type surge protector

Single-phase whole home surge protector

Universal rainproof conduit hubs

Group One: 3/4, 1, 1-1/4, 1-1/2, 2 inches (19.1, 25.4, 31.8, 38.1, 50.8 mm)

Group Two: 2, 2-1/2, 3 inches (50.8, 63.5, 76.2 mm)

Adapter plate

Bussing

Tin-plated aluminum as standard

Limited copper bus panels available

Loadcenters and Circuit Breakers

12

Type BR Loadcenters and Circuit Breakers

Product Description

Loadcenters are enclosures specifically designed to house the branch circuit breakers and wiring required to distribute power to individual circuits. They contain either a main breaker when used at the service entrance point or

Insulated/Bondable Single Neutral

Panels are supplied with a single insulated neutral. For service entrance applications, all that is required to bond the neutral is to loosen the

Neutral and Ground Terminals

The standard terminals on grounds and neutrals are rated to accept (3) #14-#10 Cu/Al or (1) #14-4, provided the cables terminated are of the same material. For larger

Date Code

The date of manufacture of each loadcenter is printed on the outside of the carton as well as inside the loadcenter. On the carton, the date code is printed on the end carton

Loadcenters and Circuit Breakers

Type BR Loadcenters and Circuit Breakers

Extra 1.5 inch Knockout
(38.1 mm)

- Larger knockout provides easier installation and time savings

Top or Bottom Feed

- Straight-in wiring saves labor and material
- One panel for either top or bottom applications

2/0 Lug

- Easily removable and can be installed in any location on the neutral bar

Type BR AFCI Breakers

- Compact design for easier wiring and improved wireway access
- Optional LED indicates one of six trip codes for circuit diagnostics
- Provides a clean gutter space

Standard Tin-Plated Aluminum Bus

- Excellent conductivity and corrosion resistance
- Copper bus options available for select catalog numbers

Drywall Marking on Enclosure

- Indicates proper mounting depth for flush applications

"Tangential" Center Knockout

- Easier installation for conduit applications

Commercial Grade Main Breaker

- 25 kAIC series rated main breaker for superior protection

Neutral Bus (Strip)

- Is easily removable for sub-panel applications

Bonding Z-Strap

- Provides easy field conversion for service entrance applications

Twin Neutral Bars

- Minimum 150% neutral capacity

Steel Backpan

- Provides solid and reliable breaker mounting—single piece design for stability and durability

Single Keyhole Mounting

- One keyhole at the top and bottom provides easier mounting and leveling

Warranty

10-year warranty on all Type BR loadcenters and circuit breakers.

Type BR Loadcenters and Circuit Breakers

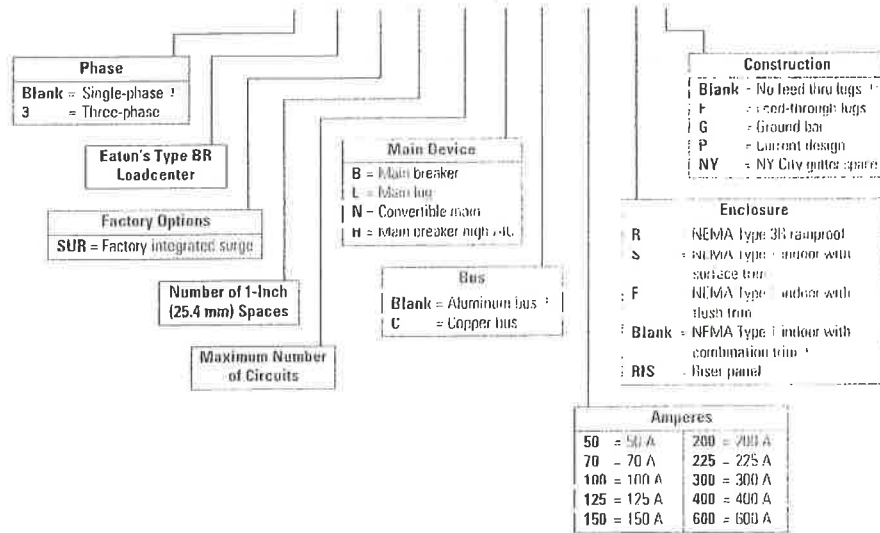
Standards and Certifications

UL Listings

All Eaton Type BR loadcenters are listed under UL File E52977 except the 2–8 circuit loadcenters, up through and including 125 A, which are listed under UL File E8741.



Catalog Number Selection



Note

① No character space used.

Type BR Loadcenters and Circuit Breakers

Technical Data and Specifications

General

- A. The Contractor shall furnish and install deadfront loadcenters incorporating circuit breakers of the number, rating and type as specified herein and as shown on the contract drawings.
- B. The loadcenter and all components shall be designed, manufactured and tested in accordance with the latest applicable standards of UL, NEMA and NEC including:
 - 1. UL 67—Standards for Panelboards.
 - C. UL 50—Standards for Cabinets and Boxes.
 - D. UL 489—Standards for Molded Case Circuit Breakers.
 - E. UL 869—Standards for Service Equipment.
 - F. Federal Specification W-C 375B—Circuit Breakers.
 - G. Federal Specification W-C P115b—Panel Power Distribution Type 1, Class 2.

Qualifications

- A. The manufacturer of the loadcenter shall be the manufacturer of the circuit breaker within the loadcenter.
- B. For the equipment specified herein, the manufacturer shall be ISO 9000 certified.
- C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of seven (7) years.

Manufacturers

- A. Eaton.

Ratings

- A. Loadcenters shall be rated for 120/240 Vac and shall have short-circuit ratings as shown on the drawings or as herein scheduled, but not less than 10,000 amperes rms symmetrical.
- B. Circuit breakers shall be a minimum of 125 A frame. Circuit breakers 15 through 125 A trip size shall take up the same pole spacing.
- C. Loadcenters shall be labeled with a UL short-circuit rating. When series combination ratings are applied with integral or remote upstream devices, a label shall be provided. Series combination ratings shall cover all trip ratings of installed frames. It shall state the conditions of the UL series ratings including:
 - 1. Size and type of upstream device.
 - 2. Branch devices that can be used.
 - 3. UL series short circuit rating.

Construction

- A. All interiors, with the exception of the branch circuit breakers, shall be completely factory assembled with main breakers, main lugs, or no main device.
- B. Interiors shall be designed so that circuit breakers can be replaced without disturbing adjacent units and without removing the main bus connectors and shall be designed so that circuits may be changed without machining, drilling, or tapping.

- C. Physical means shall be provided to prevent the installation of more overcurrent devices than that number for which the enclosure was designed, rated and approved. Half-size breakers shall have a UL listed rejection tab over the line terminals. Loadcenter interiors must have notched stubs to accept these rejection tab class CTL breakers, if required and approved.

Bus

- A. Busbars for the main and cross connectors shall be (tin-plated aluminum) (copper) in accordance with Underwriters Laboratories standards. Busing shall be braced throughout to conform to industry standard practice governing short-circuit stresses in loadcenters.
- B. Neutral busing shall have a suitable lug for each outgoing feeder requiring a neutral connection of same ampacity as branch.

Note: Note to spec writer—select one (copper available in limited ratings).

Wiring/Termination

- A. All wire connectors and terminals shall be of the anti-turn solderless type and shall be suitable for copper or aluminum wire of the sizes indicated. All connectors must meet the "Requirements for Wire Connectors and Soldering Lugs" as stated in UL 486B.
- B. All loadcenters where marked shall be suitable for use with 60 °C or 75 °C rated wire.

Circuit Breakers

- A. Circuit breakers shall be molded case type. Circuit breakers shall have four-rivet construction (GFI Type—5 rivets). Multipole circuit breakers shall be of a stack pole design to provide electrical phase isolation.
- B. Each pole of the circuit breaker will provide inverse time delay overload and instantaneous short-circuit protection by means of both thermal and magnetic sensors.
- C. The circuit breaker calibration shall not be affected by environmental changes in relative humidity. The thermal bimetal element shall be welded to the steel frame and calibration shall be set independent of the molded case by computer controlled equipment.
- D. All circuit breakers shall be operated by a toggle-type handle and multipole circuit breakers shall have an internal common trip mechanism. The circuit breakers shall incorporate trip mechanisms that are mechanically trip-free from the handle. The handle position shall provide visual trip indication.
- E. Contacts shall be of non-welding silver alloy.
- F. All circuit breakers shall have the trip rating inscribed on the handle on each circuit breaker pole. Also, unique color-coded cases that indicate the UL listed 10 kA or 22 kA interrupting ratings. Breakers shall be able to be used as main or branch disconnect devices.

Type BR Loadcenters and Circuit Breakers

- G. Branch circuit breakers may also be used in the 1/2-inch (12.7 mm) per pole ratings that include two-pole 1-inch (25.4 mm) wide modules and four-pole 2-inch (50.8 mm) wide modules. Two-pole circuit breakers must incorporate a common trip mechanism. The exclusive CTL rejection tab feature shall be provided to limit the number of branch devices for a loadcenter to 42, in compliance with NEC Article 384.15.
- H. Circuit breakers shall be completely enclosed in a molded case of thermoset material. No internal aluminum parts shall be used. All internal ferrous parts shall be plated to prevent corrosion.
- I. All terminals shall be listed for use with copper or aluminum conductors. Terminals shall be of the box lug or clamp type design. The terminals shall meet UL 486B requirements and shall be suitable for use with either 60 °C or 75 °C wire.
- J. The calibrated bimetal assembly shall be mechanically isolated from the load terminal using a flexible braided copper shunt wire, such that movement of the terminals due to twisting and overtightening does not affect breaker calibration.
- K. Breakers shall be SWD rated and/or HACR rated as required.
- L. Arc Fault Interrupting circuit breakers, (AFI), shall be provided on all 15 and 20 A single-phase 120/240 Vac circuits except those indicated as remote controlled breakers. AFI breakers shall be "Classified for mitigating the effects of arcing faults," or conforming to UL Standard 1699 and as defined by Article 210.12 Section A of the 1999 NEC Code.
- C. The deadfront shall have an easy adjustment feature for flush applications.
- D. Boxes shall be factory assembled into a single rigid structure.
- E. Unless otherwise noted on drawings, hinged doors covering all circuit breaker handles shall be included in all trims. Trim doors shall not uncover any live parts in making the circuit breaker handles accessible. If key locks are required, all locks shall be keyed alike.
- F. Combination trims for flush and surface panels shall be flat and shall overlap the box by at least 5/8-inch (15.9 mm) all around. Trims shall be mounted by a screwdriver without the need for special tools.

Surge Protection Devices

See Volume 1, Tab 2 for complete details on surge protection.

Enclosures

- A. Loadcenter shall have NEMA Type 1 general purpose or NEMA Type 3R rainproof enclosures as indicated on the drawings and shall be surface or combination flush/surface mounted except where noted.
- B. Boxes shall be made from galvanized sheet steel having multiple knockouts. Rainproof boxes shall use galvanized steel or an approved coating system which meets or exceeds standards for outdoor NEMA Type 3R enclosures. Boxes shall be of sufficient size to provide at least a minimum code gutter space on all sides.

Finish

- A. Trims shall be bonderized and finished with a light gray ANSI-61 enamel. The paint finish shall be of a type to which field applied paint will adhere.

Factory Testing

- A. The standard factory tests shall be performed on the equipment provided under this section. All tests shall be in accordance with the latest version of UL and NEMA.

Product Selection

Plug-On Circuit Breakers, Types BR—10/22/42 kAIC, 120 Vac, 120/240 Vac and 240 Vac

BR120



BR215



BR320



BRH2100



BRX2125



Ampere Rating	Wire Size Range Cu/Al 60 °C or 75 °C	Single-Pole 120/240 Vac Requires One 1-Inch (25.4 mm) Space		Two-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces			
		10 per Shelf Carton 10 kAIC Catalog Number	22 kAIC Catalog Number	5 per Shelf Carton 10 kAIC Catalog Number	22 kAIC Catalog Number	42 kAIC Catalog Number	65 kAIC Catalog Number
10	#14-4	BR110	—	BR210	—	—	—
15	#14-4	BR115 ⁽¹⁾	BRH115	BR215 ⁽¹⁾	BRH215	—	—
20	#14-4	BR120 ⁽¹⁾	BRH120	BR220 ⁽¹⁾	BRH220	—	—
25	#14-4	BR125	BRH125	BR225 ⁽¹⁾	BRH225	—	—
30	#14-4	BR130	BRH130	BR230 ⁽¹⁾	BRH230	—	—
35	#14-4	BR135	BRH135	BR235 ⁽¹⁾	BRH235	—	—
40	#14-4	BR140	BRH140	BR240 ⁽¹⁾	BRH240 ⁽²⁾	—	—
45	#14-4	—	BRH145	BR245 ⁽³⁾	BRH245	—	—
50	#14-4	BR150	BRH150	BR250 ⁽³⁾	BRH250 ⁽³⁾	—	—
55	#14-3	BR150	BRH155	BR255	BRH255	—	—
60	#8-1/0	BR160	BRH160	BR260	BRH260	BRHH260	BRX260
70	#8-1/0	BR170	BRH170	BR270	BRH270	BRHH270	BRX270
80	#8-1/0	—	—	BR280	BRH280	BRHH280	BRX280
90	#8-1/0	—	—	BR290	BRH290	BRHH290	BRX290
100	#8-1/0	—	—	BR2100	BRH2100	BRHH2100	BRX2100
110	#8-1/0	—	—	BR2110	BRH2110	BRHH2110	BRX2110
125	#4-2/0	—	—	BR2125	BRH2125	BRHH2125	BRX2125
150	#4-2/0	—	—	BR2150 ⁽⁴⁾	—	—	—

Notes

⁽¹⁾ One pole, 1-inch (25.4 mm) per pole circuit breakers are available with high magnetic setting for switching large tungsten lamp loads. Add suffix H to catalog number.

⁽²⁾ Switching duty rated.

⁽³⁾ On the black handle breaker, add suffix "B" to the catalog number to obtain a tapped molded opening for proper use with hold-down kits.

⁽⁴⁾ For use as a branch circuit breaker in 400 and 600 ampere panels only.

All Type BR single-, two- and three-pole circuit breakers carry listing for HACR application. For circuit breakers with a shunt trip, add ST suffix.

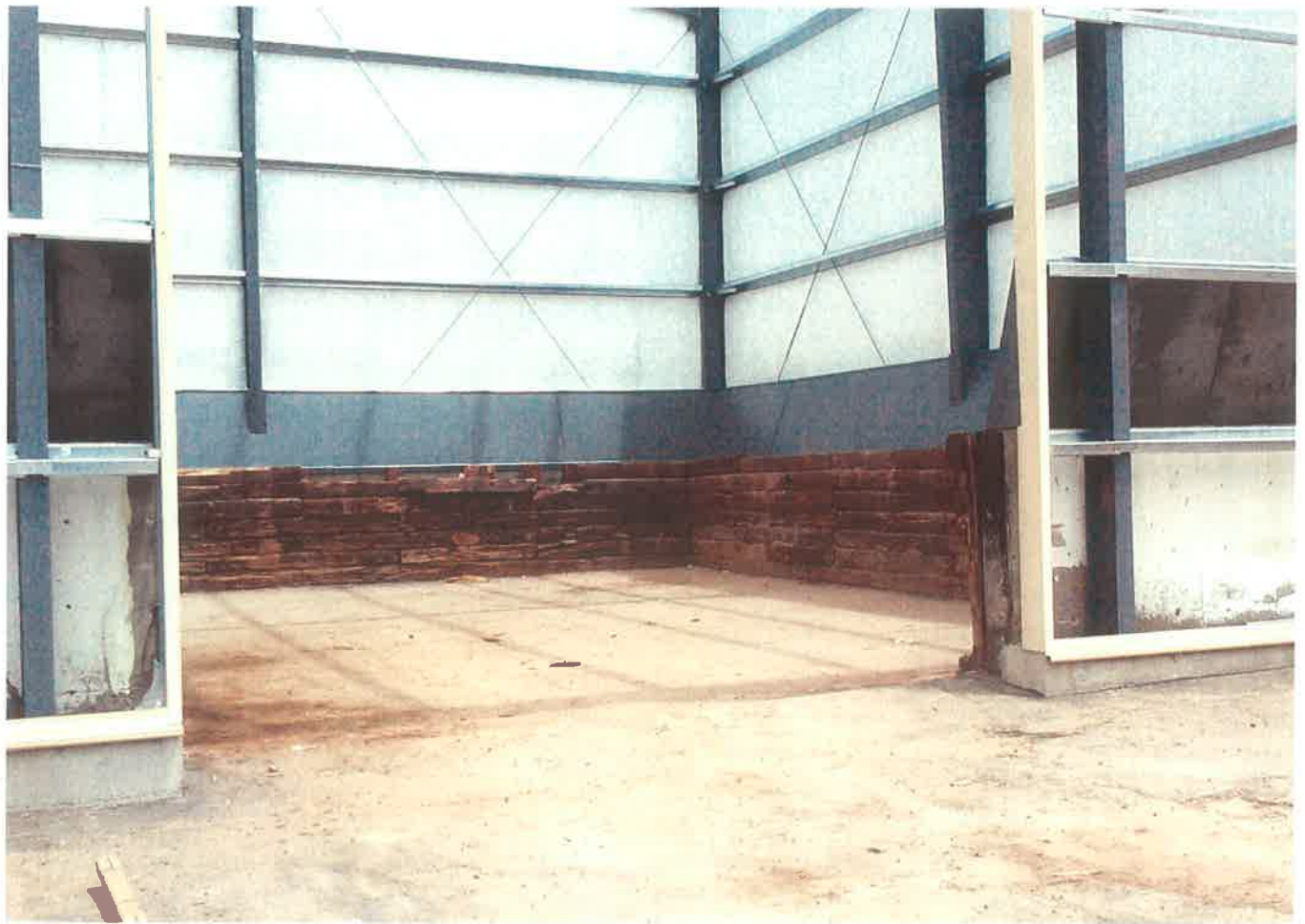
Project Photos

















CONSTRUCTION ADDRESS:

NO. 1815 STREET Broadway TYPE Blvd QUADRANT NE ZIP 87102
PROJECT NAME Salt storage building phase 2, a project for the COA street maintenance division - DMD

APPLICANT TO PROVIDE ALL INFORMATION BELOW:

LEGAL DESCRIPTION

LOT NO. 6A BLOCK NO. _____
SUBDIVISION MRGCD MAP 36
TRACT _____ PARCEL _____ UNIT _____
UNIFORM PROPERTY CODE 101 405 945 702 540 726

OWNER:

COA - Department of Municipal Development PHONE 505-857-8025
ADDRESS 5501 Pino Ave.
Albuquerque, NM ZIP 87103

ARCHITECT, ENGINEER OR DESIGNER:

Greer Stafford/SJCF Architecture, Inc.
CONTACT: Sergio A. Meza PHONE 505-821-0235
ADDRESS 1717 Louisiana Blvd. NE, Suite 205
Albuquerque, NM ZIP 87110

CONTRACTOR (COMPANY NAME):

Facility Build
CONTACT: Robert Pino PHONE 505-828-0060
ADDRESS 5904 Florence Ave
Albuquerque, NM ZIP 87113
NM STATE LICENSE NO. 88676
LICENSE CLASSIFICATION 6B98, mmr8, EE98, GF05, G504, G997
NM CRS STATE TAX NO. #02-947637-00-2
CITY TAX NO. FA 0047939

SIGN _____

DATE 1-27-14

TYPE OF APPLICATION

☒ NEW BUILDING ☐ TENANT IMPROVEMENT
☐ SHELL ONLY ☐ ALTERATION 1 2 3
☐ ADDITION ☐ REPAIR ☐ OTHER

OWNERSHIP

☐ PRIVATE ☒ PUBLIC

CONSTRUCTION DATA: (THIS PROJECT ONLY)

NUMBER OF STORIES 1
SQUARE FOOTAGE 1,935
VALUATION OF WORK \$160,676.00

NO. OF APT. OR NO. OF
MOTEL UNITS BUILDINGS

NO. OF PHASES _____ (SEE GENERAL NOTES)

OCCUPANT LOAD n/a

DESCRIPTION OF WORK:

New unconditioned road salt storage
building for the City of Albuquerque's DMD
Street Maintenance Division

☒ COMMERCIAL ☐ TRIPLEX
☐ FOURPLEX ☐ FOUNDATION ONLY

☐ PERFORMANCE BASED☒ PUBLIC (BUILT WITH PUBLIC FUNDS)☐ APARTMENT COMPLEX GREATER THAN
FOUR UNITS☐ FOUNDATION FOR MODULAR BUILDING☒ OTHER (DESCRIBE) Salt storage building,
not a conditioned spaceCITY OF ALBUQUERQUE
"SOLID WASTE"
MANAGEMENT DEPARTMENT
APPROVED

PLAN CHECK NO. 201401765
PLAN CHECK FEE \$81.54 ADJUSTED
ZONING 25 HYDROLOGY FEE 50
VALUATION OF WORK \$160,676.00
BUILDING PERMIT NO. 201497165
BUILDING PERMIT FEE \$94.68
ADDITIONAL PERMIT NUMBERS

NOTE: FINAL INSPECTIONS ARE REQUIRED ON ALL PERMITTED
WORK WHETHER A CERTIFICATE OF OCCUPANCY IS REQUIRED OR
NOT.

INITIALS PHASE YES NO

☒ CERTIFICATE OF OCCUPANCY REQUIRED?☐ SHELL CERTIFICATE OF COMPLETION REQUIRED?

APPROVALS REQUIRED PRIOR TO ISSUANCE OF CERTIFICATE?

INITIALS	PHASE	YES	NO	INITIALS	PHASE	YES	NO
JP		☐	☒ ZONING	FP		☒	☐ FIRE
SS		☐	☒ ENVIRONMENTAL HEALTH - CHPD			☐	☐ PLUMBING
SS		☐	☒ ENVIRONMENTAL HEALTH - ESD			☐	☐ MECHANICAL
W		☐	☒ SOLID WASTE			☐	☐ ELECTRICAL
W		☐	☒ TRANSPORTATION DEVELOPMENT			☐	☐ BOILER
W		☐	☐ HYDROLOGY			☐	☐ ELEVATOR
PC		☒	☐ BUILDING CODE				

IS THIS DEVELOPMENT WITHIN 1000 FT.
OF A FORMER LANDFILL SITE?

☐ YES ☒ NO

GENERAL NOTES

SEPARATE PERMITS ARE REQUIRED FOR:
RETAINING WALLS, GARDEN WALLS, FENCES AND
SIGNS; PLUMBING, GAS AND ELECTRICAL WORK.

Plan review progress and comments are now available on our website

www.cabq.gov/planning/bldgsafety/, Quick Links, Plan Review Comments. You must have your
plan check number and please allow 24 hours for comment update.

- Phase projects must be approved at submittal.
- One set of approved plans shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.
- For foundation-only permits, a separate set of plans must be submitted. Plumbing, mechanical and electrical work in/under the slab shall be inspected and approved before any concrete is poured.
- The issuance of a permit does not guarantee that the permit holder (owner) will receive a Certificate of Occupancy upon completion of construction. It is the permit holder's responsibility to comply with all of the requirements for a Certificate of Occupancy including obtaining water and sanitary sewer service, electrical service and natural gas service.
- The issuance of this building permit does not constitute a guarantee of water and sanitary sewer service. Such availability is determined by the Albuquerque Bernalillo County Water Utility Authority (ABCWUA).
- City-approved street and alley top-of-curb elevations shall be used when establishing lot grades and rear property lines. In the event that these approved elevations are not used, the City assumes no responsibility for loss of access to property or damage to property-line walls upon construction of streets, alleys, curbs and gutters.
- Gates in walls or fences on private or public property shall not swing over sidewalks, streets, alleys or other public right-of-way.
- Toilet facilities for the workers shall be provided at all construction sites.
- Portable buildings issued a foundation only permit may be required to meet additional Environmental Health Department requirements.
- NOTICE: Even if the Planning Department has approved your plans and/or issued permits, BEFORE you begin any construction, renovation, demolition or surface disturbance, you may have to obtain additional permits or submit notifications. Examples: Fugitive Dust Control Permit, Stationary Source Permit (for emergency backup generator, gas station, paint and body shops, dry cleaners) and Asbestos Notification. For a list of other sources that require air quality permits, please go to www.cabq.gov/airquality/. For more information, contact the Air Quality Division at 505-768-1972.

SOLID WASTE DISPOSAL

(505) 761-8100

- A final inspection by the plan reviewer of the Solid Waste Management Department (SWMD) is required. Required refuse container(s) shall be in place before a Certificate of Occupancy will be issued.
- An inspection by the SWMD plan reviewer is required before the concrete slab or apron is poured.
- Each customer shall provide their own refuse container(s).
- Contact the SWMD at least thirty (30) days prior to occupancy to start service.
- Proposed construction complies with the Albuquerque Municipal Refuse Collection Service Ordinance (Ordinance 42-1980, as amended).

PLANS DISAPPROVED _____ DATE _____

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED Joe Whorke 6/31/2014 DATE _____

PLANS CORRECTIONS REQUIRED: (INDICATE ORDINANCE SECTION REFERENCE)

Approved as long as it don't hinder any Env. Police Service
6/31/2014

ENVIRONMENTAL HEALTH

CONSTRUCTION SERVICES SECTION

(505) 924-3623

PLANS DISAPPROVED _____ DATE _____

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED _____ DATE _____

CONDITIONAL APPROVAL _____ DATE 6/30/14

- PLEASE NOTE:** Environmental Health Department administers programs that have requirements that are in addition to the general construction permit review process. A **CONDITIONAL APPROVAL** will not impede the issuance of the general construction permit. Failure to comply with the conditional approval instructions will prevent issuance of your final inspection green tag from Environmental Health. Additional requirements for business providing food to the public may be found in the 2009 FDA Food Code.

PLANS CORRECTIONS REQUIRED:

CONDITIONAL APPROVAL REQUIREMENTS:

The Environmental Health Plan Reviewer has found that the plans submitted involve an activity that may be regulated by the COA, EHD, Air Quality Division. Please see the back sheet's General Notes section for additional information.

- Any additional documentation which may be required for the granting of a conditional approval is in addition to, and separate from, the general construction permitting process. The required documentation must be submitted independently, by the applicant, to the cited Environmental Health program administration personnel. Verification that the approval condition(s) have been met will be required by plan review personnel at the time of final inspection.

ZONING

(505) 924-3857

CITY ZONE SU-2 HM ZONING MAP H14 LOT ACREAGE _____
CASE/FILE NO. _____

SECTOR DEVELOPMENT PLAN/OVERLAY MARTINEZTOWN - SANTA BARBARA

HISTORIC DISTRICT/OVERLAY _____

USE NEW STORAGE BLDG

- CAUTION ON LOCATION OF STRUCTURE:** City approval is contingent upon correct information being received from the owner's agent (architect, engineer, etc.). Zoning approval is for structures sited exactly as specified on these plans. Setbacks are measured from the lot lines. The lot line at the street right-of-way is not necessarily the curb or the edge of the sidewalk.
- Landscaping and irrigation shall be designed, installed, maintained and operated as required by the Water Conservation, Landscaping and Water Waste Ordinance, 6-1, ROA 1994.
- All construction shall be in compliance with the Solar Permit Ordinance, 14-11, ROA 1994. City approval of plans is not a guarantee of compliance with any private solar rights which may be recorded with the County Clerk pursuant to Section 14-9-1, NMSA, 1978.
- Proposed construction complies with the Comprehensive City Zoning Code, 14-16, ROA 1994.

PLANS DISAPPROVED _____ DATE _____

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED _____ DATE 6-27-14

PLANS CORRECTIONS REQUIRED: (INDICATE ORDINANCE SECTION REFERENCE)

INTERNATIONAL BUILDING CODE

(505) 924-39

- Premises shall not be occupied until a Certificate of Occupancy has been issued in accordance with Section 115 of the Uniform Administrative Code., City of Albuquerque

DESCRIPTION OF WORK STORAGE BUILDING (Road Salt Storage)

SIZE OF BLDG. (SQ.FT.) 1935 OCCUPANCY GROUP U OCCUPANCY LOAD N/A

CONSTRUCTION TYPE VB BUILDING CODE EDITION (YR.) 2009

18C

PLANS DISAPPROVED _____ DATE _____

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED Pat O'Neil DATE 8/20/14

w/ Conditions

PLANS CORRECTIONS REQUIRED: (INDICATE ORDINANCE SECTION REFERENCE)

PROVIDE MANUFACTURE DRAWING FOR STRUCTURAL
STEEL BUILDING.

PROVIDE OCCUPANCY LOAD PER TABLE 1004.1.1

8/20/14

Condition: Engineer Sealed Metal Bldg

Drawing to be Brought in prior to

Beginning work

FIRE MARSHAL

(505) 924-3611

FIRE CASE NO. 4020-14

All items listed below shall be installed in accordance with applicable fire codes prior to a building (or portion of a building) being occupied.

- All required fire hydrants shall be installed and operable before any building (or portion of the building) is occupied. An approved and adequate water supply shall be provided before any combustible materials are delivered to the building site. It shall be unlawful to occupy any portion of a building or structure until the required fire detection, alarm and suppression system have been tested and approved.

NAME OF BUSINESS STORAGE BLDG. SQUARE FOOTAGE 1936

ADDRESS 1815 BROADWAY BLVD NE

87102

OCCUPANCY GROUP U CONSTRUCTION TYPE VB

FIRE FLOW REQ'D. 1188 GPM FIRE HYDRANTS REQ'D. 1

PLANS DISAPPROVED _____ DATE 8/12/14

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED _____ DATE 8/20/14

PLANS CORRECTIONS REQUIRED: (INDICATE ORDINANCE SECTION REFERENCE)

SHOW LOCATION OF 1 REQUIRED
FIRE HYDRANT FOR THIS PROJECT.

PROVIDE 1 F.E. RATED 2A OBC.

HYDROLOGY

FLOOD HAZARD ORDINANCE CERTIFICATION (505) 924-3982

THIS SITE IS IN FLOOD HAZARD:

☒ ZONE X. NO ADDITIONAL APPROVALS ARE REQUIRED.

ZONE AE, AH, AO OR A - A FLOODPLAIN DEVELOPMENT PERMIT IS REQUIRED PRIOR TO ISSUING OF A
BUILDING PERMIT.

SEPARATE CERTIFICATION Is required prior to issuing of a Certificate of Occupancy per Floodplain permit.

All grading undertaken to construct this project shall be in compliance with the Drainage Control Ordinance.

PLANS DISAPPROVED _____ DATE _____

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED _____ DATE _____

PLANS CORRECTIONS REQUIRED: (INDICATE ORDINANCE SECTION REFERENCE)

Building needs to have gutters on south side of building & must
drain so flows will drain out towards drive pad or west
end of property.

TRANSPORTATION DEVELOPMENT

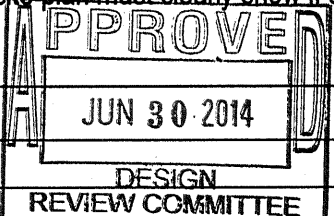
(505) 924-3991

Sidewalks, drive pads, curb cuts, and curbs/gutters require a separate excavation/barricade permit approval from
Construction Coordination (505-924-3400).

The site plan must indicate what type of curbing fronts the proposed project and if a curb cut is required. Dimension
all proposed curb cuts.

If there is no existing sidewalk along the street frontage, it must be provided at this time.

The site plan must clearly show if a curb cut is required; dimensions must be provided.



PLANS DISAPPROVED _____ DATE _____

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED _____ DATE 6/30/2014

UPC, UMC, NEC

(505) 924-3931

CODE EDITIONS (YR.):

UPC 2009 UMC 2009 NEC 2014 IECC 2009 AECC

PLUMBING REVIEW:

PLANS DISAPPROVED _____ DATE _____

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED N/A: DCK DATE 6/12/2014

MECHANICAL REVIEW:

PLANS DISAPPROVED _____ DATE _____

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED N/A: DCK DATE 6/12/2014

ELECTRICAL REVIEW:

PLANS DISAPPROVED _____ DATE 6/12/2014

PLANS DISAPPROVED _____ DATE _____

PLANS APPROVED DCK DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

PLANS APPROVED _____ DATE 8/20/2014

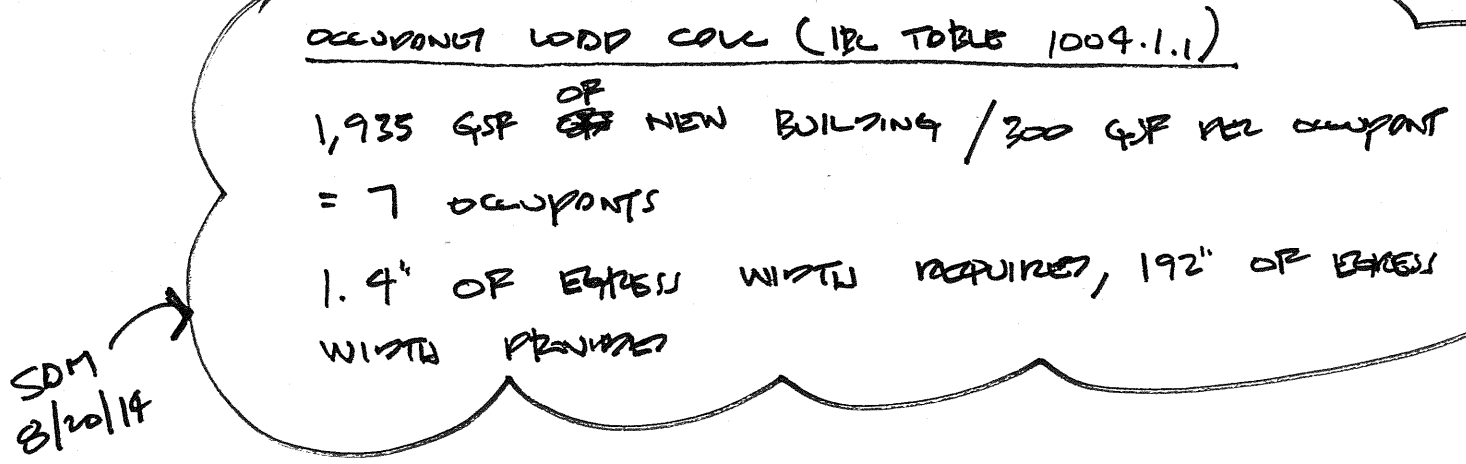
RISK MANAGEMENT

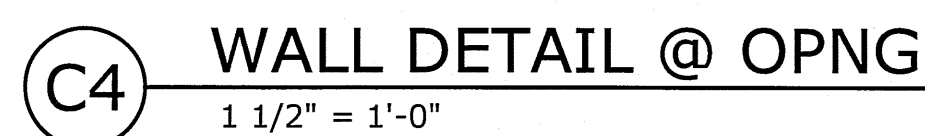
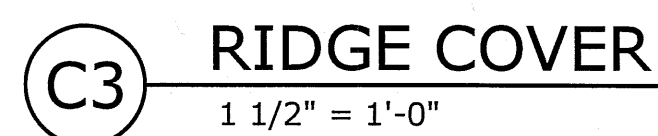
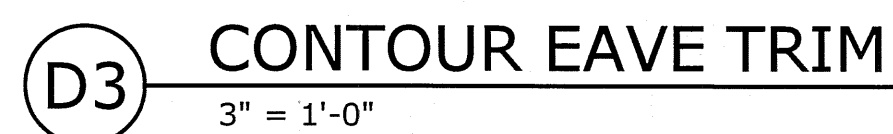
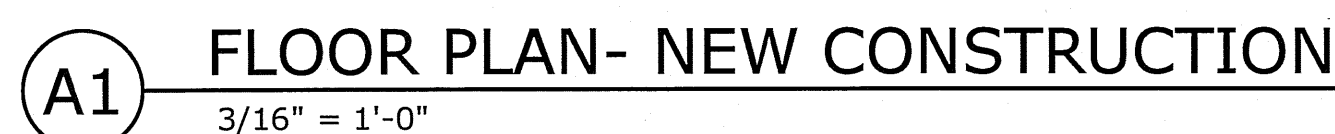
(505) 768-3225

PLANS REVIEWED _____ DATE 6-26-14

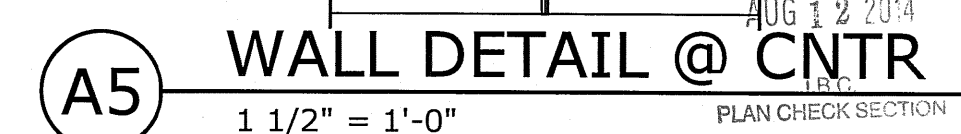
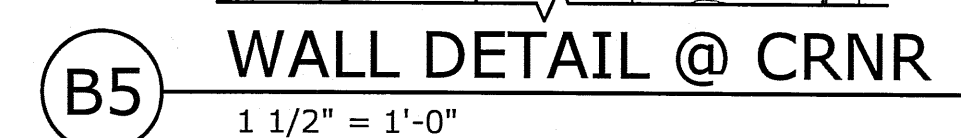
COMMENTS: No adverse comments

D





- 41 PROVIDE ZONE (1) 2A10 BC RATED FIRE EXTINGUISHING & DISCHARGE



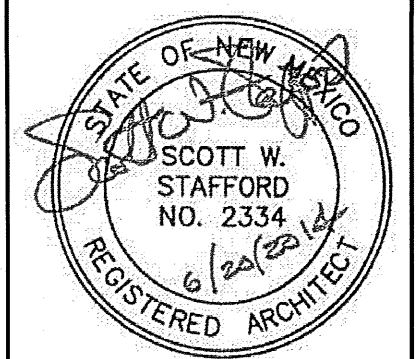
A101



WALL BASE DETAIL
1 1/2" = 1'-0"
PLAN CHECK SECTION



THIS DRAWING IS INCOMPLETE AND NOT TO
BE USED FOR CONSTRUCTION UNLESS IT IS
STAMPED, SIGNED, AND DATED BELOW



**SALT STORAGE BUILDING PHASE 2
COA - STREET MAINTENANCE**

[illegible]

PROJECT NO: 5106.06

BIM FILE:

DRAWN BY: Author

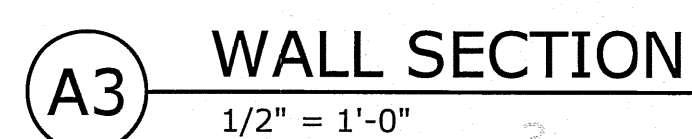
CHECKED BY: Checker

GREER STAFFORD/SICE ARCHITECTURE

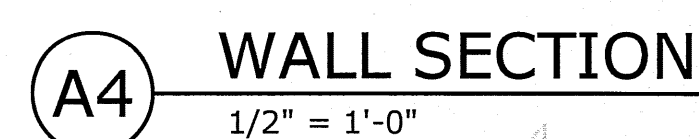
SHEET TITLE
EXTERIOR ELEVATIONS

DRAWING SHEET

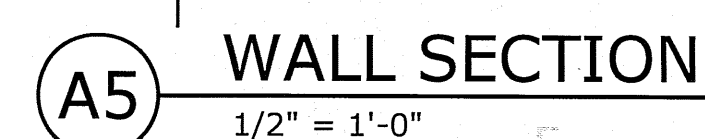
A201



KEYNOTES LEGEND

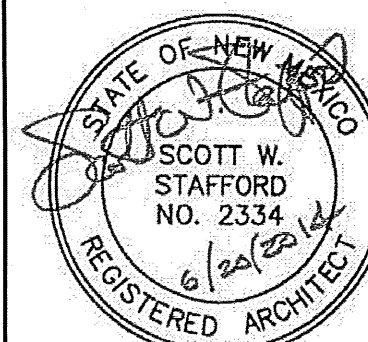


KEYNOTES LEGEND



S&G
ARCHITECTURE

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED, AND DATED BELOW.



**SALT STORAGE BUILDING PHASE 2
COA - STREET MAINTENANCE**

[illegible]

PROJECT NO: 5106.06

BIM FILE:

1000

DRAWN BY: Author

CHECKED BY: Checker

GREER STAFFORD/SJCF ARCHITECTS

SHEET TITLE	
-------------	--

BUILDING SECTIONS

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

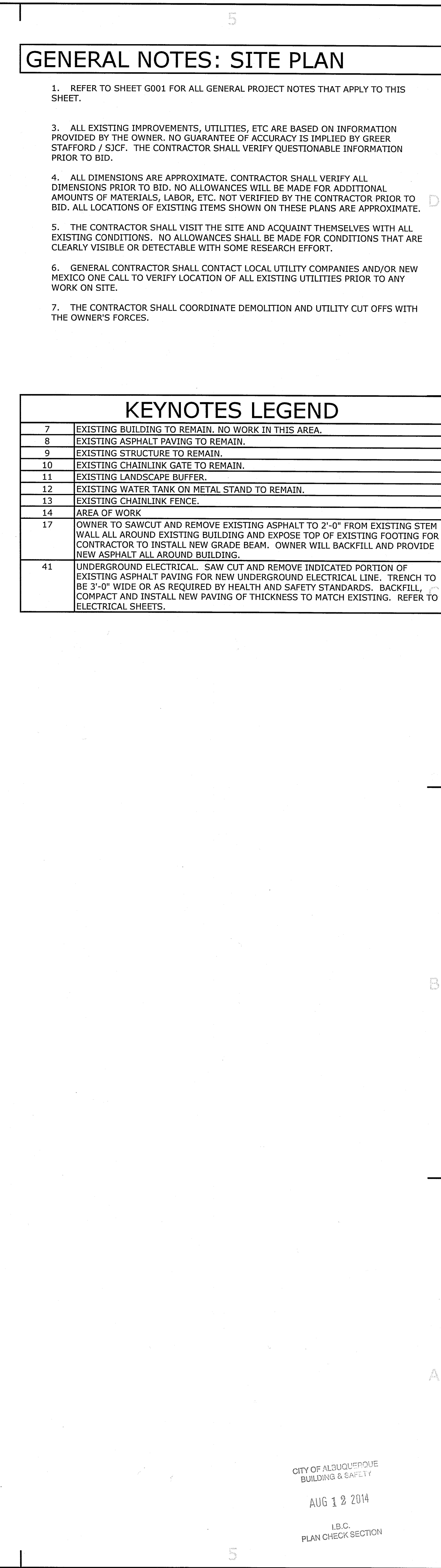
[illegible]

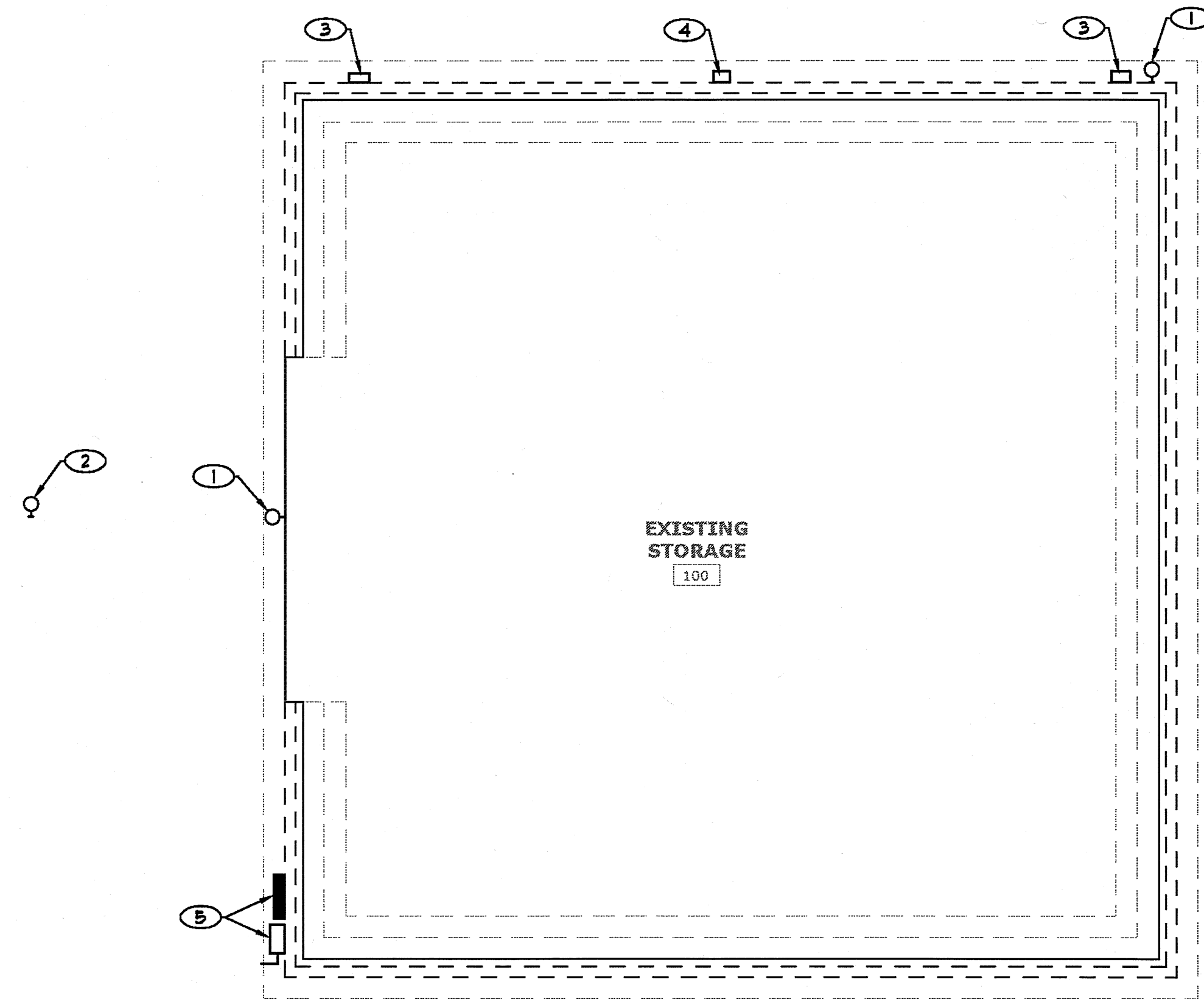
DRAWING SHEET

A 201

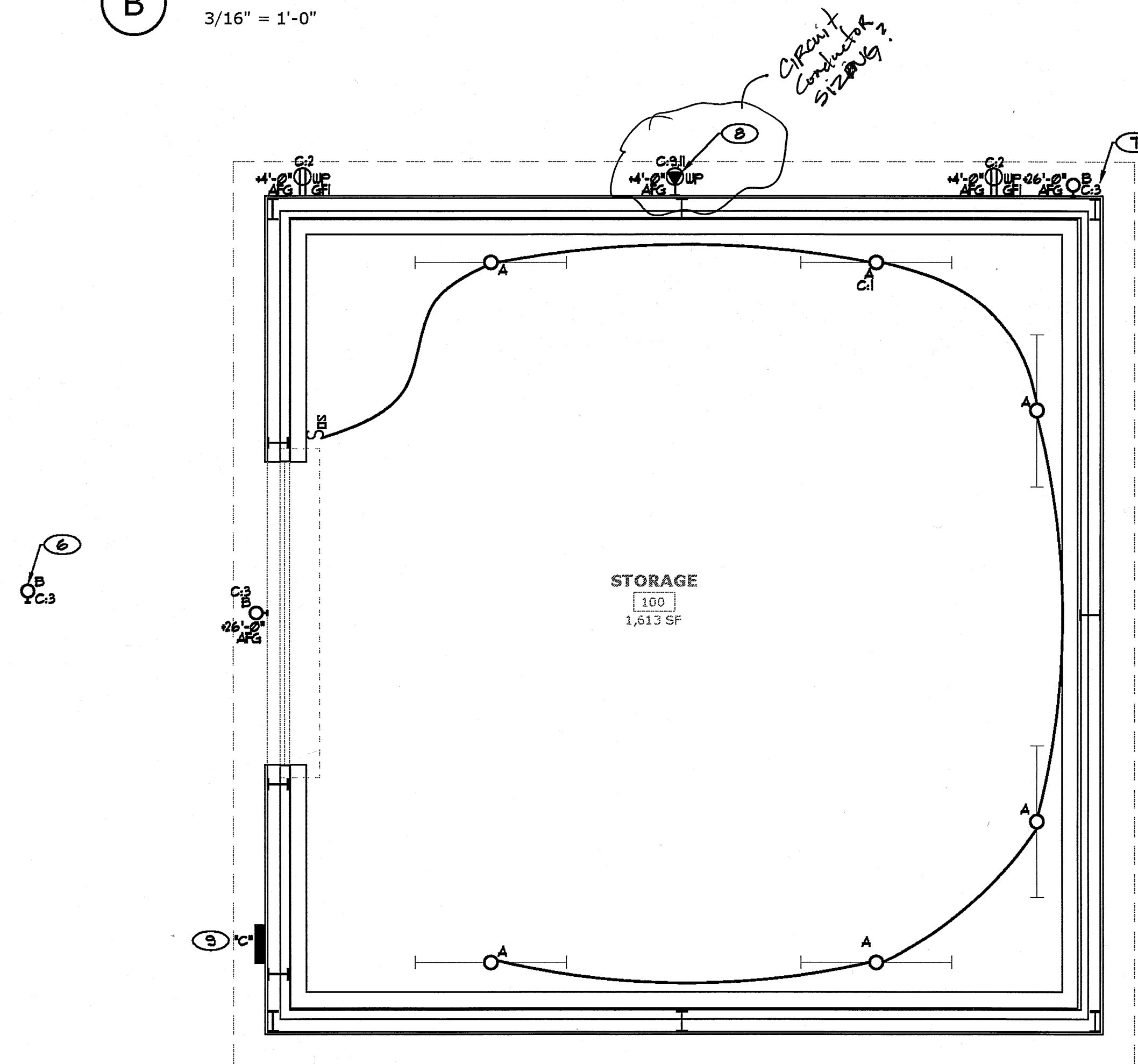
A301

1501

[illegible]



B ELECTRICAL - DEMOLITION PLAN
3/16" = 1'-0"



A ELECTRICAL PLAN
3/16" = 1'-0"

IECC CALCULATION			
INTERIOR LIGHTING POWER WATTS PER SQUARE FOOT			
ROOM	SQUARE FOOT	TOTAL WATTS	WATTS/SQUARE FOOT
WORKSHOP STORAGE	1,613	878	.54

IECC CALCULATION			
EXTERIOR LIGHTING POWER WATTS PER SQUARE FOOT			
EXTERIOR AREA	ILLUMINATED SQ. FEET	TOTAL WATTS USED	ALLOWED
COMMERCIAL DISTRICT PARKING AREA	20,648	180	2,684

KEYED NOTES

- 1 REMOVE EXISTING FLOODLIGHT MOUNTED ON BUILDING.
- 2 REMOVE EXISTING FLOODLIGHT MOUNTED ON EXTERIOR CRANE ASSEMBLY. FIELD VERIFY EXACT LOCATION. LIGHT IS APPROXIMATELY 30'-0" TO WEST OF THIS BUILDING.
- 3 REMOVE EXISTING DUPLEX RECEPTACLE.
- 4 REMOVE EXISTING 50A. RECEPTACLE.
- 5 REMOVE EXISTING DISCONNECT AND PANEL BOARD.
- 6 MOUNT ON SIDE OF RAIL CRANE. SIMILAR MOUNTING AS EXISTING LIGHT FIXTURE THAT WAS REMOVED. SEE 'KEYED NOTE 2' ABOVE. TIE INTO EXISTING CIRCUIT THAT FEED THESE LIGHTS, MAINTAIN CIRCUIT CONTINUITY.
- 7 'C3' DENOTES THAT THIS DEVICE IS FED FROM PANEL 'C' CIRCUIT '3'. (TYP.)
- 8 50A, 1 PHASE, 250V., 3 WIRE GROUNDING RECEPTACLE, NEMA 6-50R IN WEATHERPROOF 'IN-USE' ENCLOSURE. 2#6 THHN AND #10G, IN 1" CONDUIT.
- 9 PANEL 'C', SEE RISER DIAGRAM FOR MORE INFORMATION.

AUG 20 2014

I.B.C.
Plan Check Section

8/20/14

GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL ORDINANCES. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS.
2. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL DETAILS OF THE WORK AND ALL EXISTING FIELD CONDITIONS.
3. CONTRACTOR SHALL PROVIDE A COMPLETE ELECTRICAL INSTALLATION INCLUDING ALL WORK CUSTOMARILY INCLUDED EVEN IF NOT SPECIFICALLY CALLED OUT.
4. THE ELECTRICAL CONTRACTOR SHALL CAREFULLY COORDINATE HIS WORK WITH OTHER CONTRACTORS THROUGH THE GENERAL CONTRACTOR FOR SPACE REQUIREMENTS, ETC.
5. CONTRACTOR SHALL VERIFY ALL MECHANICAL EQUIPMENT NAMEPLATE DATA BEFORE ANY WORK IS DONE AND MAKE ANY ADJUSTMENTS IN BREAKER AND WIRE SIZE AS MAY BE REQUIRED AND IMMEDIATELY OBTAIN APPROVAL FROM THE ENGINEER FOR SAID ADJUSTMENTS.
6. SHOULD THE CONTRACTOR FIND DISCREPANCIES OR OMISSIONS IN THE CONTRACT DOCUMENTS OR BE IN DOUBT AS TO INTENT, HE SHALL IMMEDIATELY OBTAIN CLARIFICATION FROM THE ARCHITECT OR ENGINEER.
7. THE ELECTRICAL DRAWINGS ARE SCHEMATIC AND ARE NOT INTENDED TO SHOW THE EXACT LOCATION OF CONDUITS, OUTLETS, ETC.. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, AND PLUMBING DRAWINGS AND SHALL FIT HIS WORK TO CONFORM WITH THE BUILDING CONSTRUCTION, AND WITH THE OTHER TRADES.
8. MOUNTING HEIGHTS OF ALL WALL OUTLETS SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:
WALL SWITCHES.....4'-0"H.
RECEPTACLES GENERAL.....1'-6"H.
MANUAL FIRE ALARM STATION.....4'-0"H.
TELEPHONE.....1'-6"H.
JUNCTION BOXES.....1'-6"H.
EXITLIGHT.....CENTERLINE ABOVE DOOR
9. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT HEIGHT OF ALL COUNTER TOPS AND BACK-SPLASHES ON CASEWORK SHOP DRAWINGS, AND CHANGE SPECIFIED MOUNTING HEIGHT OF WALL OUTLETS INDICATED AS REQUIRED SO THAT BOTTOM OF OUTLET BOX IS 2" ABOVE TOP OF BACKSPLASH OR IF NO BACKSPLASH IS USED, 4" ABOVE COUNTERTOP.
10. DO NOT MOUNT OUTLETS BACK-TO-BACK. PROVIDE MINIMUM 24" SEPARATION IN FIRE RATED WALLS.
11. ALL OUTLETS IN EXPOSED CONCRETE BLOCK WALLS SHALL BE ADJUSTED AS REQUIRED TO ALLOW CUTTING OF ONLY ONE BLOCK. MAINTAIN UNIFORM HEIGHTS THROUGHOUT THE BUILDING.
12. VERIFY ALL DOOR SWINGS WITH ARCHITECT BEFORE ROUGHING LIGHT SWITCHES.
13. CONTRACTOR SHALL CHECK ALL LIGHT FIXTURES FOR EXACT TYPE MOUNTING AND SPACE REQUIRED BEFORE ROUGHING IN.
14. BRANCH CIRCUITS #12 A.W.G. AND 1/2" CONDUIT (GALVANIZED) MINIMUM. CONDUCTORS SHALL BE 98% CONDUCTIVITY COPPER, SEE SPECIFICATIONS FOR TYPE INSULATION.
15. VOLTAGE DROP: FOR 20 AMP CIRCUITS OVER 100FT. AND LESS THAN 175 FT, USE #10 CONDUCTORS. FOR 20 AMP CIRCUITS OVER 174 FEET AND LESS THAN 275 FEET, USE #8 CONDUCTORS.
16. ALL CONDUITS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION TYPE FITTINGS.
17. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD BEFORE PROCEEDING WITH SUBSEQUENT WORK. THE DESIGN TEAM SHALL BE NOTIFIED OF ANY DISCREPANCIES OR CONFLICTS WITH DRAWINGS FOR CLARIFICATION PRIOR TO PROCEEDING WITH WORK.

AUG 12 2014
I.B.C.
PLAN CHECK SECTION

GREER STAFFORD/SJCF ARCHITECTURE, INC.

1717 LOUISIANA NE, SUITE 205
ALBUQUERQUE, NM 87110-7027
(505) 821-0238 • FAX: (505) 821-0348
3005 NORTHBRIDGE DR, SUITE F
FARMINGTON, NM 87407-3085
(505) 382-7478 • FAX: (505) 382-4444



THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED, AND DATED BELOW



SALT STORAGE BUILDING PHASE 2
COA - STREET MAINTENANCE
1815 BROADWAY BLVD, NE
ALBUQUERQUE, NM 87102

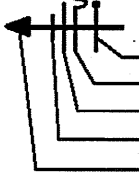
PROJECT NO: 5106.06	ISSUE: JUNE 20, 2014
SIM FILE:	
DRAWN BY: Author	
CHECKED BY: Checker	
GREER STAFFORD/SJCF ARCHITECTURE	
SHEET TITLE	
ELECTRICAL	
PLAN	

DRAWING SHEET

E101



FEEDER SCHEDULE	
SYMBOL	DESCRIPTION
(1)	NOT USED.
(2)	EXISTING 4#500Kcmil THHN CU IN 3½" C.
(3)	NEW 3#6 THHN CU AND 1#10G. IN 1½" C.
(4)	EXISTING 4#500Kcmil THHN CU AND 1#3G., IN 3½" C.
(5)	EXISTING #2 SDBC CONDUCTOR TO CONCRETE ENCASED 3/4" x 10'-0" COPPER GROUND ROD AND NEAREST METALLIC COLD WATER PIPE.

ELECTRICAL SYMBOL LEGEND	
SYMBOL	DESCRIPTION - NOTE: NOT ALL SYMBOLS MAY BE USED.
A17 A 	2'x4' RECESSED FLUORESCENT LUMINAIRE 'A' DENOTES LUMINAIRE TYPE. 'A17' DENOTES FIXTURE IS FED FROM PANEL 'A' CIRCUIT '17'.
	WALL MOUNTED LUMINAIRE
	HID LUMINAIRE
	TWIN HEAD BATTERY BACK-UP EMERGENCY LUMINAIRE, TYPE 'Q' SEE LUMINAIRE SCHEDULE, WITH 90 MINUTE BATTERY BACK.
	JUNCTION BOX
	EXIT SIGN WITH DIRECTIONAL ARROW
	EXIT SIGN AND EMERGENCY LIGHT COMBO WITH 90 MINUTE BATTERY BACKUP
	DISCONNECT SWITCH
	MOTOR, '5' DENOTES A 5 HORSEPOWER MOTOR
	HOMERUN CONDUIT: GROUND CONDUCTOR SWITCH CONDUCTOR HOT OR PHASE CONDUCTOR NEUTRAL CONDUCTOR ARROWS(S) DENOTES NO. OF CIRCUITS
A2 	DUPLEX GROUNDING STYLE RECEPTACLE, MOUNT @ 18" AFF. 'A2' DENOTES THAT THIS DEVICE IS FED FROM PANEL 'A' CIRCUIT '2.'
	DOUBLE DUPLEX GROUNDING STYLE RECEPTACLE, MOUNT @ 18" AFF.
	SPECIAL RECEPTACLE, SEE 'KITCHEN EQUIPMENT SCHEDULE' FOR MORE INFORMATION.
WP	DENOTES WEATHERPROOF
GFI or GFCI	GROUND FAULT CIRCUIT INTERRUPTER
U.D.N.	UNLESS OTHERWISE NOTED
SDBC	SOFT DRAWN BARE COPPER
	PANELBOARD SURFACE MOUNTED
	CONCEALED OR EXPOSED CONDUIT TURNED AWAY FROM OBSERVER
	CONCEALED OR EXPOSED CONDUIT TURNED TOWARD OBSERVER
	CONDUIT UNDERGROUND OR EMBEDDED IN CONCRETE
	MAIN TELEPHONE TERMINAL BOARD WITH GROUND
	METER
	CIRCUIT BREAKER
S	LIGHT SWITCH
S ₃	3-WAY SWITCH
S _T	MANUAL MOTOR STARTERS WITH THERMAL OVERLOADS
S _{DS}	DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH, SENSOR SWITCH #WSD PDT
	MECHANICAL EQUIPMENT DESIGNATION
	KEYED NOTE DESIGNATION
	KITCHEN EQUIPMENT DESIGNATION
-T-	TELEPHONE EQUIPMENT
	TELEPHONE OUTLET, MOUNT @ 18" AFF. 'W' DENOTES 'WALL' PHONE, MOUNT AT +48" AFF.
	2 JACK OUTLET, TELEPHONE AND DATA, MOUNT @ 18" AFF.
	TELEVISION OUTLET FOR CABLE TV, MOUNT @ 18" AFF. CONTACT LOCAL CABLE TV COMPANY FOR WIRING REQUIREMENTS.
F _{PE}	SMOKE DETECTOR, PHOTO-ELECTRIC
F _H	MANUAL PULL STATION
F _{FS}	FLOW SWITCH
F _{TS}	TAMPER SWITCH
	HORN-STROBE

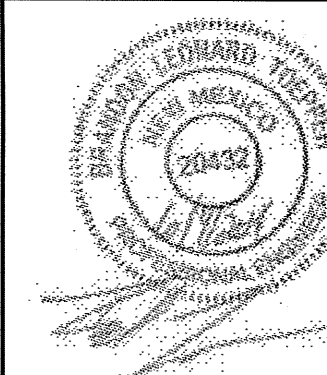
CITY OF ALBUQUERQUE
BUILDING & SAFETY

AUG 1 2 2014

GREENER STEARNS/S&P ARCHITECTURE, INC.
17177 LOUISIANA NE, SUITE 205
ALBUQUERQUE, NM 87110-7027
(505) 821-0335 • FAX: (505) 821-0348
5005 NORTHWIDGE DR, SUITE F
FARMINGTON, NM 87401-3085
(505) 325-7475 • FAX: (505) 325-6464



THIS DRAWING IS INCOMPLETE AND NOT
BE USED FOR CONSTRUCTION UNLESS IT
STAMPED, SIGNED, AND DATED BY OWN



SALT STORAGE BUILDING PHASE 2
COA - STREET MAINTENANCE

PROJECT NO: 5106.06

BIM FILE

DRAWN BY: Author

CHECKED BY: Checker

GREER STAFFORD/SJCF ARCHITECTURE

SHEET TITLE
RISER DIAGRAM AND
LEGEND

DRAWING SHEET

E102

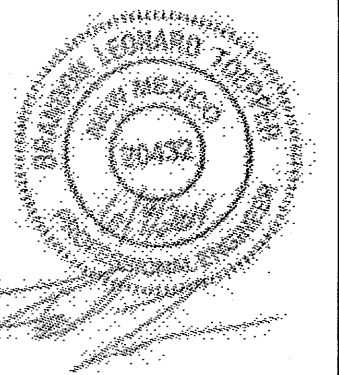
PANEL C (OLD SALLY BUILDING)																		
60A MAIN BREAKER		VOLTAGE		120 / 240		V		TYPE		LOAD CENTER		MOUNT ON		SURFACE				
		PHASE		1		PH		NOTE		PROVIDE SEPARATE NEUTRAL AND GROUND BUS BARS				NEMA 3R ENCLOSURE				
		WIRE		3		W												
22,000 AMPERE COMBINED PANEL SHORT CIRCUIT DE RATING																		
DESCRIPTION	LIGHTING		FLUORID	INCAN	RECEPT	MOTORS	OTHER	TOTAL	BREAKER		TOTAL		OTHER	MOTORS	RECEPT	FLUORID	INCAN	DESCRIPTION
									AMP / P	CCT PH	CCT	AMP / P						
LIGHTS	350							350	20 / 1	1	5	20 / 1						
EXT. FLOOD LIGHTS	150							150	20 / 1	5	5	20 / 1						EXT. OPT CONV. RECEPT.
SPACE								0	20 / 1	5	5	20 / 1						SPACE
SPACE								0	20 / 1	7	5	20 / 1						SPACE
SPECIAL RECEPT.					4000			4000	50 / 1	5	10	50 / 1						SPACE
SPECIAL RECEPT.					4000			4000	7 / 2	11	5	12 / 1						SPACE
PANEL LOADING SUMMARY																		
CONNECTED LOAD AND		PHASE LOADING SUMMARY							DEMAND LOAD SUMMARY									
LOAD TYPE	PH A	PH B	TOTAL		LOAD TYPE	CONNECTED LOAD	POWER FACTOR	DEMAND FACTOR	NEC CALCULATED LOAD									
LIGHTING					LIGHTING													
INCANDESCENT	0.0	0.0	0.0 KW		INCANDESCENT	0.0	KW @	100% =	0.0 @	125% =	0.0 KVA							
FLUORESCENT	0.7	0.2	0.9 KW		FLUORESCENT	0.9	KW @	90% =	0.9 @	125% =	1.2 KVA							
RECEPTACLES	4.4	4.0	8.4 KW		RECEPTACLES													
MOTORS	0.0	0.0	0.0 KW		FIRST 10 KW	5.4	KW @	100% =	5.4 @	100% =	5.4 KVA							
OTHER	0.0	0.0	0.0 KW		REMAINDER	0.0	KW @	100% =	0.0 @	95% =	0.0 KVA							
TOTAL	5.1	4.2	9.3 KW		MOTORS													
					LARGEST	0.0	KW @	25% =	0.0 @	125% =	0.0 KVA							
PHASE BALANCE	4.6		PANEL PF = 100%		REMAINDER	0.0	KW @	90% =	0.0 @	100% =	0.0 KVA							
	24%		MINIMUM PHL		OTHER	0.0	KW @	100% =	0.0 @	90% =	0.0 KVA							
			CAPACITY = 40		TOTAL						9.3 KVA						9.5 KVA	

GREER STAFFORD/S&J ARCHITECTURE, INC.
1777 LOUISIANA NE, SUITE 205
ALBUQUERQUE, NM 87110-7027
(505) 841-0235 • FAX: (505) 841-0348

3005 NORTHIDGE DR, SUITE F
FAIRFAX, VA 22031-2085
(703) 282-7475 • FAX: (703) 312-6464



THIS DRAWING IS INCOMPLETE AND NOT TO
BE USED FOR CONSTRUCTION UNLESS IT IS
STAMPED, SIGNED, AND DATED BELOW



COA - STREET MAINTENANCE
1815 BROADWAY BLVD, NE
ALBUQUERQUE, NM 87102

[illegible]

ECT NO: 5106.06

FILE:

OWN BY: Author

CKED BY: Checker

R STAFFORD/SJCF ARCHITECTURE

PROJECT TITLE

ELECTRICAL SCHEDULES

PRINTING SHEET

WING SHEET

E102

E103

General Electrical Requirements : (Con't.)

- D. PANELBOARDS SHALL BE SURFACE MOUNTED, WITH BOLT-ON CIRCUIT BREAKERS TYPE NQBB FOR 120/208 VOLT WITH HINGED LOCKABLE DOORS, ALL KEYS KEYS ALIKE AND TYPEPATTERN DIRECTIONS. ALL MULTIPLE BREAKERS SHALL BE SINGLE HANDLE COMMON TRIP. IF DOUBLE LINES ARE SHOWN, TOP OR BOTTOM OUTLET TO BE 12" PANELBOARD FRONT SHALL BE SHEET METAL, PAINTED MANUFACTURER'S STANDARD COLOR IF SURFACE MOUNTED AND PRIME COATED IF FLUSH MOUNTED. BRANCH CIRCUITS SHALL BE CLEARLY MARKED ON THE DEAD FRONT PANEL. PROVIDE A 1" X 2-1/8" PHENOLIC NAMEPLATE SCREWED TO THE DEAD FRONT SHEED. ALL TERMINALS SHALL BE SOLDERLESS TYPE CIRCUIT BREAKERS. SOLID NEUTRAL BUS SHALL HAVE CONNECTORS NUMBERED TO AGREE WITH BRANCH CIRCUITS. ALL CIRCUIT BREAKERS TO HAVE LOCK-OF DEVICE. USE "HACH" CIRCUIT BREAKERS FOR AIR CONDITIONING LOADS. USE "SWID" CIRCUIT BREAKERS FOR LIGHTING CIRCUITS CONTROLLED FROM PANELS. MANUFACTURER SHALL BE CHALLENGER, GE, ITE, IEMENS, CUTLERHAMMER OR SQUARE D.
- E. CONDUITS :
- CONDUIT SHALL BE RIGID STEEL GALVANIZED IMC FOR UNDERGROUND, EXPOSED UP TO +5'-0" OR IN DAMP LOCATIONS. NO RUNNING THREADS WILL BE PERMITTED. GALVANIZED EMT SHALL BE USED IN DRY CONCEALED LOCATIONS AND EXPOSED ABOVE +5'-0". EMT CONNECTORS SHALL BE WATERTIGHT COMPRESSION TYPE. GALVANIZED FLEXIBLE CONDUIT SHALL BE USED ONLY FOR MOTORS AND FUTURE CONDUITS IN LENGTHS NOT TO EXCEED 55 (6) FEET. CONDUITS PENETRATING THE ROOF SHALL BE FLASHED AND COUNTER FLASHED. P.V.C. SCHEDULE 40 MAY BE USED UNDER FLOOR SLABS OR UNDERGROUND WITH GROUND WIRE. P.V.C. UNDERGROUND TO HAVE 24 INCH MIN. COVER. SURFACE CONDUITS SHALL BE P.V.C. SCHEDULE 40 OR AS SPECIFIED BY THE UTILITY COMPANIES. INSTALL FITTINGS, SPECIAL DEVICES AND MATERIAL WHICH MAY BE REQUIRED FOR THE PROPER INSTALLATION OF THE CONDUIT SYSTEM. CONDUITS PENETRATING 1-HOUR WALLS SHALL BE SEALED WITH INTUMESCENT MATERIAL, 3M OR EQUAL, AS REQUIRED BY CODE.
- F. OUTLET BOXES SHALL :
- OUTLET BOXES SHALL BE GALVANIZED PRESSED STEEL OF 4" SQUARE X 2-1/8" DEEP MINIMUM WITH REQUIRED DEVICE RINGS, BAR HANDGERS RAYCO 8000 OR SECURED TO 2" X 4" BLOCKING WITH TWO (2) 1-1/2" #9 WOOD SCREWS. WALL OUTLETS WITH ONE (1) COMMON ENTRY MAY BE 2-1/8" SQUARE X 4" HIGH. BOXES FOR MULTIPLE DEVICES SHALL BE GANGED WITH TWO (2) 1-1/2" #9 WOOD SCREWS. WALL OUTLETS WITH TWO (2) DEVICES OF THE BOX. FLUSH MOUNTED BOXES SHALL BE PROVIDED WITH A REMOVABLE SCREW COVER EXTENDING 3/4" BEYOND THE EDGES OF THE BOX AND INSTALLED PLUMB.
 - CAST METAL PULL BOXES SHALL BE FABRICATED OF CAST IRON, HOT-DIPPED GALVANIZED, AND PROVIDED WITH GASKETED PLAIN CAST IRON COVER SECURED TO THE BOX WITH BRASS SCREWS. BOXES SHALL BE PROVIDED TO INSURE FIVE (5) FULL CONDUIT THREADS. SURFACE MOUNTED BOXES SHALL HAVE FLANGED COVER MOUNTING. FLUSH MOUNTED BOXES SHALL HAVE FLANGE RECESSED COVER MOUNTING FOR 3" CONCRETE ENCASMENT IF INSTALLED IN THE EARTH.
- G. PULL BOXES :
- SHEET PLATE PULL BOXES SHALL BE FABRICATED OF COLD CAST STEEL FINISHED WITH ONE (1) COAT OF METAL PRIMER AND ONE (1) COAT OF MANUFACTURER'S STANDARD BAKED ENAMEL. WEATHERPROOF BOXES SHALL BE NEA 3R. SURFACE MOUNTED BOXES SHALL BE PROVIDED WITH REMOVABLE SCREW COVER UNED UP ACCURATELY WITH THE EDGES OF THE BOX. FLUSH MOUNTED BOXES SHALL BE PROVIDED WITH A REMOVABLE SCREW COVER EXTENDING 3/4" BEYOND THE EDGES OF THE BOX AND INSTALLED PLUMB.
 - CAST METAL PULL BOXES SHALL BE FABRICATED OF CAST IRON, HOT-DIPPED GALVANIZED, AND PROVIDED WITH GASKETED PLAIN CAST IRON COVER SECURED TO THE BOX WITH BRASS SCREWS. BOXES SHALL BE PROVIDED TO INSURE FIVE (5) FULL CONDUIT THREADS. SURFACE MOUNTED BOXES SHALL HAVE FLANGED COVER MOUNTING. FLUSH MOUNTED BOXES SHALL HAVE FLANGE RECESSED COVER MOUNTING FOR 3" CONCRETE ENCASMENT IF INSTALLED IN THE EARTH.
- H. CONDUCTOR :
- CONDUCTORS SHALL BE 600 VOLT INSULATION TYPE THHN/THWN COPPER. CONDUCTORS CABLE #10 AND SMALLER SHALL BE SOLID, AWG #8 AND LARGER SHALL BE STRANDED.
- I. SPLICES :
- SPLICES ON CONDUCTORS #8 OR SMALLER SHALL BE SKOTHOLO SPRING CONNECTORS AND FOR LARGER SIZE CABLE USE SOLDERLESS CONNECTORS.
- J. RECEPTACLES :
- RECEPTACLES, 120 VOLT DUPLEX GROUNDING TYPE, SHALL BE SPECIFICATION GRADE 20 AMP LEVITON #3632-W AND ISOLATED GROUND RECEPTACLES LEVITON #3632-LOW. WHERE SPECIFIED BY THE ARCHITECT, INSTALL WEATHERPROOF GASKETED COVER MOUNTED ON FS BOX. PROVIDE GROUND FAULT CIRCUIT INTERRUPTERS WHERE REQUIRED BY CODE. DEDICATED RECEPTACLES SHALL BE 20 AMP, LEVITON #3632A-GY.
- K. LIGHT SWITCHES :
- SWITCHES SHALL BE TOGGLE TYPE SCHEDULE GRADE 120/277 VOLTS AC LEVITON #122Z-2W AND #122Z-2W FOR 3-WAY.
- L. PLATE :
- SHALL BE STAINLESS STEEL.
- M. TIME SWITCHES :
- THE SWITCHES SHALL BE IN NEMA 1 ENCLOSURE WITH 24 HOUR DIAL, MECHANICAL CARRY-OVER, OMITTING DEVICE AND ADJUSTABLE (OR AS SPECIFIED BY MECHANICAL) BY TROT, PARAGON OR SANGAMO.
- N. PHOTO-ELECTRIC CONTROLLERS :
- AS MANUFACTURED BY SQUARE D, TROT, PARAGON OR SANGAMO.
- O. CONTACTORS :
- AS MANUFACTURED BY AUTOMATIC SWITCH CO. OR SQUARE D.
- P. CHANNELS :
- STRUCTURAL CHANNELS SHALL BE BY KINDORF, KIN-LINE OR UNISTRUT COMPOSITE WITH ALL FITTINGS, ACCESSORIES, SWIVELS, RODS, AND INSTALLED TO STRUCTURAL MEMBERS AS DIRECTED BY THE STRUCTURAL ENGINEER.
- Q. DISCONNECT SWITCHES :
- DISCONNECT SWITCHES SHALL BE HORSEPOWER RATED, FUSED EXCEPT WHERE OTHERWISE SPECIFIED. 3-PHASE DISCONNECTS SHALL BE OPEN BREAK WITH LOCKABLE HANDLE. OPEN OR CLOSED, IN GENERAL, PURPOSE OR WEATHERPROOF ENCLOSURES AS REQUIRED.
- R. LIGHTING FIXTURES :
- NOT USED.
- S. LAMPS :
- NOT USED.
- T. BALLASTS :
- NOT USED.
- U. LENSES AND DIFFUSERS :
- NOT USED.
- V. FLOOR BOXES :
- FLOOR BOXES SHALL BE FULLY ADJUSTABLE FLUSH-FLOOR TYPE, HUBBELL #B-2503.
 - PROVIDE S-3925 FITTING AND CARPET PLATE FOR POWER, AND S-2525 FITTING AND CARPET PLATE FOR TELEPHONE.
- W. TRANSFORMERS :
- NOT USED.
- X. GROUND FAULT CIRCUIT INTERRUPTER (GFCI) :
- PROVIDE GFCI CIRCUIT BREAKERS OR OUTLETS ACCORDING TO THE NATIONAL ELECTRICAL SAFETY CODE FOR THE UNDERGROUND, 208V, AND 240V GROUND FAULT CIRCUIT INTERRUPTER PROTECTION MAY BE PROVIDED OR OTHER CIRCUITS, LOCATIONS, AND OCCUPANCIES, AND WHERE USED, WILL PROVIDE ADDITIONAL PROTECTION AGAINST LINE-TO-GROUND SHOCK HAZARDS.
- Y. FIRE DETECTION AND ALARM SYSTEM :
- PROVIDE AS REQUIRED, A COMPLETE AND OPERABLE FIRE ALARM SYSTEM WHICH IS LISTED BY U.L. AND STATE FIRE MARSHAL AND COMPANIES WITH THE UNIFORM FIRE CODE (U.F.C.). PROVIDE BATTERY CALIBRATIONS, AUTOMATIC DIALER, WIRING TYPE AND SIZES.
11. EXECUTION - GENERAL :
- THE ELECTRICAL DRAWINGS, WHICH CONSTITUTE AN INTEGRAL PART OF THIS CONTRACT, SERVE AS THE WORKING DRAWINGS AND INDICATE THE GENERAL LAYOUT OF THE ELECTRICAL SYSTEM. FIELD VERIFICATIONS OF LOCATIONS ON PLANS IS DIRECTED BY FIELD SUPERVISOR. CHECK THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL PLANS TO AVOID POSSIBLE INSTALLATION CONFLICTS AND INDICATE ALL RESULTING COST IN THE BID.
 - DISCREPANCIES BETWEEN DIFFERENT PLANS, BETWEEN PLANS AND ACTUAL FIELD CONDITIONS, OR BETWEEN PLANS AND SPECIFICATIONS SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE ELECTRICAL ENGINEER FOR CLARIFICATION OR DECISION. APPURTENANCES AND WIRING NOT SPECIFICALLY INDICATED OR REFERRED TO, BUT WHICH ARE COMMON TO COMPLETE AN OPERABLE ELECTRICAL SYSTEM, SHALL BE INCLUDED IN THE BID.
 - EACH EMPLY CONDUIT SHALL INCLUDE A PULL CORD. ALL PULL CORDS SHALL HAVE A MINIMUM DIAMETER OF 1/4" AND A MINIMUM AVERAGE TENSILE STRENGTH OF 1,100 POUNDS. IT SHALL BE YELLOW IN COLOR. A CONTRASTING TRACER COLOR MAY BE INCLUDED TO IDENTIFY THE MANUFACTURER. FLAT BRAID IS NOT ACCEPTABLE.
12. INSTALLATION :
- INSTALLATION OF MATERIALS AND EQUIPMENT SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS, INSTRUCTIONS, INDUSTRY STANDARDS, AS INDICATED IN THE DRAWINGS AND AS SPECIFIED HEREIN.
 - PROVIDE ALL MOUNTING FASTENERS FOR SECURING OR HANGING FITTINGS, EQUIPMENT AND OUTLETS TO THE SATISFACTION OF THE ENGINEER. DETAILS SHOWN ON THE PLANS ARE FOR THE PURPOSE OF ESTABLISHING THE EXTENT AND GENERAL METHODS REQUIRED. PROVIDE ALL SCREWS, INSERTS, EXPANSION JOINTS, VIBRATION FITTINGS, ETC.
 - PROVIDE STORAGE FACILITIES AND PROTECT ALL WORK MATERIALS AND EQUIPMENT FROM DAMAGE DURING THE WORK. MATERIALS AND EQUIPMENT SHALL NOT BE STORED EXPOSED TO WEATHER. REPLACE ALL DAMAGED OR DEFECTIVE WORK, MATERIALS AND EQUIPMENT WITH NO ADDITIONAL COST TO THE OWNER.
 - PROVIDE TRENCHING, CONCRETE ENCASMENT OF DUCT AND CONDUIT, BACK-FILLING AND COMPLETION FOR THE UNDERGROUND, 208V, AND 240V GROUND FAULT CIRCUIT INTERRUPTER PROTECTION MAY BE PROVIDED OR OTHER CIRCUITS, LOCATIONS, AND OCCUPANCIES, AND WHERE USED, WILL PROVIDE ADDITIONAL PROTECTION AGAINST LINE-TO-GROUND SHOCK HAZARDS.
13. TESTING :
- TESTING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL SAFETY CODE (N.E.C.) AND THE NATIONAL FIRE PROTECTION ASSOCIATION (N.F.P.A.) STANDARDS, AS INDICATED IN THE DRAWINGS AND AS SPECIFIED HEREIN.

13. CONDUIT AND WIRING : ALL CONDUIT AND WIRING SHALL BE INSTALLED CONCEALED IN WALLS, ABOVE CEILINGS AND BELOW FLOOR SLABS OR EXPOSED IN ACCORDANCE WITH APPLICABLE REGULATIONS AND THE ELECTRICAL DRAWINGS. ALL PENETRATIONS OF FIRE-RATED WALLS OR CEILINGS SHALL BE COORDINATED WITH THE ARCHITECT. CONDUIT RUNS ARE SHOWN DIAGMATICALLY. EXACT ROUTING AND LOCATION OF THE EQUIPMENT SHALL BE DETERMINED IN THE FIELD.
14. EXTERIOR EQUIPMENT : ALL EQUIPMENT AND WIRING OUTSIDE SHALL BE WEATHERPROOF AND TAMPPOOF.
15. MOISTURE PROTECTION : WHERE REQUIRED BY REGULATIONS, ALL PANELBOARDS, MAIN SWITCHBOARDS AND ELECTRICAL DEVICES IN THE SPRALED AREA OF SPRINKLERS SHALL BE INSTALLED WITH WEATHERPROOF ENCLOSURES IN COMPLIANCE WITH THESE REGULATIONS.
16. GROUNDING : ALL METALLIC CONDUITS, SUPPORTS AND ENCLOSURES SHALL BE GROUNDED IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE. GROUNDING BUSININGS SHALL BE USED WHEREVER CONDUITS ARE REQUIRED TO BE GROUNDED.
17. ELECTRICAL SERVICE FACILITIES : ELECTRICAL SERVICE AND METERING FACILITIES SHALL BE INSTALLED IN COMPLIANCE WITH ALL REQUIREMENTS OF THE LOCAL UTILITY COMPANY. VERIFY THE PROTECTION, LOCATION AND DEPTH OF ALL CONDUIT STOPS OR MANHOLES AND INCLUDE ALL CONSTRUCTION COSTS IN THE BID. APPLY FOR SERVICES IN THE SAME MANNER OF THE OWNER AND PAY ALL SERVICES AND CABLE CHARGES.
18. TELEPHONE SERVICE FACILITIES : NOT USED.
19. TESTING : ALL NEW CIRCUITS SHALL BE TESTED FOR SHORT AND OPEN CIRCUIT TO GROUND WITH A MEGGAR. RESISTANCE TO GROUND SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. FURNISH ALL NECESSARY LABOR, INSTRUMENTS AND EQUIPMENT REQUIRED FOR MAKING TESTS TO DEMONSTRATE THAT THE OPERATION OF THE SYSTEM IS IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODES. ALSO PERFORM A COMPLETE "IN SERVICE" OPERATION OF THE ENTIRE ELECTRICAL SYSTEM.

F104

STRUCTURAL GENERAL NOTES

1. GENERAL:

- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS AND SAFETY OF WORKERS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE AND PROVIDE ALL NECESSARY TEMPORARY SHORING AND BRACING TO SUPPORT ALL LOADS AND PARTS OF THE STRUCTURE DURING CONSTRUCTION. THE STRUCTURE SHOWN ON THE DRAWINGS HAS BEEN DESIGNED FOR STABILITY UNDER COMPLETED CONSTRUCTION CONFIGURATION.
- B. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS FOR COORDINATING SUCH REQUIREMENTS INTO THE SHOP DRAWINGS AND WORK PRIOR TO BEGINNING CONSTRUCTION.
- C. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SUB CONTRACTORS HAVE ACCESS TO, AND WORK IS PERFORMED IN ACCORDANCE WITH, THE STRUCTURAL DRAWINGS AND SPECIFICATIONS. SUBCONTRACTORS' EXCLUSIVE USE OF FABRICATORS' SHOP DRAWINGS WITHOUT REFERRING TO STRUCTURAL DRAWINGS IS UNACCEPTABLE.
- D. NO OPENINGS NOR NOTCHES SHALL BE MADE IN ANY STRUCTURAL BEAM, JOIST, COLUMN, SUPPORT FLOOR, LOAD BEARING WALL OR PANEL, FOOTING, OR FOUNDATION WALL WITHOUT THE APPROVAL OF THE ARCHITECT AND ENGINEER. OPENINGS IN NON-LOAD BEARING WALLS REQUIRE THE ARCHITECT'S APPROVAL.
- E. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON NEW STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.
- F. MECHANICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF THE REQUIRED INSERTS WITH THE GENERAL CONTRACTOR. REFER TO MECHANICAL DRAWINGS FOR SUPPORTING STRUCTURE AND INSERTS. MECHANICAL CONTRACTOR SHALL FURNISH ALL NECESSARY STRUCTURES FOR MECHANICAL EQUIPMENT, AND ALL NECESSARY HANGING DEVICES AND INSERTS FOR INSTALLATION OF MECHANICAL EQUIPMENT.
- G. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL CHASES, SLEEVES, OPENINGS, DUCTS, ETC., AS REQUIRED. PROVIDE ALL DECK OPENINGS SUPPORTS PER TYPICAL DETAILS SHEET REGARDLESS OF WHETHER OR NOT DECK OPENING IS SHOWN ON STRUCTURAL DRAWINGS.
- H. WHERE CONFLICTS OCCUR BETWEEN SPECIFICATIONS, NOTES, REFERENCED CODES, AND WORKING DRAWINGS, THE MOST STRINGENT REQUIREMENT SHALL APPLY. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS IMMEDIATELY UPON BECOMING AWARE OF SUCH CONFLICTS.
- I. SECTIONS AND DETAILS NOT SPECIFICALLY NOTED, SHALL BE CONSTRUCTED PER SECTIONS AND DETAILS SHOWN MOST APPLICABLE.
- J. FIREPROOFING METHODS AND MATERIALS FOR STRUCTURAL MEMBERS ARE NOT SHOWN ON STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FIRE RATING REQUIREMENTS, FIREPROOFING METHODS AND MATERIALS.
- K. SEISMIC RESTRAINT AND SEISMIC BRACING ELEMENTS FOR NON STRUCTURAL ITEMS ARE NOT SHOWN ON STRUCTURAL DRAWINGS. REFER TO ITEMS' APPLICABLE DRAWINGS AND SPECIFICATIONS FOR SUCH WORK.
- L. SHOP DRAWINGS SHALL BE FURNISHED AND REVIEWED BEFORE ANY FABRICATION OR ERECTION IS STARTED. THE CONTRACTOR SHALL REVIEW AND APPROVE SHOP DRAWINGS PRIOR TO SUBMITTING TO THE ARCHITECT FOR REVIEW. POORLY PREPARED SHOP DRAWINGS WILL BE REJECTED AND SHALL BE RESUBMITTED.
- M. ENGINEER'S REVIEW OF SHOP DRAWINGS SHALL BE FOR THE PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN CONCEPT, NOT FOR ACCURACY OR COMPLETENESS OF DETAILS OR QUANTITIES AND PROCEDURES. SHOP DRAWING ERRORS NOT DETECTED DURING ENGINEER'S REVIEW SHALL NOT BE CONSTRUED AS ALLOWING THE CONTRACTOR TO PROCEED KNOWINGLY IN ERROR. REGARDLESS OF ANY INFORMATION CONTAINED IN THE SHOP DRAWINGS, THE REQUIREMENTS OF THE CONTRACT DOCUMENTS ARE NOT WAIVED OR SUPERSEDED IN ANY WAY BY THE SHOP DRAWING REVIEW.
- N. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADHERENCE TO ALL APPLICABLE OSHA REQUIREMENTS.

2. DESIGN CRITERIA:

BUILDING CODES AND STANDARDS:
STATE OF NEW MEXICO 2009 BUILDING CODE
2009 INTERNATIONAL BUILDING CODE (IBC)
ASCE 7-05 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER
STRUCTURES"
AMERICAN INSTITUTE OF STEEL CONSTRUCTION 13TH EDITION,
"MANUAL OF STEEL CONSTRUCTION"
AMERICAN CONCRETE INSTITUTE 318, "BUILDING CODE
REQUIREMENTS FOR REINFORCED CONCRETE"

3. DESIGN LOADS:

- A. LIVE LOADS:
ROOFS:
TYPICAL (SNOW) 20 PSF (NON-REDUCIBLE)
- B. DEAD LOADS:
ROOFS:
TYPICAL: PER METAL BLDG MANUF
- C. WIND LOADS: IN ACCORDANCE WITH 2009 IBC AND ASCE 7-05
METHOD SIMPLIFIED
EXPOSURE C
BASIC WIND SPEED 90 MPH (3 SECOND GUST)
IMPORTANCE FACTOR 1.00 (BUILDING CATEGORY II)
PRESSURES: WALLS, INTERIOR ZONE = 12.0 PSF
WALLS, END ZONE = 18.1 PSF
ROOF = 10.0 PSF NET UPLIFT

4

- D. SEISMIC LOADING: IN ACCORDANCE WITH 2009 IBC AND
ASCE 7-05:
- BUILDING OCCUPANCY CATEGORY II
MAX. CONSIDERED GROUND ACCELERATIONS:
SS = 0.4526g
S1 = 0.1297g
- SITE SOIL CLASSIFICATION D:
FA = 1.44
FV = 2.28
- SPECTRAL RESPONSE ACCELERATIONS:
SDS = .434
SD1 = .197
- SEISMIC DESIGN CATEGORY C:
RESPONSE FACTOR R = 3.5
IMPORTANCE FACTOR I = 1.00
- CT= 0.02
V = .124
V = .124 x W

E. SOIL BEARING PRESSURE
SPREAD FOUNDATION

- A. CONCRETE: F'C = 3000 PSI
- B. STEEL:
1. WIDE FLANGE SHAPES: ASTM A992
 2. STRUCTURAL STEEL TUBING: ASTM A500 GR B
 3. MISCELLANEOUS STRUCTURAL STEEL: ASTM A36
 4. STEEL PIPE: ASTM A53, TYPE E OR S, GR B
 5. BOLTS (UNLESS OTHERWISE NOTED): ASTM A325
 6. LIGHTGAGE METAL FRAMING (STUDS, HEADERS, STRAPS): ASTM A507
18 GA GR 33
16 GA AND HEAVIER GR 50
 7. METAL DECK: ASTM A446 OR A611 GR C
 8. CONCRETE/MASONRY ANCHORS: ASTM F1554 GR 36
 9. CONCRETE/MASONRY REINFORCEMENT: ASTM A615 GR 60
 10. CONCRETE/MASONRY EXPANSION ANCHORS: FED SPEC FF-S-325
 11. HEADED ANCHOR STUDS: ASTM A108, GRADES 1015-1020, COLD-FINISHED CARBON STEEL AWS D1.1, TYPE B

5. CONCRETE NOTES

- A. SPECIFICATIONS:
1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 301.
 2. ALL HOT WEATHER CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 305.
 3. ALL COLD WEATHER CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 306.
 4. FORMWORK SHALL BE IN ACCORDANCE WITH ACI 347. PROVIDE "CLASS A" TOLERANCE FOR CONCRETE SURFACES EXPOSED TO VIEW. PROVIDE "CLASS C" TOLERANCE FOR OTHER CONCRETE SURFACES.
 5. USE AIR ENTRAINING ADMIXTURE 5 PERCENT PLUS OR MINUS 1/2 PERCENT FOR ALL EXTERIOR EXPOSED CONCRETE.
- B. CONCRETE REINFORCING:
1. PROVIDE VERTICAL DOWELS IN CONTINUOUS FOOTING SAME SIZE AND SPACING AS THE VERTICAL WALL STEEL.
 2. FOR OPENINGS 1'-0" AND LARGER IN WALLS AND STRUCTURAL SLABS UNLESS NOTED, PROVIDE #5 REINFORCING X 4'-0" ALL CORNERS, (2) #5 REINFORCING AT EACH SIDE, TOP AND BOTTOM.
 3. UNLESS OTHERWISE NOTED PROVIDE CORNER BARS THE SAME SIZE AND SPACING AS THE HORIZONTAL REINFORCING AT THE CORNERS AND INTERSECTION OF ALL WALLS, BEAMS, AND FOOTINGS.
 4. UNLESS OTHERWISE NOTED, REBAR SPLICES SHALL BE 40 BAR DIAMETER LAP SPLICES.
 5. UNLESS OTHERWISE NOTED, WHERE COLUMNS AND WALLS COINCIDE, PLACE MONOLITHICALLY AND RUN HORIZONTAL WALL REINFORCING CONTINUOUS THROUGH COLUMN.
 6. UNLESS OTHERWISE NOTED, WHERE CONCRETE ELEMENTS ABUT, DOWEL THE ELEMENTS TOGETHER USING HEAVY REBAR OF THE TWO ELEMENTS ACROSS THE JOINT. PROVIDE MINIMUM OF 30 BAR DIAMETERS EMBEDMENT OR STANDARD HOOK DETAILS (WHERE REQUIRED BY GEOMETRY) ON EACH SIDE OF JOINT.
- C. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR CAST-IN-PLACE CONCRETE REINFORCEMENT, UNLESS NOTED OTHERWISE.

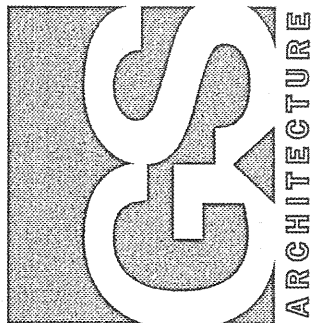
	MINIMUM COVER, INCHES
1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH... (NOT APPLICABLE FOR SLAB-ON-GRADE).	3
2. CONCRETE EXPOSED TO EARTH OR WEATHER: #6 THROUGH #11 BARS..... #5 BAR AND SMALLER	2 1-1/2
3. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: SLABS, WALLS, JOISTS: #11 BAR AND SMALLER	3/4
BEAMS, COLUMNS: PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS	1-1/2
4. FOR SINGLE MAT OF REINFORCING IN SLABS AND WALLS, PLACE REINFORCING IN CENTER UNLESS OTHERWISE DIMENSIONED.	

6. STEEL FRAMING NOTES:

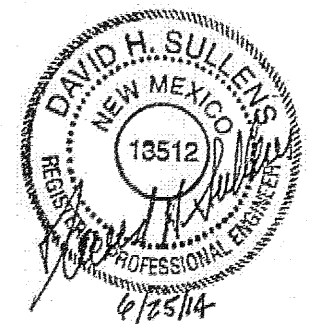
- A. THE STRUCTURAL STEEL FABRICATOR AND STEEL JOIST MANUFACTURER SHALL EACH BE AN APPROVED FABRICATOR AS SET FORTH IN IBC 2006 SECTION 1704.2.2 AND SHALL EACH COMPLY WITH THE PROVISIONS OF THAT SECTION. CONTRACTOR SHALL PROVIDE A CERTIFICATE OF COMPLIANCE FOR EACH FABRICATOR.
- B. STRUCTURAL STEEL SHALL BE SHOP FABRICATED IN ACCORDANCE WITH AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", LATEST EDITION. WELDING SHALL COMPLY WITH AWS 1.1 "STRUCTURAL WELDING CODE".
- C. FIELD CONNECTIONS OF STRUCTURAL STEEL SHALL BE ACCOMPLISHED BY BOLTING, USING HIGH STRENGTH BOLTS IN ACCORDANCE WITH AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS".
- D. STEEL CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE THE FABRICATOR'S STANDARD CONNECTIONS AND SHALL BE IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL BOLTED CONNECTIONS SHALL CONTAIN AT LEAST 2 BOLTS PER CONNECTED MEMBER.
- E. PROVIDE MIN 3/16" CAP PLATE WELDED TO END OF ALL STRUCTURAL PIPES, TUBES AND PRISMATIC SECTIONS, UNLESS OTHERWISE NOTED. PROVIDE WEEP HOLES ON UNDERSIDE OR NEAR BOTTOM OF SUCH ELEMENTS WHERE ELEMENTS ARE LOCATED OUTSIDE OF THE HEATED BUILDING ENVELOPE.

7. SPECIAL INSPECTIONS

- A. THE OWNER SHALL ENGAGE THE SERVICES OF A CERTIFIED INSPECTOR IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE. THE CERTIFIED INSPECTOR SHALL BE APPROVED BY THE BUILDING OFFICIAL OR THE ENGINEER OF RECORD. THE CERTIFIED INSPECTOR SHALL PERFORM SPECIAL INSPECTION FOR ITEMS NOTED IN THE TABLES ON SHEETS S002 AND S003, IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE.
- AFTER EACH SPECIAL INSPECTION, THE CERTIFIED INSPECTOR SHALL PROVIDE A WRITTEN REPORT TO THE OWNER, ARCHITECT AND ENGINEER OF RECORD. AT THE CLOSE OF THE PROJECT A COMPLETE REPORT SHALL BE PROVIDED TO THE BUILDING OFFICIAL.



THIS DRAWING IS INCOMPLETE AND NOT TO
BE USED FOR CONSTRUCTION UNLESS IT IS
STAMPED, SIGNED, AND DATED BELOW



1815 BROADWAY BLVD, NE
ALBUQUERQUE, NM 87102

ISSUE: JUNE 25, 2014

PROJECT NO: 5106.06

BIM FILE:

--

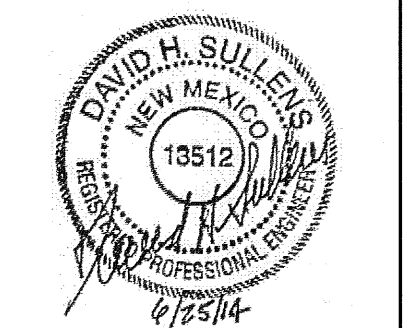
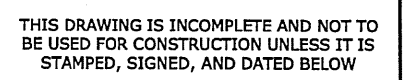
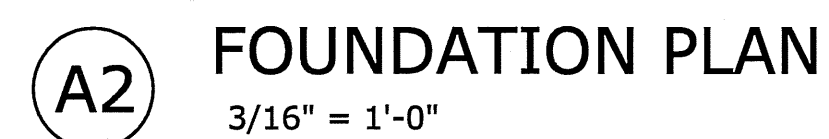
DRAWN BY: caln

CHECKED BY: DHS

SHEET TITLE
GENERAL
NOTES

DRAWING SHEET

S001



SALT STORAGE BUILDING PHASE 2
COA - STREET MAINTENANCE

1815 BROADWAY BLVD, NE
ALBUQUERQUE, NM 87102

[illegible]

PROJECT NO: 5106.06

BIM FILE:

DRAWN BY: cain

CHECKED BY: DHS

GREER STAFFORD/SICE ARCHITECTURE

SHEET TITLE

STRUCTURAL PLAN
AND DETAILS

AND DETAILS

1. *Journal of the American Medical Association*, 1997; 277: 1001-1005.

DRAWING SHEET

C101

\$101

CONCLUSIONS



CITY OF ALBUQUERQUE

Planning Department
Building Safety Division
Building Section

INSPECTION NOTICE

PHONE (505) 924-3320 OR (505) 924-3368

POST IN A CONSPICUOUS PLACE ON THE JOB.

PERMIT NO. 201491705 DATE: 1-27-15

ADDRESS: 1815 Broadway Blvd NE

OWNER: City of Albuquerque Dmo

CONTRACTOR: Facility Build Inc

☒ COMMERCIAL

☐ RESIDENTIAL

☒ NEW BUILDING

☐ TENANT IMPROVEMENT

☐ SHELL ONLY

☐ ALTERATION **1 2 3**

☐ ADDITION

☐ REPAIR

☐ OTHER Road Salt Storage

Separate permits ARE REQUIRED for mechanical, electrical and plumbing.

INSPECTION APPROVALS ARE REQUIRED BEFORE ANY OF THE
FOLLOWING ARE COVERED OR CONCEALED:

Foundation

Plumbing

Mechanical

Foundation Insulation

Electrical

(Interior Bearing Wall Footing if required)

Frame

(Seismic if required)

Frame Insulation

Exterior Lath

Wallboard

(Firewalls, shear walls & fire stop systems if required)

Final (After completion & before occupancy)

NOTE: A CERTIFICATE OF OCCUPANCY:

- IS REQUIRED FOR ALL BUILDINGS OR STRUCTURES BEFORE USE OR OCCUPANCY.
- WILL NOT BE ISSUED FOR ANY TENANT IMPROVEMENT UNTIL THE SHELL CERTIFICATE OF COMPLETION HAS BEEN ISSUED.
- A REQUEST SHALL BE MADE AFTER FINAL APPROVALS HAVE BEEN OBTAINED FROM ALL DIVISIONS INVOLVED.
- WILL BE ISSUED ON FINAL INSPECTION FOR R-3 OCCUPANCIES. (IRC OCCUPANCIES).

NOTE: FINAL INSPECTIONS ARE REQUIRED ON ALL PERMITTED WORK
WHETHER A CERTIFICATE OF OCCUPANCY IS REQUIRED OR NOT.

CERTIFICATE OF OCCUPANCY REQUIRED?

~~YES~~

~~NO~~

SIGNATURE

☐☐

SHELL CERTIFICATE OF COMPLETION REQUIRED?

~~YES~~

~~NO~~

SIGNATURE

☐☐

APPROVALS FOR CERTIFICATE OF OCCUPANCY
INSPECTOR'S SIGNATURE AND DATE REQUIRED

~~ZONING~~

~~DATE:~~

~~(505) 924-3837~~

~~ENVIRONMENTAL HEALTH -~~

~~CHPD~~

~~DATE:~~

~~(505) 924-3623~~

~~ENVIRONMENTAL HEALTH -~~

~~ESD~~

~~DATE:~~

~~(505) 768-2633~~

~~SOLID WASTE~~

~~DATE:~~

~~(505) 681-2766~~

~~TRANSPORTATION DEVELOPMENT~~

~~DATE:~~

~~(505) 924-3982~~

~~HYDROLOGY~~

~~DATE:~~

~~(505) 924-3982~~

~~BUILDING CODE~~

~~DATE:~~

~~(505) 924-3320~~

~~FIRE~~

~~DATE:~~

~~(505) 924-3611~~

~~PLUMBING~~

~~DATE:~~

~~(505) 924-3310~~

~~MECHANICAL~~

~~DATE:~~

~~(505) 924-3310~~

~~ELECTRICAL~~

~~DATE:~~

~~(505) 924-3305~~

~~BOILER~~

~~DATE:~~

~~(505) 924-3325~~

~~ELEVATOR~~

~~DATE:~~

~~(505) 924-3325~~