BECKER
structural engineers, inc.

Special Inspections Report

PHASE 2 – PARKING GARAGE
PORTLAND INTERNATIONAL JETPORT

PARTIAL CERTIFICATE OF OCCUPANCY
GRID LINE 7 THROUGH 13

Portland, Maine

November 17, 2008

Prepared for:

City of Portland
Department of Waterfront & Transportation
Portland International Jetport
1001 Westbrook Street
Portland, ME

In conjunction with:

The City of Portland
389 Congress Street
City Hall Room 315
Portland, Maine 04101

84 Marginal Way
Office Building & Parking Structure

Portland, Maine
October 6, 2008

Special Inspections Report

Table of Contents:

Statement of Special Inspections 01000.1

Structural Statement of Special Inspections

Final Report of Special Inspections for Partial CO Line 7 to 13 (SSIC/SI 1)

[To be completed by the Structural Special Inspections Coordinator (SSIC/SI 1). Note that all Agent's Final Reports must be received prior to issuance.]

Project: ***Phase 2 – Parking Garage, Portland International Jetport***

Location: ***Portland, International Jetport, Portland, Maine***

Owner: ***City of Portland, Maine***

Owner's Address: ***1001 Westbrook Street***
Portland, Maine

Architect of Record: ***Arnold M. Krockmalnic*** (name) ***Domenech, Hicks & Krockmalic Architects*** (firm)

Structural Registered Design Professional in Responsible Charge: ***Todd M. Neal, P. E.*** (name) ***Becker Structural Engineer, Inc.*** (firm)

To the best of my information, knowledge and belief, the Special Inspections required for this project, and itemized in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

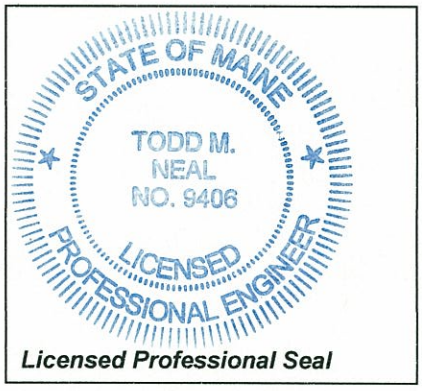
Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,
Structural Special Inspection Coordinator

Todd M. Neal, P.E.
(Type or print name)

Becker Structural Engineers, Inc.
(Firm Name)

11/17/08
Signature Date



Licensed Professional Seal

Structural Statement of Special Inspections (Continued)

Special Inspector's/Agent's Partial CO Line 7 to 13 Report

Project: ***Phase 2 – Parking Garage, Portland International Jetport-Partial CO lines 7 to 13 Levels 1 through 5***
Portland International Jetport, Portland, Maine

Special Inspector or Agent: ***Todd M. Neal, P.E.*** (*name*) ***Becker Structural Engineers, Inc.*** (*firm*)

Designation: ***Structural Special Inspections Coordinator***

To the best of my information, knowledge and belief, the Special Inspections or testing required for this project, and designated for this Inspector/Agent in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

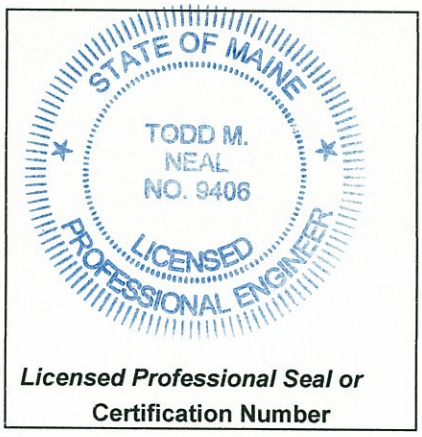
Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,
Special Inspector or Agent:

Todd M. Neal, P.E.
(Type or print name)

Signature

11/17/08
Date



Licensed Professional Seal or
Certification Number

Structural Statement of Special Inspections (Continued)

List of Agents

Project: ***Phase 2 – Parking Garage, Portland International Jetport***

Location: ***Portland International Jetport, Portland, Maine***

Owner: ***City of Portland, Maine***

This *Statement of Special Inspections* encompass the following discipline: **Structural (Foundation & Superstructure)**

(Note: *Statement of Special Inspections* for other disciplines may be included under a separate cover)

This Statement of Special Inspections includes the following building systems:

- ☒ Soils and Foundations
- ☒ Cast-in-Place Concrete
- ☒ Precast Concrete System
- ☒ Masonry Systems
- ☒ Structural Steel
- ☐ Wood Construction
- ☐ Special Cases

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. STRUCTURAL Special Inspections Coordinator (SSIC)	*Becker Structural Engineers*	*75 York Street* *Portland, ME 04101* *(207) 879-1838* *todd@beckerstructural.com*
2. Special Inspector (SI 1)	*Becker Structural Engineers*	*same*
3. Special Inspector (SI 2)	*S. W. Cole Engineering*	*286 Portland Road* *Gray, ME 04039* *(207) 657-2866* *pkohler@swcole.com*
4. Testing Agency (TA 1)	*S. W. Cole Engineering*	*same*
5. Testing Agency (TA 2)		
6. Other (O1)		

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

Structural Schedule of Special Inspections

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided to the Special Inspector for their records. *NOTE VERIFICATION THAT QUALIFIED INDIVIDUALS ARE AVAILABLE TO PERFORM STIPULATED TESTING AND/OR INSPECTION SHOULD BE PROVIDED PRIOR TO SUBMITTING STATEMENT. AGENT QUALIFICATIONS IN SCHEDULE ARE SUGGESTIONS ONLY; FINAL QUALIFICATIONS ARE SUBJECT TO THE DISCRETION OF THE REGISTERED DESIGN PROFESSIONAL PREPARING THE SCHEDULE.*

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge or Special Inspector of Record deems it appropriate that the individual performing a stipulated test or inspection have a specific certification, license or experience as indicated below, such requirement shall be listed below and shall be clearly identified within the schedule under the Agent Qualification Designation.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

Experienced Testing Technician

ETT	Experienced Testing Technician – An Experienced Testing Technician with a minimum 5 years experience with the stipulated test or inspection

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.

International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Other

Project: Phase 2 – Parking Garage, Portland International Jetport - Partial CO Line 7 to Line 13
Date Prepared: 2/25/08

Structural Schedule of Special Inspections
SOILS & FOUNDATION CONSTRUCTION

VERIFICATION AND INSPECTION IBC Section 1704.7, 1704.8, 1704.9	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Verify existing soil conditions, fill placement and load bearing requirements						
a. Prior to placement of prepared fill, determine that the site has been prepared in accordance with the approved soils report.	Y	P	IBC 1704.7.1	TA1	PE/GE, EIT or ETT	Y
b. During placement and compaction of fill material, verify material being used and maximum lift thickness comply with the approved soils report.	Y	P	IBC 1704.7.2	TA1	PE/GE, EIT or ETT	Y
c. Test in-place dry density of compacted fill complies with the approved soils report.	Y	p	IBC 1704.7.2	TA1	PE/GE, EIT or ETT	Y
2. Pile foundations:						
a. Observe and record procedures for static load testing of piles.	NA	N	IBC 1704.8			
b. Observe and record procedures for dynamic load testing of piles.	NA	N				
c. Record installation of each pile and results of load test. Include cutoff and tip elevations of each pile relative to permanent reference.	NA	N				
d. Test welded splices of steel piles	NA	N	AWS D1.1			
3. Pier foundations: Verify installation of pier foundations for buildings assigned to Seismic Design Category C, D, E or F.	NA	N				
a. Verify pier diameter and length	NA	N				
b. Verify pier embedment (socket) into bedrock	NA	N				
c. Verify suitability of end bearing strata	NA	N				

Project: Phase 2 – Parking Garage, Portland International Jetport - Partial CO Line 7 to Line 13
Date Prepared: 2/25/08

Structural Schedule of Special Inspections
CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION IBC Section 1704.4	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Inspection of reinforcing steel, ~~including prestressing tendons, and placement~~	Y	P	ACI 318: 3.5, 7.1-7.7	SI1 SI2	PE/SE/EIT or ETT	Y
2. Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5B	N	N	Welding of Reinf Not Allowed			NA
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased	Y	C	IBC 1912.5	SI1	PE/SE or EIT	Y
4. Verifying use of required design mix	Y	P/S	ACI 318: Ch 4, 5.2-5.4	TA1/ SI1	ETT	Y
5. At time fresh concrete is sampled to fabricate specimens for strength test, perform slump and air content test and temperature	Y	C	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	TA1	ACI-CFTT or ACI-STT or ETT	Y
6. Inspection of concrete placement for proper application techniques	Y	C	ACI 318: 5.9, 5.10	SI1 TA1	PE/SE or EIT or ETT	Y
7. Inspection for maintenance of specified curing temperature and techniques	Y	P	ACI 318: 5.11-5.13	SI1	PE/SE or EIT	Y
8. Inspection of Prestressed Concrete						
a. Inspection of reinforcing steel and prestressing tendons and placement.	Y	S	ACI 318: 18.20	SI1	PE/SE or EIT	Y
b. Application of prestressing force.	Y	S		SI1	PE/SE or EIT	Y
c. Grouting of bonded prestressing tendons in seismic force resisting system	N		ACI 318: 18.18.4			
9. Erection of precast concrete members	Y	P	ACI 318: Ch 16	SI1	PE/SE or EIT	Y
a. Verify Erector is PCI Qualified	Y	S		SI1	PE/SE or EIT	Y
10. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs	N		ACI 318: 6.2			

Project: Phase 2 – Parking Garage, Portland International Jetport - Partial CO Line 7 to Line 13
Date Prepared: 2/25/08

Structural Schedule of Special Inspections

MASONRY CONSTRUCTION – LEVEL 1 (NON-ESSENTIAL FACILITY) NOT PART OF THIS PARTIALCO

VERIFICATION AND INSPECTION IBC Section 1704.5	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. As masonry construction begins, the following shall be verified to ensure compliance:						
a. Proportions of site-prepared mortar.	Y	P	ACI530.1, 2.6A	TA1	ETT	
b. Construction of mortar joints.	Y	P	ACI530.1, 3.3B	SI1	PE/SE or EIT	
c. Location of reinforcement and connectors.	Y	P	ACI530.1, 3.4, 3.6A	SI1	PE/SE or EIT	
d. Prestressing technique.	N		ACI530.1, 3.6B			
e. Grade and size of prestressing tendons and anchorages.	N		ACI530.1, 2.4B, 2.4H			
2. The inspection program shall verify:						
a. Size and location of structural elements.	Y	P	ACI530.1, 3.3G	SI1	PE/SE or EIT	
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	Y	P	ACI530, 1.2.2(e), 2.1.4, 3.1.6	SI1	PE/SE or EIT	
c. Specified size, grade and type of reinforcement.	Y	P	ACI530, 1.12, ACI530.1, 2.4, 3.4	SI1	PE/SE or EIT	
d. Welding of reinforcing bars.	N		AC530, 2.1.10.6.2, 3.2..4 (b) Welding of Reinf Not Allowed			
e. Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).	Y	P	IBC 2104.3, 2104.4; ACI530.1, 1.8C, 1.8D	SI1	PE/SE or EIT	
f. Application and measurement of prestressing force.	N		ACI530.1, 3.6B			
3. Prior to grouting, the following shall be verified to ensure compliance:						
a. Grout space is clean.	Y	P	ACI530.1, 3.2D	SI1	PE/SE or EIT	
b. Placement of reinforcement and connectors and prestressing tendons and anchorages.	Y	P	ACI530, 1.12, ACI530.1, 3.4	SI1	PE/SE or EIT	
c. Proportions of site-prepared grout and prestressing grout for bonded tendons.	N		ACI530.1, 2.6B			
d. Construction of mortar joints.	Y	P	ACI530.1, 3.3B	SI1	PE/SE or EIT	
4. Grout placement shall be verified to ensure compliance with code and construction document provisions.	Y	P	ACI530.1, 3.5	SI1	PE/SE or EIT	
a. Grouting of prestressing bonded tendons.	N		ACI530.1, 3.6C			
5. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.	Y	C	IBC 2105.2.2, 2105.3; ACI530.1, 1.4	TA1	ETT	

Project: Phase 2 – Parking Garage, Portland International Jetport - Partial CO Line 7 to Line 13
Date Prepared: 2/25/08

Structural Schedule of Special Inspections - STEEL CONSTRUCTION

VERIFICATION AND INSPECTION IBC Section 1704.3	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Material verification of high-strength bolts, nuts and washers:						
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	Y	S	Applicable ASTM material specifications; AISC 335, Section A3.4; AISC LRFD, Section A3.3	SI1	PE/SE or EIT	Y
b. Manufacturer's certificate of compliance required. AISC CERTIFICATION PROVIDED	Y	S		SI1	PE/SE or EIT	Y
2. Inspection of high-strength bolting						
a. Bearing-type connections.	Y	P	AISC LRFD Section M2.5 IBC Sect 1704.3.3	TA1	AWS/AISC-SSI	Y
b. Slip-critical connections.	Y	C or P (method dependent)		TA1	AWS/AISC-SSI	NA
3. Material verification of structural steel (IBC Sect 1708.4):						
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	Y	S	ASTM A 6 or ASTM A 568 IBC Sect 1708.4	SI1	PE/SE or EIT	Y
b. Manufacturers' certified mill test reports.	Y	S	ASTM A 6 or ASTM A 568 IBC Sect 1708.4	SI1	PE/SE or EIT	Y
4. Material verification of weld filler materials:						
a. Identification markings to conform to AWS specification in the approved construction documents.	Y	S	AISC, ASD, Section A3.6; AISC LRFD, Section A3.5	SI1	PE/SE or EIT	Y
b. Manufacturer's certificate of compliance required.	Y	S		SI1	PE/SE or EIT	Y
5. Submit current AWS D1.1 welder certificate for all field welders who will be welding on this project.	Y	S	AWS D1.1	SI1/ TA1	PE/SE/EIT	
6. Inspection of welding (IBC 1704.3.1): a. Structural steel:						
1) Complete and partial penetration groove welds.	Y	C	AWS D1.1	TA1	AWS-CWI	Y
2) Multipass fillet welds.	Y	C		TA1	AWS-CWI	Y
3) Single-pass fillet welds> 5/16"	Y	C		TA1	AWS-CWI	Y
4) Single-pass fillet welds< 5/16"	Y	P		TA1	AWS-CWI	Y
5) Floor and deck welds.	Y	P	AWS D1.3	TA1	AWS-CWI	Y
b. Reinforcing steel (IBC Sect 1903.5.2):						
1) Verification of weldability of reinforcing steel other than ASTM A706.	N					
2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls and shear reinforcement.	N		AWS D1.4 ACI 318: 3.5.2			
3) Shear reinforcement.	N					
4) Other reinforcing steel.	N					
7. Inspection of steel frame joint details for compliance (IBC Sect 1704.3.2) with approved construction documents:						
a. Details such as bracing and stiffening.	Y	P		SI1	PE/SE or EIT	Y
b. Member locations.	Y	P		SI1	PE/SE or EIT	Y
c. Application of joint details at each connection.	Y	P		SI1	PE/SE or EIT	Y

Project: Phase 2 – Parking Garage, Portland International Jetport - Partial CO Line 7 to Line 13
Date Prepared: 2/25/08

Structural Schedule of Special Inspection Services

FABRICATION AND IMPLEMENTATION PROCEDURES – STRUCTURAL STEEL

VERIFICATION AND INSPECTION IBC Section 1704.2	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Fabrications Procedures: Review of fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At the completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents. -OR- 2. AISC Certification	NA Y	 S	Fabricator shall submit one of the two qualifications		PE/SE or EIT PE/SE or EIT	 Y
3. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents.	Y	S	IBC 1704.2.2		PE/SE or EIT	NOT REQUIRED

Project: Phase 2 – Parking Garage, Portland International Jetport - Partial CO Line 7 to Line 13
Date Prepared: 2/25/08

FABRICATION AND IMPLEMENTATION PROCEDURES – PRECAST/PRESTRESSED CONCRETE STRUCTURAL ELEMENTS

VERIFICATION AND INSPECTION IBC Section 1704.2	Y/N	EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE	COMMENTS	AGENT	AGENT QUALIFICATION	TASK COMPLETED
1. Fabrications Procedures: Review of fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At the completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents. -OR- 2. PCI Certification	NA Y	 S	Fabricator shall submit one of the two qualifications		 PE/SE or EIT	 Y
3. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents.	Y	S	IBC 1704.2.2		PE/SE or EIT	NOT REQUIRED

Structural Schedule of Special Inspections

SEISMIC RESISTANCE - STRUCTURAL

Not Required for Seismic Design Category B, reference paragraph 1701.1

Quality Assurance Plan – Seismic and Wind

QUALITY ASSURANCE FOR SEISMIC RESISTANCE CHECK LIST [IBC 1705]

Seismic Design Category	**B**

Not Required, reference paragraph 1705.1.

QUALITY ASSURANCE FOR WIND RESISTANCE CHECK LIST [IBC 1706]

Wind Exposure Category	**C**
Basic Wind Speed	**100mph**

Not Required, reference paragraph 1706.1.1.

Disclaimers and Qualifications 01000.2

The program of Structural/Special Tests and Inspections does not relieve the Contractor or its subcontractors of their responsibilities and obligations for quality control of the work, for any design work which is included in the scope of services, and for full compliance with the requirements of the Construction Documents. Furthermore, the detection of, or the failure to detect, deficiencies or defects in work during testing and inspection conducted pursuant to the Program does not relieve the Contractor or its subcontractors of their responsibility to correct all deficiencies or defects, whether detected or undetected, in all parts of work, and to otherwise comply with all requirements of the Construction Documents. Additional disclaimers and/or qualifications may be included in the Owner-Special Inspection agreement.

PLEASE NOTE: THIS REPORT IS FOR THE PARTIAL OCCUPANCY OF THE GARAGE FROM LINE 7 TO LINE 13, LEVEL 1 THROUGH 5. WORK IS CONTINUING ON THE STRUCTURE FROM LINE 6 TO 1.

SW Cole Soil Compaction Testing 02000.1

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
1	6/4/2008	VLT	20' E 90'S OF SW CNR FPG	TFG	10	8533G	124.2	6.9	95.2	95
2	6/4/2008	VLT	60' E 40' S OF SE CNR FPG	TFG	12	8533G	124.2	8.7	95.2	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8533G	5/29/2008	Onsite	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation Notes:

Comments:

EPG- EXISTING PARKING GARAGE
TFG- TEMP. FINISH GRADE

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
3	6/5/2008	DMR	OLD RAMP + PIPE RUN	60	10	8533G	126.6	6.7	97.1	95
4	6/5/2008	DMR	OLD RAMP + PIPE RUN	60	10	8533G	126.3	6.4	96.9	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8533G	5/29/2008	Onsite	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
5	6/10/2008	DMR	H.58 @ 10.7	BF	12	8513G	125.6	4.2	95.4	95
6	6/10/2008	DMR	H.58 @ 11.3	BF	12	8513G	126.3	3.8	96.0	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
BF- BOTTOM FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
7	6/12/2008	VLT	INTERIOR LINE H + LINE 3	108 +	10	8513G	126.9	3.0	96.4	95
8	6/12/2008	VLT	INTERIOR LINE H + LINE 2	105 +	10	8513G	128.7	2.8	97.8	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
+ = +/-

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
9	6/16/2008	BZM	G1 & G2 LINES	57.21	12	8513G	130.0	6.4	98.8	95
10	6/16/2008	BZM	G1 & G2 LINES	57.21	12	8513G	129.0	3.2	98.0	95
11	6/16/2008	BZM	G1 & G2 LINES	57.21	12	8513G	128.3	3.4	97.5	95
12	6/16/2008	BZM	2ND LIFT G1 & G2 LINES	58.21	10	8513G	126.5	4.2	96.1	95
13	6/16/2008	BZM	2ND LIFT G1 & G2 LINES	58.21	10	8513G	131.2	2.9	99.7	95
14	6/16/2008	BZM	3RD LIFT G1 & G2 LINES	59.21	10	8513G	127.0	3.0	96.5	95
15	6/16/2008	BZM	3RD LIFT G1 & G2 LINES	59.21	12	8513G	126.9	3.0	96.4	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
16	6/16/2008	BZM	2' N OF PIER 4 LINE H	61	12	8513G	126.6	3.9	96.2	95
17	6/16/2008	BZM	2' N OF PIER 8 LINE H	61	12	8513G	125.2	4.4	95.1	95
18	6/16/2008	BZM	2' N OF PIER 5 LINE H	61	12	8513G	129.6	4.0	98.5	95
19	6/16/2008	BZM	2' E OF PIER 7 LINE H	61	12	8513G	125.0	3.7	95.0	95
20	6/16/2008	BZM	2' N OF PIER 9 LINE H	61	12	8513G	128.2	3.2	97.4	95
21	6/16/2008	BZM	2' N OF PIER 10 LINE H	61	10	8513G	129.0	2.9	98.0	95
22	6/16/2008	BZM	2' E OF PIER 10 LINE H	61	10	8513G	128.7	3.4	97.8	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
23	6/19/2008	BZM	1' N OF CATCH BASIN # 7	57.9	12	8513G	131.1	2.6	99.6	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
24	6/19/2008	BZM	1'S OF LINE H - 4	57.9	10	8513G	122.7	3.0	93.2	95
25	6/19/2008	BZM	1'S OF LINE H - 5	57.9	10	8513G	126.7	2.6	96.3	95
26	6/19/2008	BZM	1'S OF LINE H - 8	57.9	10	8513G	124.2	2.6	94.4	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
27	6/20/2008	BZM	5' S OF LINE H - 8	60	12	8533G	131.5	8.6	100.8	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8533G	5/29/2008	Onsite	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D2922

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
28	6/20/2008	BZM	1' S OF LINE G - 5	2'	6"	8513G	131.5	4.4	99.9	95
29	6/20/2008	BZM	1' E OF LINE G - 5	4"	12	8513G	132.4	3.4	100.6	95
30	6/20/2008	BZM	1' E OF LINE G - 6/7	4"	12	8513G	128.6	4.3	97.7	95
31	6/20/2008	BZM	1' S OF LINE G - 6/7	18"	12	8513G	125.0	4.5	95.0	95
32	6/20/2008	BZM	1' S OF LINE G - 8	2'	12	8513G	127.2	3.9	96.7	95
33	6/20/2008	BZM	1' N OF LINE G - 8	OC	12	8513G	131.2	4.1	99.7	95
34	6/20/2008	BZM	1' S OF LINE G - 9	2'	12	8513G	127.1	4.0	96.6	95
35	6/20/2008	BZM	1' W OF LINE G - 9	4"	12	8513G	128.3	3.6	97.5	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
OC- ON CENTER

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: **PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING** Project Number: **07-1299**

Client: **BECKER STRUCTURAL ENGINEERS, INC.**

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
36	6/13/2008	DMR	G - 9	59.2	10	8513G	129.1	3.3	98.1	95
37	6/13/2008	DMR	G - 2	57	10	8513G	128.8	2.8	97.9	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
PREVIOUSLY UNREPORTED COMPACTION TEST RESULTS

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
38	6/23/2008	DMR	DRAIN LINE OFF H LINE 10	TF	12	8513G	130.0	4.3	98.8	95
39	6/23/2008	DMR	DRAIN LINE OFF H LINE 10	TF	12	8533G	127.2	5.2	97.5	95
40	6/23/2008	DMR	BETWEEN 6 + 9 AND G + H	SG	12	8533G	129.6	6.5	99.4	95
41	6/23/2008	DMR	CB # 6	2.5 BTF	12	8513G	131.0	5.6	99.5	95
42	6/23/2008	DMR	H - 6	1' ATF	10	8513G	129.4	4.4	98.3	95
43	6/23/2008	DMR	H - 7	1' ATF	10	8513G	129.5	4.7	98.4	95
44	6/23/2008	DMR	H - 8	1' ATF	10	8513G	128.4	5.1	97.6	95
45	6/23/2008	DMR	H - 9	1' ATF	10	8513G	129.0	4.4	98.0	95
46	6/23/2008	DMR	H - 10	1' ATF	10	8513G	128.2	4.6	97.4	95
47	6/23/2008	DMR	H - 6	SG	10	8513G	131.8	4.2	100.2	95
48	6/23/2008	DMR	H - 7	SG	10	8513G	127.2	4.0	96.7	95
49	6/23/2008	DMR	CB# 6	2' BTR	10	8513G	126.0	4.4	95.7	95
50	6/23/2008	DMR	H - 8	SG	10	8513G	127.5	4.3	96.9	95
51	6/23/2008	DMR	H - 9	SG	10	8513G	128.2	4.0	97.4	95
52	6/23/2008	DMR	H.58 - @ 10.7	TF	12	8513G	125.7	4.6	95.5	95
53	6/23/2008	DMR	H.58 - @ 12	TF	12	8513G	126.6	0.0	96.2	95
54	6/23/2008	DMR	BETWEEN 11.6 + 12 @ H.58	1' AF	12	8513G	125.3	4.9	95.2	95
55	6/23/2008	DMR	H.58 - BETWEEN 10.7 + 4 LINE	1' AF	12	8513G	129.5	3.3	98.4	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	
8533G	5/29/2008	Onsite	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation Notes:

Comments:

TF- TOP FOOTING
BTR- BELOW TOP RIM
BF- BELOW FOOTING
BTF- BELOW TOP FOOTING
SG- SUBGRADE
ATF- ABOVE TOP FOOTING
AF- ABOVE FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
56	6/24/2008	DMR	BETWEEN H.56 & H.83 ON 10.7 LINE	SG	12	8513G	127.6	4.4	97.0	95
57	6/24/2008	DMR	BETWEEN 11.6 & 12 ON BB 10.7 LINE	SG	12	8513G	126.9	5.2	96.4	95
58	6/24/2008	DMR	BETWEEN 11.6 & 12 ON 4.58	SG	12	8513G	128.3	4.1	97.5	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
SG- SUBGRADE

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
59	6/26/2008	DMR	G - 9	TF	10	8513G	127.0	3.6	96.5	95
60	6/26/2008	DMR	G - 10	1' BTF	10	8513G	125.8	3.8	95.6	95
61	6/26/2008	DMR	ELECTRICAL TORCH BETWEEN GH @ 8 LINE	SG	10	8533G	127.6	9.7	97.9	95
62	6/26/2008	DMR	ELECTRICAL TORCH BETWEEN GH @ 5 LINE	SG	10	8533G	128.4	4.8	98.5	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	
8533G	5/29/2008	Onsite	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation Notes:

Comments:

TF- TOP FOOTING
BTF- BELOW TOP FOOTING
SG- SUBGRADE

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
63	6/27/2008	SJC	G - 1 FOOTING	TF	12	8513G	125.3	4.0	95.2	95
64	6/27/2008	SJC	G - 1 FOOTING	TF	12	8513G	130.1	3.6	98.9	95
65	6/27/2008	SJC	G - 1 FOOTING	TF	12	8513G	127.1	4.8	96.6	95
66	6/27/2008	SJC	UNDER FOOTING G - 12 & 13 LINES	46	10	8513G	128.9	5.7	97.9	95
67	6/27/2008	SJC	UNDER FOOTING G - 12 & 13 LINES	47	12	8513G	126.6	3.8	96.2	95
68	6/27/2008	SJC	UNDER FOOTING G - 12 & 13 LINES	48	12	8513G	127.1	6.3	96.6	95
69	6/27/2008	SJC	UNDER FOOTING G - 12 & 13 LINES	49	12	8513G	128.8	4.9	97.9	95
70	6/27/2008	SJC	UNDER FOOTING G - 12 & 13 LINES	49	12	8513G	126.7	4.4	96.3	95
71	6/27/2008	SJC	UNDER FOOTING G - 12 & 13 LINES	49	12	8513G	127.6	4.5	97.0	95
72	6/27/2008	SJC	UNDER FOOTING G - 12 & 13 LINES	49.5	12	8513G	127.5	4.4	96.9	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
TF- TOP OF FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
73	6/30/2008	DMR	16' OFF G.8 BET 2 & 3	3.5 BTW	10	8513G	125.7	5.0	95.5	95
74	6/30/2008	DMR	H. 83 @ 15 LINE	TF	10	8513G	126.7	4.0	96.3	95
75	6/30/2008	DMR	H. 83 @ 15 LINE	1 ATF	10	8513G	130.2	4.4	98.9	95
76	6/30/2008	DMR	H. 83 @ 15 LINE	SUBG RADE	10	8513G	129.8	5.7	98.6	95
77	6/30/2008	DMR	2' INSIDE 2 LINE + 1/2 ' INSIDE G9	TF	10	8513G	128.2	4.8	97.4	95
78	6/30/2008	DMR	2' INSIDE 2 LINE + 1/2 ' INSIDE G9	1 ATF	10	8513G	130.1	4.9	98.9	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
BTW = BELOW TOP WALL
TF = TOP FOOTING
ATF = ABOVE TOP FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
79	7/1/2008	DMR	3' INSIDE 2 LINE - 6' INSIDE G.8	2 ATF	10	8513G	127.6	4.8	97.0	95
80	7/1/2008	DMR	G.8 - 8' INSIDE 1 LINE	3 BTW	12	8513G	128.4	5.0	97.6	95
81	7/1/2008	DMR	6' OUTSIDE 1 LINE @ G.9	TF	12	8513G	127.2	4.4	96.7	95
82	7/1/2008	DMR	4' OUTSIDE 1 LINE H + 9 '	TF	12	8513G	129.3	4.3	98.3	95
83	7/1/2008	DMR	G.8 + 4' - 5' INSIDE 2 LINE	4 BTW	12	8513G	130.6	4.8	99.2	95
84	7/1/2008	DMR	F-2	TF	12	8513G	128.3	5.1	97.5	95
85	7/1/2008	DMR	2' INSIDE 2 LINE @ H.0	TF	10	8513G	127.3	4.9	96.7	95
86	7/1/2008	DMR	2' INSIDE 1 LINE @ H.12	TF	10	8513G	128.7	4.2	97.8	95
87	7/1/2008	DMR	8' INSIDE 3 - 4' INSIDE G. 8	3 BTW	10	8513G	127.7	5.5	97.0	95
88	7/1/2008	DMR	B - 1	1 BTF	10	8513G	127.2	5.0	96.7	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:

ATF = ABOVE TOP FOOTING
BTF = BELOW TOP FOOTING
BTW = BELOW TOP WALL
TF = TOP FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
89	7/2/2008	DMR	H-3	3 BTW	12	8513G	128.5	5.7	97.6	95
90	7/2/2008	DMR	H-3	4' BTW	12	8513G	129.3	5.3	98.3	95
91	7/2/2008	DMR	BET 2 + 3 ON H.83	TF	12	8513G	130.4	6.2	99.1	95
92	7/2/2008	DMR	BET 2 + 3 ON 6' INSIDE H. 58	TF	12	8513G	127.1	6.5	96.6	95
93	7/2/2008	DMR	STORM LINE	43.0	12	8513G	130.5	4.8	99.2	95
94	7/2/2008	DMR	STORM LINE	45.0	12	8513G	130.1	3.5	98.9	95
95	7/2/2008	DMR	STORM LINE	47.0	12	8513G	129.6	4.2	98.5	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
BTW = BELOW TOP WALL
TF = TOP FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
96	7/3/2008	DMR	F LINE - 12' OFF	1 BTF	12	8513G	128.6	3.7	97.7	95
97	7/3/2008	DMR	14' INSIDE F LINE @ 13	TF	12	8513G	129.2	4.0	98.2	95
98	7/3/2008	DMR	F LINE BET 11 + 12	2 ATF	12	8513G	129.8	4.2	98.6	95
99	7/3/2008	DMR	F LINE BET 11 + 12	4 ATF	12	8513G	130.1	4.1	98.9	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
100	7/7/2008	DMR	F - 11	BF	12	8513G	127.8	4.0	97.1	95
101	7/7/2008	DMR	BET F + G ON 12 LINE	3 BBF	12	8513G	129.3	3.2	98.3	95
102	7/7/2008	DMR	BET F + G ON 12 LINE	2 BBF	12	8513G	130.4	4.2	99.1	95
103	7/7/2008	DMR	BET F + G ON 12 LINE	1 BBF	12	8513G	128.6	3.6	97.7	95
104	7/7/2008	DMR	BET F + G ON 12 LINE	BF	12	8513G	129.0	3.8	98.0	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
BF = BOTTOM FOOTING
BBF = BELOW BOTTOM FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
							0.0	0.0	0.0	0
105	7/8/2008	TTM	PARKING LOT - 50' S OF INT LINE H. 83 + LINE 8	60.33		8513G	130.0	3.6	98.8	95
106	7/8/2008	TTM	SEWER TRENCH - 35' E OF INT LINE I + LINE F	57.00		8533G	129.9	6.9	99.6	95
107	7/8/2008	TTM	SEWER TRENCH - 25' E OF INT LINE 1 + LINE F	58.00		8533G	124.9	8.3	95.8	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	
8533G	5/29/2008	Onsite	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
108	7/9/2008	DMR	H.4	SUBGRADE	10	8513G	128.3	4.3	97.5	95
109	7/9/2008	DMR	BET 2 + 3 - H.12	2' BTW	10	8513G	127.6	4.0	97.0	95
110	7/9/2008	DMR	4' INSIDE 2 LINE @ H.12	2' BTW	10	8513G	129.4	4.6	98.3	95
111	7/9/2008	DMR	G-3	1' BBF	12	8513G	129.1	4.0	98.1	95
112	7/9/2008	DMR	G-4	BF	10	8513G	127.3	4.4	96.7	95
113	7/9/2008	DMR	G-3	BF	12	8513G	126.7	5.0	96.3	95
114	7/9/2008	DMR	PARKING AREA ON H.53 + 8 LINE	FINISH SUBBASE	10	8513G	128.3	3.5	97.5	95
115	7/9/2008	DMR	PARKING AREA ON H.53 + 5 LINE	FINISH SUBBASE	10	8513G	126.6	4.1	96.2	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
BTW = BELOW TOP WALL
BF = BOTTOM FOOTING
BBF = BELOW BOTTOM FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
116	7/11/2008	SJC	BTWN CB. 3 & CB. 2	63.0	12	8513G	133.3	3.9	101.3	95
117	7/11/2008	SJC	CORNER OF SW STAIR TOWER	63.0	12	8513G	131.0	5.5	99.5	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: **PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING** Project Number: **07-1299**

Client: **BECKER STRUCTURAL ENGINEERS, INC.**

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
118	7/14/2008	DMR	G.7-12	TF	12	8513G	126.9	4.3	96.4	95
119	7/14/2008	DMR	RD-12	2'ATF	12	8513G	128.4	4.6	97.6	95
120	7/14/2008	DMR	H-12	1' BTF	12	8513G	127.6	5.0	97.0	95
121	7/14/2008	DMR	H-13	BF	12	8513G	128.0	4.0	97.3	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:

TF = TOP FOOTING
ATF = ABOVE TOP FOOTING
BTF = BELOW TOP FOOTING
BF = BOTTOM FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density

ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING

Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
122	7/17/2008	TTM	G 4 EAST SIDE	62.2		8513G	129.4	2.7	98.3	95
123	7/17/2008	TTM	G 4 WEST SIDE	62.2		8513G	129.2	3.0	98.2	95
124	7/17/2008	TTM	G 3 NORTH SIDE	62.2		8513G	130.7	3.5	99.3	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
125	7/21/2008	DMR	TRUCKSHED OFFICE AREA 3' OFF TRUCK BAY DOORS - OUTSIDE OF BLDG	3' BTW	10	8513G	126.7	5.5	96.3	95
126	7/21/2008	DMR	TRUCKSHED OFFICE AREA 2' OFF FRONT TRUCK SHED WALL - OUTSIDE OF BLDG	3' BTW	10	8513G	130.3	4.7	99.0	95
127	7/21/2008	DMR	TRUCKSHED OFFICE AREA 3' OFF BACK TRUCKSHED WALL - OUTSIDE OF BLDG	3' BTW	10	8513G	127.2	4.4	96.7	95
128	7/21/2008	DMR	TRUCKSHED OFFICE AREA 3' OFF CORNER OF OFFICE + SHED WALL - OUTSIDE OF BLDG	3' BTW	10	8513G	129.7	5.9	98.6	95
129	7/21/2008	DMR	TRUCKSHED OFFICE AREA - 6' OFF EXISTING BLDG, 3' OFF OFFICE - OUTSIDE OF BLDG	3' BTW	10	8513G	126.9	4.9	96.4	95
130	7/21/2008	DMR	2' INSIDE OFFICE AREA, FAR BACK WALL CTR LINE	3' BTW	10	8513G	126.4	5.4	96.0	95
131	7/21/2008	DMR	2' INSIDE OFFICE AREA WALL + SHED WALL	3' BTW	10	8513G	128.3	4.3	97.5	95
132	7/21/2008	DMR	3' INSIDE SHED WALL, OFFICE SIDE	3' BTW	10	8513G	128.0	5.0	97.3	95
133	7/21/2008	DMR	3' INSIDE SHED WALL, FAR BACK WALL CTR LINE	3' BTW	10	8513G	129.3	4.9	98.3	95
134	7/21/2008	DMR	3' INSIDE SHED WALL, FRONT BAY WALL CTR LINE	3' BTW	10	8513G	130.1	5.4	98.9	95
135	7/21/2008	DMR	G-13	TF	10	8513G	126.0	4.2	95.7	95
136	7/21/2008	DMR	G-14	TF	10	8513G	125.8	4.8	95.6	95
137	7/21/2008	DMR	G + 20 14 LINE	TF	10	8513G	127.4	4.1	96.8	95
138	7/21/2008	DMR	G + 20 14 LINE	2' ATF	10	8513G	129.0	4.5	98.0	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

BTW = BELOW TOP WALL
TF = TOP FOOTING
ATF = ABOVE TOP FOOTING

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - **PHASE II PARKING GARAGE - MATERIALS TESTING** Project Number: **07-1299**

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
139	7/22/2008	BZM	12' N & 1.5' W END OF WALL	59 +/-	12	8513G	133.6	4.6	101.5	95
140	7/22/2008	BZM	3' S & W' E PIER C	59 +/-	12	8513G	129.3	5.4	98.3	95
141	7/22/2008	BZM	10' N & 10' W PIER	59 +/-	12	8513G	129.8	6.1	98.6	95
142	7/22/2008	BZM	10' N & 6' E PIER C	59 +/-	12	8533G	129.6	5.6	99.4	95
143	7/22/2008	BZM	10' N & 1' E SE CNR	60 +/-	12	8513G	125.9	5.9	95.7	95
144	7/22/2008	BZM	20' S & 20' W PIER C	59.5 +/-	12	8533G	127.1	6.3	97.5	95
145	7/22/2008	BZM	3' N & 6' E PIER C	59.0 +/-	12	8533G	126.7	5.8	97.2	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	
8533G	5/29/2008	Onsite	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation Notes: **Comments:**

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - **PHASE II PARKING GARAGE - MATERIALS TESTING** Project Number: **07-1299**

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
146	7/22/2008	DMR	F - 13 + 14	2' BBF	12	8513G	125.8	5.0	95.6	95
147	7/22/2008	DMR	F - 13 + 14	2' BBF	12	8513G	126.6	4.6	96.2	95
148	7/22/2008	DMR	F - 13 + 14	BF	12	8513G	125.9	5.1	95.7	95
149	7/22/2008	DMR	MAINE DRAINAGE TRENCH F LINE BET 12 + 13	2' AP	10	8513G	127.6	4.2	97.0	95
150	7/22/2008	DMR	MAINE DRAINAGE TRENCH F LINE BET 12 + 13	3' AP	10	8513G	129.4	4.6	98.3	95
151	7/22/2008	DMR	MAINE DRAINAGE TRENCH F LINE BET 12 + 13	4' AP	10	8513G	127.3	4.1	96.7	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/2/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

BBF = BELOW BOTTOM FOOTING
BF = BOTTOM FOOTING
AP = ABOVE PIPE

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PO[illegible]LAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BE[illegible]ER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
152	7/23/	DMR	MAIN DRAINAGE TRENCH @ 12 LINE	3' AP	12	8513G	126.0	4.8	95.7	95
153	7/23/	DMR	MAIN DRAINAGE TRENCH @ 11 LINE	5' AP	12	8513G	128.3	5.2	97.5	95
154	7/23/	DMR	MAIN DRAINAGE TRENCH @ 12 LINE	7' AP	12	8513G	125.9	4.6	95.7	95
155	7/23/	DMR	MAIN DRAINAGE TRENCH BET 11 + 12	4' AP	12	8513G	126.6	5.6	96.2	95
156	7/23	DMR	MAIN DRAINAGE TRENCH @ 12	9' AP	12	8513G	127.5	4.3	96.9	95
157	7/23	DMR	TRUCKSHED BLDG - OFFICE AREA	1' BTW	12	8513G	130.1	4.9	98.9	95
158	7/23	DMR	TRUCKSHED BLDG - GARAGE AREA 6' OFF CTR WALL	1' BTW	12	8513G	129.6	5.1	98.5	95
159	7/23	DMR	TRUCKSHED BLDG - GARAGE AREA 10' OFF FRONT WALL	1' BTW	12	8513G	130.4	4.6	99.1	95
160	7/23	DMR	DRAINAGE TRENCH @ BET 10 + 11	3' AP	12	8513G	127.4	4.7	96.8	95
161	7/23	DMR	DRAINAGE TRENCH @ BET 10 + 11	4' AP	12	8513G	126.8	5.2	96.4	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/[illegible]008	[illegible]ney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation N[illegible]s:

AP = ABOV[illegible]PE

BTW = BEL[illegible]TOP WALL

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: P[illegible]LAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: B[illegible]KER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Tes[illegible]	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
162	7/2[illegible]	DMR	F-12	12' AP	12	8513G	129.7	6.0	98.6	95
163	7/2[illegible]	DMR	F-11	12' AP	12	8513G	128.3	5.6	97.5	95
164	7/2[illegible]	DMR	F-12	14' AP	12	8513G	130.4	6.4	99.1	95
165	7/2[illegible]	DMR	F-11	14' AP	12	8513G	128.0	5.5	97.3	95

Laboratory Compaction Test Reference

Lab ID	R[illegible]ved	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5[illegible]08	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation [illegible]est:
AP- ABOV[illegible]E

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PO[illegible]LAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BE[illegible]ER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test D[illegible]e	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
166	7/25/[illegible]	DMR	F - 12	14' BBF	12	8513G	126.6	4.4	96.2	95
167	7/25/2[illegible]	DMR	F - 11	14' BBF	12	8513G	127.4	4.0	96.8	95
168	7/25/2[illegible]	DMR	F - 12	2' BBF	12	8513G	127.0	5.2	96.5	95
169	7/25/2[illegible]	DMR	F - 11	2' BBF	12	8513G	129.3	4.6	98.3	95
170	7/25/2[illegible]	DMR	F - 12	1' BBF	12	8513G	129.0	4.9	98.0	95
171	7/25/2[illegible]	DMR	F - 11	1' BBF	12	8513G	127.5	5.3	96.9	95
172	7/25/[illegible]	DMR	F - 12	BF	12	8513G	129.6	5.8	98.5	95
173	7/25/2[illegible]	DMR	F - 11	BF	12	8513G	128.4	4.2	97.6	95
174	7/25/2[illegible]	DMR	F - 10	4' AP	12	8513G	126.9	4.7	96.4	95
175	7/25/2[illegible]	DMR	F - 8	4' AP	12	8513G	128.2	4.6	97.4	95
176	7/25/2[illegible]	DMR	F - 10	6' AP	12	8513G	129.0	4.9	98.0	95
177	7/25/2[illegible]	DMR	F - 8	6' AP	12	8513G	130.1	5.3	98.9	95
178	7/25/[illegible]	DMR	F - 10	8' AP	12	8513G	127.6	4.8	97.0	95
179	7/25/[illegible]	DMR	F - BETWEEN 8 & 9	8' AP	12	8513G	127.0	5.3	96.5	95

Laboratory Compaction Test Reference

Lab ID	Da[illegible] Rec[illegible]	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/2[illegible]	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation No[illegible]

Comments:

BBF- BELOW [illegible]TTOM FOOTING
BF- BOTTOM [illegible]OTING
AP- ABOVE F[illegible]E

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
180	7/28/20	DMR	F-10	4' BBF	12	8513G	125.6	4.3	95.4	95
181	7/28/20	DMR	F- BET 8 + 9 LINE	6' BBF	12	8513G	125.9	4.8	95.7	95
182	7/28/20	DMR	F-10	3' BBF	12	8513G	127.3	5.0	96.7	95
183	7/28/20	DMR	F- BET 8 + 9 LINE	5' BBF	12	8513G	125.5	4.6	95.4	95
184	7/28/20	DMR	F-10	2' BBF	12	8513G	128.3	5.2	97.5	95
185	7/28/20	DMR	F - BET 8 + 9 LINE	4' BBF	12	8513G	126.6	5.0	96.2	95
186	7/28/20	DMR	F-10	1' BBF	12	8513G	130.1	4.3	98.9	95
187	7/28/20	DMR	F- BET 8 + 9 LINE	3' BBF	12	8513G	126.7	5.1	96.3	95
188	7/28/20	DMR	F-10	BF	12	8513G	128.3	5.6	97.5	95
189	7/28/20	DMR	F- BET 8 + 9 LINE	2' BBF	12	8513G	128.0	4.8	97.3	95
190	7/28/20	DMR	F - BET 8 + 9 LINE	1' BBF	12	8513G	129.2	4.4	98.2	95
191	7/28/20	DMR	F - BET 8 + 9 LINE	BF	12	8513G	127.5	4.5	96.9	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	5/2[illegible]/08	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes

Comments:

BBF = BELOW BOTTOM FOOTING
BF = BOTTOM FOOTING
BET = BETWEEN

Reviewed By

Report of Field Density
ASTM D6938

Project: [illegible] - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: [illegible] STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test D[illegible]	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
192	7/[illegible]	[illegible]MR	3' INSIDE G @ 13 + 8'	4' BTW	12	8513G	128.2	4.4	97.4	95
193	7/[illegible]	[illegible]MR	F + 8' @ 13 LINE	1 1/2' BTF	12	8513G	129.5	4.2	98.4	95
194	7/[illegible]	[illegible]MR	F + 8' @ 13 LINE	TF	12	8513G	128.3	4.5	97.5	95
195	7/[illegible]	[illegible]MR	3' INSIDE G LINE - 3' INSIDE 14 LINE	2' BTW	12	8513G	127.2	5.0	96.7	95
196	7/29/[illegible]	[illegible]MR	G - 10' INSIDE 12 LINE	1' BTF	12	8513G	127.5	5.3	96.9	95
197	7/[illegible]	[illegible]MR	G - 10' INSIDE 12 LINE	TF	12	8513G	128.0	5.1	97.3	95
198	7/[illegible]	[illegible]MR	11 LINE BET G + H	TF	12	8533G	126.6	6.9	97.1	95
199	7/[illegible]	[illegible]MR	12 LINE BET G + H	4' BS	12	8533G	125.9	7.4	96.5	95
200	7/[illegible]	[illegible]MR	12 LINE BET G + H	2' BS	12	8533G	125.3	7.6	96.1	95
201	7/[illegible]	[illegible]MR	12 LINE BET G + H	SUBG RADE	12	8533G	126.0	8.0	96.6	95
202	7/[illegible]	[illegible]MR	3' INSIDE 13 LINE BET G + H	6' BTW	12	8513G	128.3	4.6	97.5	95
203	7/[illegible]	[illegible]MR	G.7 - 12 LINE	5' BTP	12	8513G	129.0	5.2	98.0	95
204	7/[illegible]	[illegible]MR	3' OUTSIDE G @ 12 LINE	3' BTW	12	8513G	127.7	6.0	97.0	95
205	7/[illegible]	[illegible]MR	5' INSIDE 13 - BETWEEN G + H	8' BTW	12	8513G	130.2	5.4	98.9	95

Laboratory Compaction Test Reference

Lab ID	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	[illegible] Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	
8533G	[illegible]	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation [illegible]

Comments:

BTW = BELOW TOP WALL
BTF = BELOW TOP FOOTING
TF = TOP FOOTING
BS = BELOW SUBGRADE
BTP = BELOW TOP PIER

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: [illegible] - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: [illegible] STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
206	7/3	PLUMBING TRENCH BET F + G + 11 + 12	2' AP	10	8533G	127.2	8.0	97.5	95
207	7/3	PLUMBING TRENCH BET F + G + 11 + 12	FG	12	8533G	128.0	7.3	98.2	95
208	7/3	PLUMBING TRENCH BET F + G, 10 LINE	2' AP	12	8533G	127.0	8.8	97.4	95
209	7/3	PLUMBING TRENCH BET F + G, 10 LINE	FG	12	8533G	127.6	8.2	97.9	95
210	7/3	F - 6 + 7	5' AP	12	8513G	125.6	6.1	95.4	95
211	7/3	F - 4	3' AP	12	8513G	126.0	6.2	95.7	95
212	7/3	F - 6 + 7	7' AP	12	8513G	125.2	5.3	95.1	95
213	7/3	F - 4	5' AP	12	8513G	126.6	6.2	96.2	95
214	7/3	F - 6 + 7	9' AP	12	8513G	127.3	6.0	96.7	95
215	7/3	F - BET 4 +5	7' AP	12	8513G	128.4	5.7	97.6	95
216	7/3	F - 6 + 7	10' AP	12	8513G	130.3	5.6	99.0	95
217	7/3	F - 4	8' AP	12	8513G	128.5	6.6	97.6	95
218	7/3	F - 6 + 7	11' AP	12	8513G	127.3	6.2	96.7	95
219	7/3	F - 4	9' AP	12	8513G	128.8	5.8	97.9	95

Laboratory Compaction Test Reference

Lab ID	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	[illegible] Pitney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	
8533G	[illegible] Onsite	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation Notes:

Comments:
AP = ABOVE PIPE
FG = FINISH SUBGRADE
BET = BETWEEN

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: [illegible] PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: [illegible] STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test [illegible]	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
220	7/3 [illegible]	F + 4	6' BBF	12	8513G	130.0	4.6	98.8	95
221	7/3 [illegible]	F - 6 + 7	2' BBF	12	8513G	130.1	4.4	98.9	95
222	7/3 [illegible]	F - 6 + 7	1' BBF	12	8513G	130.3	4.6	99.0	95
223	7/3 [illegible]	F - 6 + 7	BF	12	8513G	128.2	4.5	97.4	95
224	7/3 [illegible]	F - 3	7' BBF	12	8513G	130.3	5.3	99.0	95
225	7/3 [illegible]	F - 3	6' BBF	12	8513G	129.6	4.3	98.5	95
226	7/3 [illegible]	F - 5	3' BBF	12	8513G	130.1	4.6	98.9	95
227	7/3 [illegible]	F - 3	5' BBF	12	8513G	130.2	4.0	98.9	95
228	7/3 [illegible]	F - 5	2' BBF	12	8513G	130.0	3.8	98.8	95
229	7/3 [illegible]	F - 5	1' BBF	12	8513G	129.6	4.2	98.5	95
230	7/3 [illegible]	F - 5	BF	12	8513G	130.0	4.3	98.8	95

Laboratory Compaction Test Reference

Lab ID	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	[illegible] Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation [illegible]

Comments:
BBF = BELOW BOTTOM FOOTING
BF = BOTTOM FOOTING

Reviewed By

S.W. COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: [illegible] - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: [illegible] STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
231	8/	[illegible]	F - 1	3' AP	12	8513G	128.3	4.6	97.5	95
232	8/	[illegible]	F - 2	4' AP	12	8513G	129.0	5.0	98.0	95
233	8/	[illegible]	F - 1	5' AP	12	8513G	127.4	4.6	96.8	95
234	8/	[illegible]	F - 4	5' BBF	12	8513G	127.0	4.4	96.5	95
235	8/	[illegible]	F - 1	6' AP	12	8513G	130.2	5.0	98.9	95
236	8/	[illegible]	F - 4	4' BBF	12	8513G	128.8	4.8	97.9	95
237	8/	[illegible]	F - 1	7' ATP	12	8513G	129.0	4.7	98.0	95
238	8/	[illegible]	F - 4	3' BBF	12	8513G	126.8	4.3	96.4	95

Laboratory Compaction Test Reference

Lab ID	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	[illegible] Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation [illegible]

Comments:
AP = ABOVE PIPE
BFF = BELOW BOTTOM FOOTING
ATP = ABOVE TOP PIPE

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BAKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	T	ate	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
239	8	08	MR	F - 4	2' BBF	12	8513G	130.1	8.6	98.9	95
240	8	08	MR	F - 4	BF	12	8513G	129.6	9.2	98.5	95
241	8/	08	MR	F - BETWEEN 10 + 11	1' BTF	12	8513G	128.4	7.6	97.6	95
242	8	08	MR	F - BETWEEN 10 + 11	TF	12	8513G	129.0	7.5	98.0	95
243	8	08	MR	10' INSIDE F - 10 LINE	1' BTF	12	8513G	127.6	6.8	97.0	95
244	8	08	MR	10' INSIDE F - 9 LINE	1' BTF	12	8513G	128.0	7.4	97.3	95
245	8	08	MR	10' INSIDE F - 9 LINE	TF	12	8513G	127.3	7.6	96.7	95
246	8/	08	MR	10' INSIDE F - 10 LINE	TF	12	8513G	128.8	6.9	97.9	95
247	8	08	MR	10' INSIDE F - 8 LINE	1' BTF	12	8513G	129.2	7.3	98.2	95
248	8	08	MR	10' INSIDE F - 8 LINE	TF	12	8513G	127.9	8.0	97.2	95

Laboratory Compaction Test Reference

Lab ID	F	ed	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G		08	ey Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation

Comments:

BBF- BELOW BOTTOM FOOTING
BTF- BELOW TOP FOOTING
TF- TOP FOOTING
BF- BELOW FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
249	AT F/3	55.21 +/-	12	8513G	134.4	8.4	102.1	95
250	AT F/3	57.0 +/-	12	8513G	132.0	5.2	100.3	95
251	6' DUE N OF F/12	61.07	12	8513G	128.5	6.3	97.6	95
252	12' N & 8' W OF F/12	61.5 +/-	12	8513G	131.1	8.1	99.6	95
253	25' DUE S OF F/12	62.0 +/-	12	8533G	130.4	7.6	100.0	95
254	20' DUE S PF F/11	63.0 +/-	12	8533G	131.2	9.3	100.6	95
255	AT F/3	57.0 +/-	12	8513G	129.7	5.8	98.6	95
256	AT F/3	58.0 +/-	12	8513G	128.4	5.5	97.6	95
257	AT F/3	59.0 +/-	12	8513G	133.0	4.2	101.1	95
258	AT F/2	56.0 +/-	12	8513G	132.3	3.9	100.5	95
259	3' N & 4' E F/12	61.5 +/-	12	8513G	125.4	5.5	95.3	95
260	AT F/2	57.2 +/-	12	8513G	131.1	6.1	99.6	95
261	AT F/2	58.2 +/-	12	8513G	133.7	5.9	101.6	95

Laboratory Compaction Test Reference

Lab ID	Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	
8533G		Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation

Comments:

Reviewed By

S.W. COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: DECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
262	8/	VLT	1' S OF INT LINE F + LINE 4	60	10	8513G	128.2	3.7	97.4	95
263	8	VLT	1' W OF INT LINE F + LINE 4	60	10	8513G	128.6	5.3	97.7	95
264	8/1	VLT	1' N OF INT LINE F + LINE 4	60	10	8513G	129.8	6.4	98.6	95
265	8/	VLT	1' N OF INT LINE F + LINE 5	60	10	8513G	125.6	6.5	95.4	95
266	8/	VLT	3' W OF INT LINE G + 13	63.5	10	8533G	124.9	5.6	95.8	95
267	8/	VLT	15' S 2' W OF INT LINE G + 13	63.5	10	8533G	127.6	5.5	97.9	95

Laboratory Compaction Test Reference

Lab ID	Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	2008	Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	
8533G	2008		Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevations:

Comments:
INT = INTERIOR

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: RTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: KER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
268	8/[illegible]/08	6' N 2' E OF INT. G-7	60	10	8533G	130.2	9.6	99.8	95
269	8/[illegible]/08	10 'N 2' W OF INT. G-7	60	10	8533G	125.8	8.9	96.5	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8533G	[illegible]/2008	[illegible]	Common Borrow	ASTM D-1557 Modified B	130.4	8.6	

Elevation Datum:

Comments:
INT = INTERIOR

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: RTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: CKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
270	8/ 008	DMR	BETWEEN 4 + 5 AND G + H	FG	10	8513G	130.6	4.0	99.2	95
271	8/ 008	DMR	G - BETWEEN 7 & 8	FG	10	8513G	129.3	3.6	98.3	95
272	8/ 2008	DMR	F - 3	TOF	10	8513G	131.0	4.5	99.5	95
273	8/ 2008	DMR	H - BETWEEN 7 + 8	FG	10	8513G	129.0	4.4	98.0	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	7/2008	Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
FG- FINISH GRAVEL
TOF- TOP OF FOOTING

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: LECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
274	9/4/2008	DMF	TERMINAL CANOPY IN ROADWAY	FG	10	8513G	125.2	4.7	95.1	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	8/27/2008	Pitney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:
FG- FINISH GRAVEL

Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: ORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: ECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	T	Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
275	9	2008	VLT	TRAFFIC TABLE (1) - 80' S 15' W OF SE CNR	61	10	8513G	131.7	4.9	100.1	95
276	9	2008	VLT	TRAFFIC TABLE (1) - 85' S 30' W OF SE CNR	61	10	8513G	132.9	5.2	101.0	95
277	9	2008	VLT	TRAFFIC TABLE (2) - 50' S 20' E OF SW CNR	61	10	8513G	132.0	4.1	100.3	95
278	9	2008	VLT	TRAFFIC TABLE (2) - 55' S 40' E OF SW CNR	61	10	8513G	131.8	6.3	100.2	95
279	9	2008	VLT	20' N 50' W OF SE CNR	61.5	10	8513G	129.4	5.0	98.3	95
280	9	2008	VLT	60' N 55' W OF SE CNR	61.5	10	8513G	128.4	2.8	97.6	95
281	9	2008	VLT	55' S 60' W OF NE CNR	61.5	10	8513G	131.4	6.7	99.8	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	7/2008	Pinkney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:

Comments:
CNR-CORNER

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: ECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
282	10/[illegible]/2008	BZM	SLAB #1	63.5 +/-	8	8532G	135.1	3.0	107.8	95
283	10/[illegible]/2008	BZM	SLAB #2	63.5 +/-	8	8532G	134.0	2.8	106.9	95
284	10/[illegible]/2008	BZM	SLAB #3	63.5 +/-	8	8532G	130.2	3.2	103.9	95
285	10/[illegible]/2008	BZM	SLAB #4	63.5 +/-	8	8532G	133.6	4.0	106.6	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8532G	10/[illegible]/2008	Onsite	Aggregate Base (Type C)	ASTM D-1557 Modified C	125.3	8.9	

Elevation Notes: Comments:

Reviewed By

S.W.COLE ENGINEERING, INC.

Report of Field Density
ASTM D6938

Project: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Field Density Test Results

Test #	Test Date	Tech	Test Location	Elev Feet	Test Depth	Lab ID	Dry Density	Moisture Content Percent	Compaction Percent	Required Compaction
286	11/3/2008	VLT	PARKING LOT NEW ENTRANCE - WEST	- 5 BFG	10	8513G	130.5	2.7	99.2	95
287	11/3/2008	VLT	30' WEST OF BLDG - PARKING LOT NEW ENTRANCE	- 5 BFG	10	8513G	133.3	3.8	101.3	95

Laboratory Compaction Test Reference

Lab ID	Date Received	Material Source	Material Type	Method	Max Dry Density PCF	Optimum Moisture Content (%)	Comments
8513G	10/27/2008	Phinney Pit	3" Gravel	ASTM D-1557 Modified C	131.6	6.8	

Elevation Notes:
BFG - BELOW FINISH GRADE

Comments:

Reviewed By

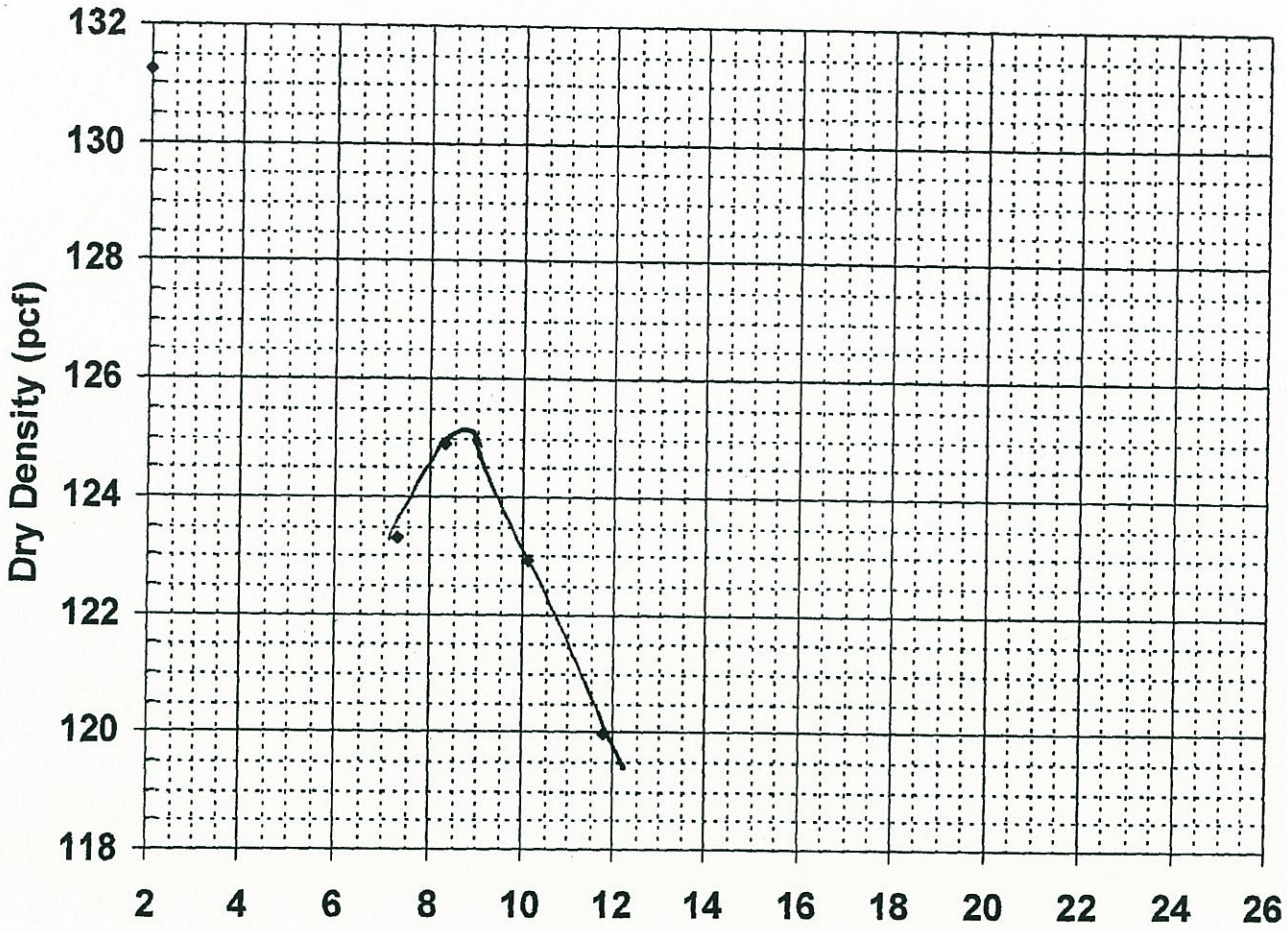
S.W.COLE ENGINEERING, INC.

Report of Moisture-Density

Method ASTM D-1557 MODIFIED Procedure C

Project Name	PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING	Project Number	07-1299
Client	BECKER STRUCTURAL ENGINEERS, INC.	Lab ID	8532G
Material Type	AGGREGATE BASE (TYPE C)	Date Received	5/29/2008
Material Source	ONSITE	Date Completed	6/3/2008
		Tested By	

Moisture-Density Relationship Curve



Maximum Dry Density (pcf)	125.3
Optimum Moisture Content (%)	8.9
Percent Oversized	0.0%

Corrected Dry Density (pcf)	**125.3**
Corrected Moisture Content (%)	**8.9**

Comments

Roger E. Domingo

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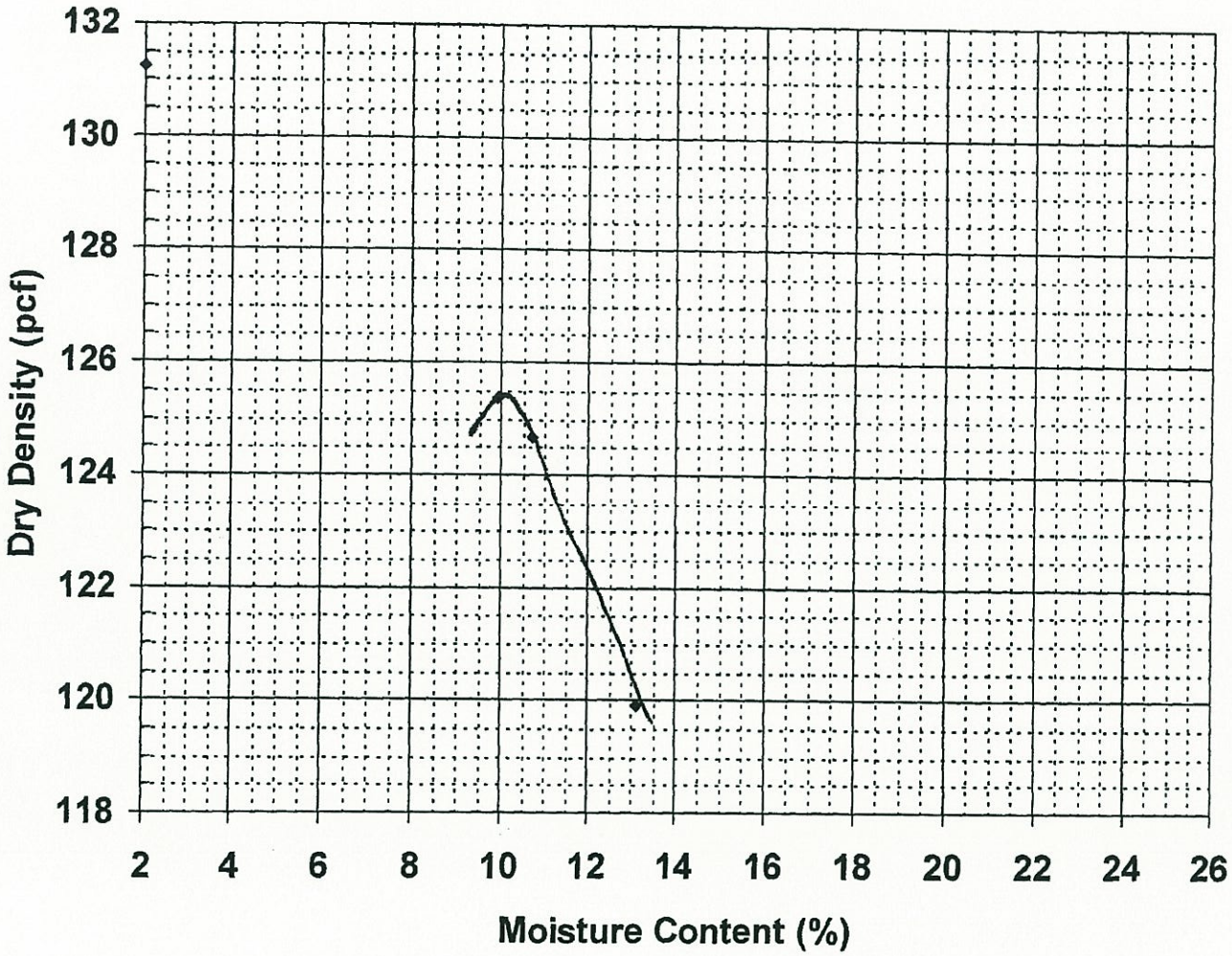
S.W.COLE ENGINEERING, INC.

Report of Moisture-Density

Method ASTM D-1557 MODIFIED Procedure B

Project Name	PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING	Project Number	07-1299
Client	BECKER STRUCTURAL ENGINEERS, INC.	Lab ID	8533G
Material Type	COMMON BORROW	Date Received	5/29/2008
Material Source	ONSITE	Date Completed	6/3/2008
		Tested By	CRAIG TURCOTTE

Moisture-Density Relationship Curve



Maximum Dry Density (pcf)	125.4
Optimum Moisture Content (%)	10.1
Percent Oversized	18.9%

Corrected Dry Density (pcf)	**130.4**
Corrected Moisture Content (%)	**8.6**

Comments

Roger E. Domingo

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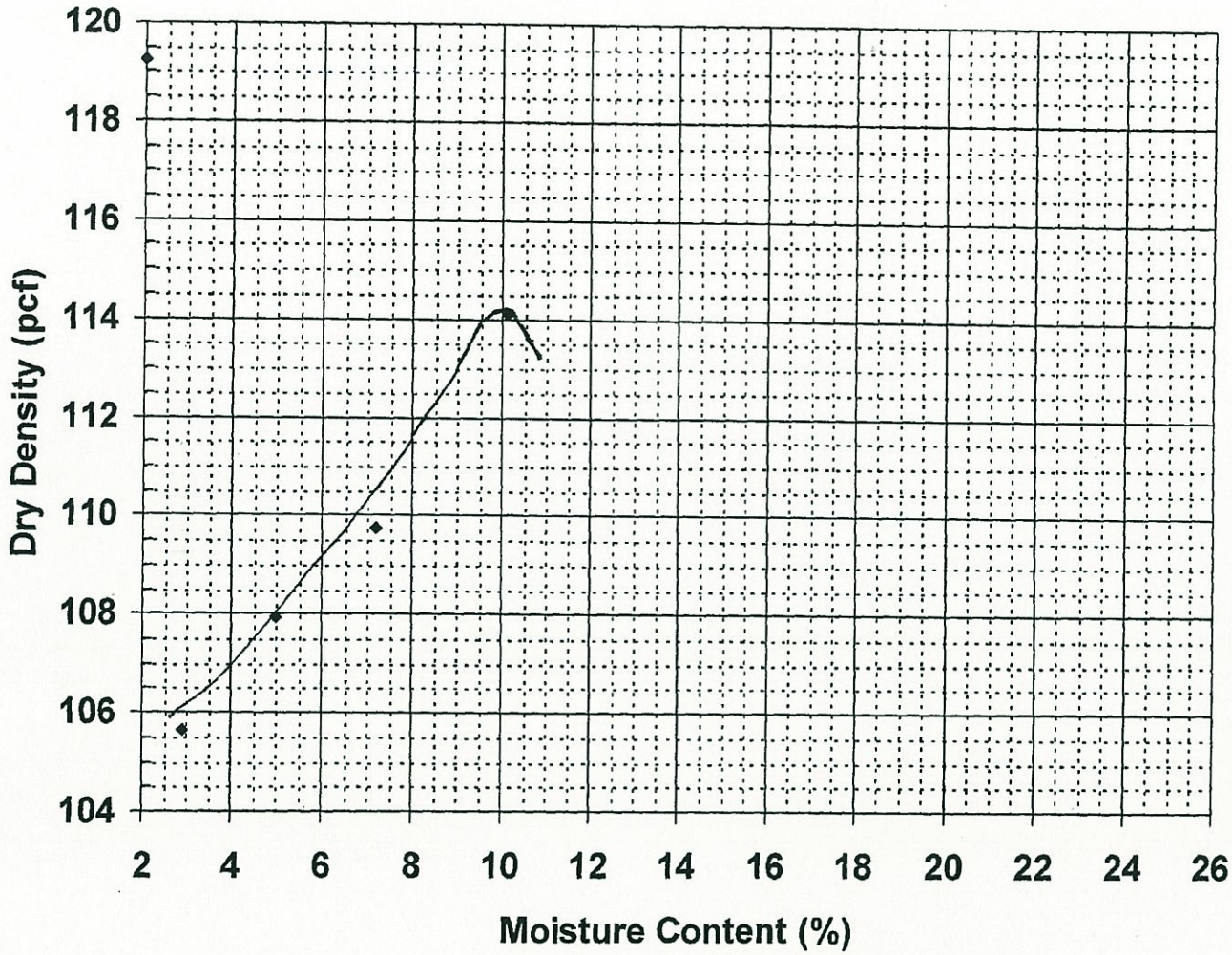
S.W.COLE ENGINEERING, INC.

Report of Moisture-Density

Method ASTM D-1557 MODIFIED **Procedure A**

Project Name	PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING	Project Number	07-1299
Client	BECKER STRUCTURAL ENGINEERS, INC.	Lab ID	8514G
Material Type	UNDERDRAIN SAND	Date Received	5/27/2008
Material Source	PHINNEY PIT	Date Completed	5/29/2008
		Tested By	JUSTIN BISSON

Moisture-Density Relationship Curve



Maximum Dry Density (pcf)	114.3
Optimum Moisture Content (%)	9.8
Percent Oversized	17.1%

Corrected Dry Density (pcf)	**119.9**
Corrected Moisture Content (%)	**8.5**

Comments

Roger E. Domingo

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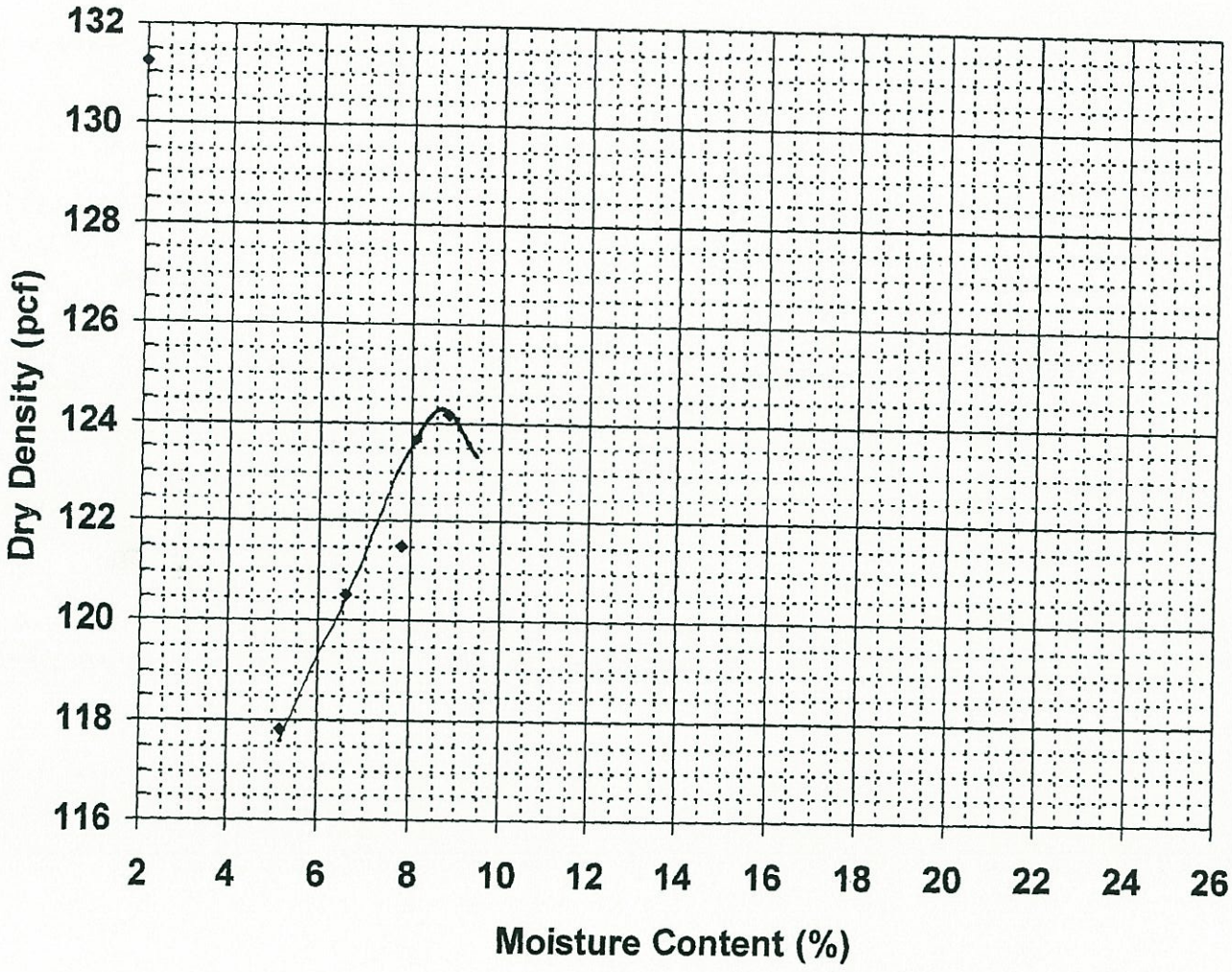
Report of Moisture-Density

Method ASTM D-1557 MODIFIED Procedure C

Project Name	PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING	Project Number	07-1299
Client	BECKER STRUCTURAL ENGINEERS, INC.	Lab ID	8513G
Material Type	3" GRAVEL	Date Received	5/27/2008
Material Source	PHINNEY PIT	Date Completed	5/29/2008
		Tested By	JUSTIN BISSON

Moisture-Density Relationship Curve



Maximum Dry Density (pcf)	124.3
Optimum Moisture Content (%)	8.5
Percent Oversized	26.5%

Corrected Dry Density (pcf)	**131.6**
Corrected Moisture Content (%)	**6.8**

Comments

Roger E. Domingo

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S.W.COLE ENGINEERING, INC.

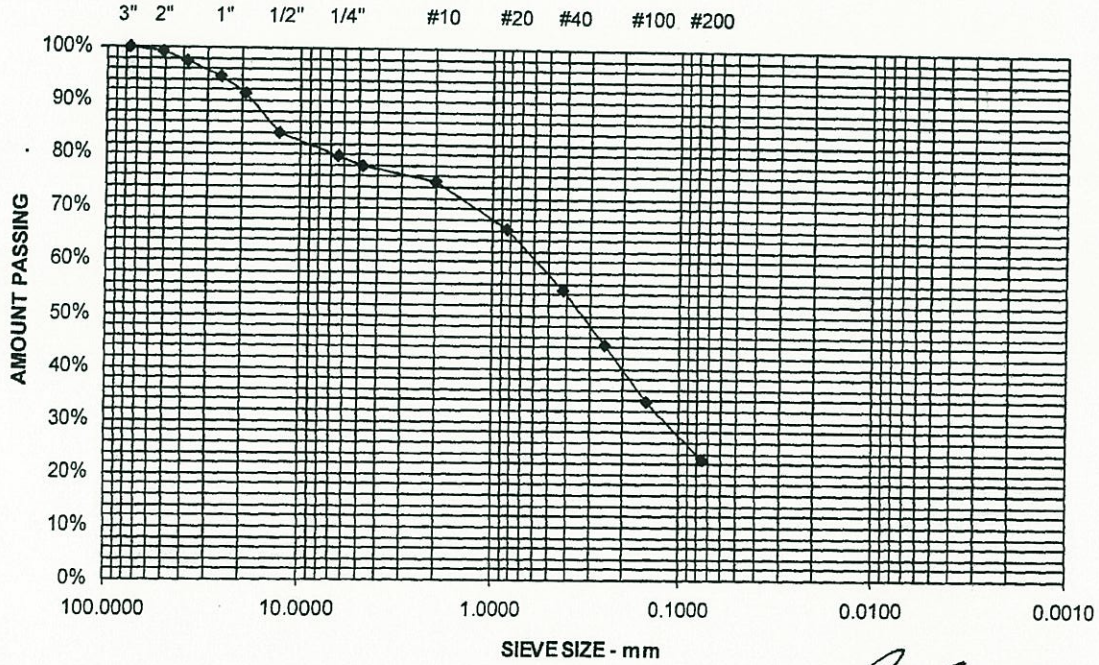
Report of Gradation

ASTM C-117 & C-136

Project Name	PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING	Project Number	07-1299
Client	BECKER STRUCTURAL ENGINEERS, INC.	Lab ID	8533G
Material Type	COMMON BORROW	Date Received	5/29/2008
Material Source	ONSITE	Date Complete	6/2/2008
		Tested By	CRAIG TURCOTTE

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	MDOT 703.19 SPECIFICATIONS (%)	
150 mm	6"	100		
125 mm	5"	100		
100 mm	4"	100		
75 mm	3"	100		
50 mm	2"	99		
38.1 mm	1-1/2"	98		
25.0 mm	1"	95		
19.0 mm	3/4"	91		
12.5 mm	1/2"	84		
6.3 mm	1/4"	80		
4.75 mm	No. 4	78		
2.00 mm	No. 10	75		
850 um	No. 20	66		
425 um	No. 40	55	0 - 70	
250 um	No. 60	45		
150 um	No. 100	34		
75 um	No. 200	22.9	0.0 - 20.0	†

† SAMPLE DOES NOT MEET SPECIFICATION



Comments

Roger E. Domingo

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S.W.COLE ENGINEERING, INC.

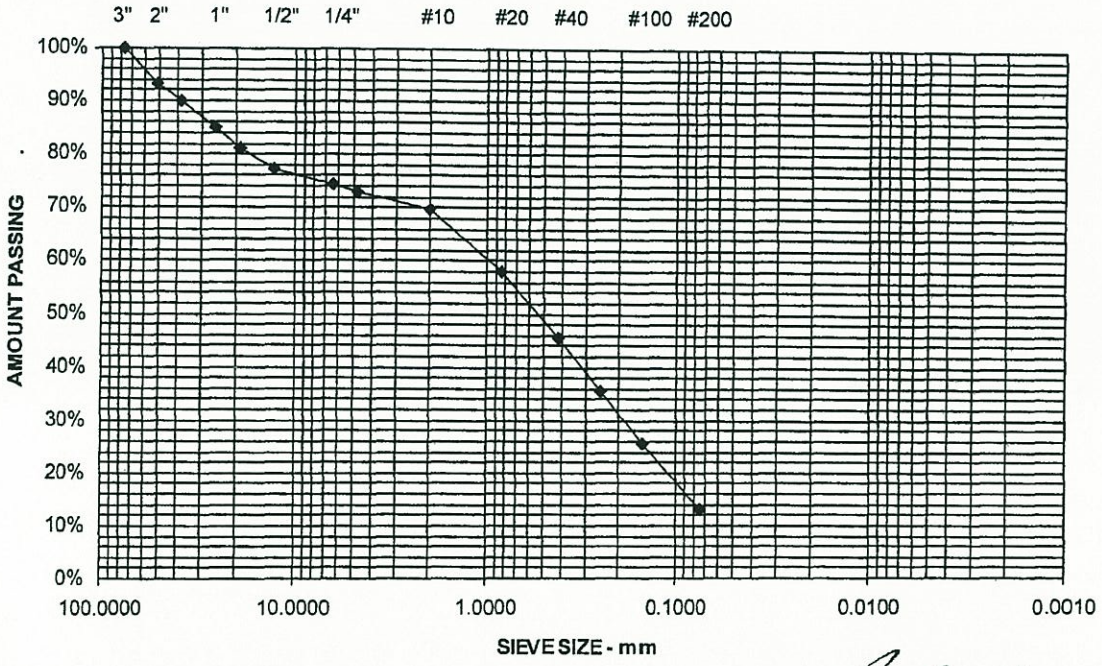
Report of Gradation

ASTM C-117 & C-136

Project Name	PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING	Project Number	07-1299
Client	BECKER STRUCTURAL ENGINEERS, INC.	Lab ID	8532G
Material Type	AGGREGATE BASE (TYPE C)	Date Received	5/29/2008
Material Source	ONSITE	Date Complete	6/2/2008
		Tested By	CRAIG TURCOTTE

STANDARD DESIGNATION (mm/um)	SIEVE SIZE	AMOUNT PASSING (%)	MDOT 703.06 TYPE C SPECIFICATIONS (%)	
150 mm	6"	100	100	
125 mm	5"	100		
100 mm	4"	100		
75 mm	3"	100		
50 mm	2"	93		
38.1 mm	1-1/2"	90		
25.0 mm	1"	85		
19.0 mm	3/4"	81		
12.5 mm	1/2"	77		
6.3 mm	1/4"	74	25 - 70	†
4.75 mm	No. 4	73		
2.00 mm	No. 10	70		
850 um	No. 20	58		
425 um	No. 40	45	0 - 30	†
250 um	No. 60	36		
150 um	No. 100	26		
75 um	No. 200	13.1	0.0 - 5.0	†

† SAMPLE DOES NOT MEET SPECIFICATION



Comments

Roger E. Domingo

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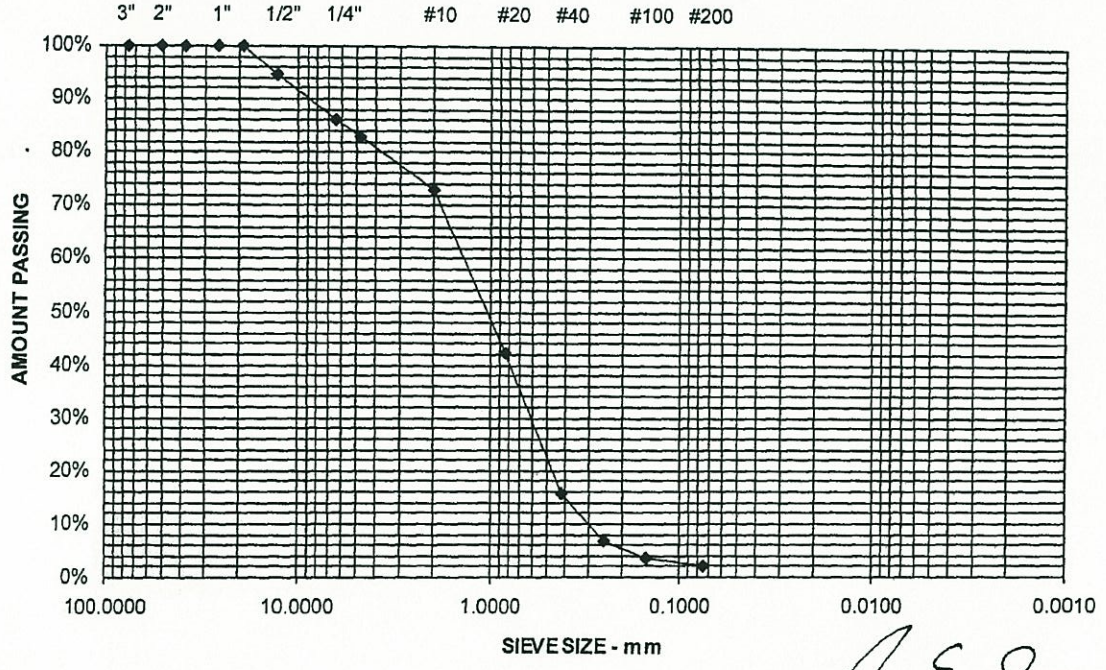
S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name	PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING	Project Number	07-1299
Client	BECKER STRUCTURAL ENGINEERS, INC.	Lab ID	8514G
Material Type	UNDERDRAIN SAND	Date Received	5/27/2008
Material Source	PHINNEY PIT	Date Complete	5/29/2008
		Tested By	JUSTIN BISSON

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	703.22 TYPE B SPECIFICATIONS (%)
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	95 - 100
19.0 mm	3/4"	100	
12.5 mm	1/2"	95	75 - 100
6.3 mm	1/4"	86	
4.75 mm	No. 4	83	50 - 100
2.00 mm	No. 10	73	
850 um	No. 20	42	15 - 80
425 um	No. 40	16	
250 um	No. 60	7	
150 um	No. 100	4	
75 um	No. 200	2.1	0.0 - 5.0



Comments

Roger E. Domingo

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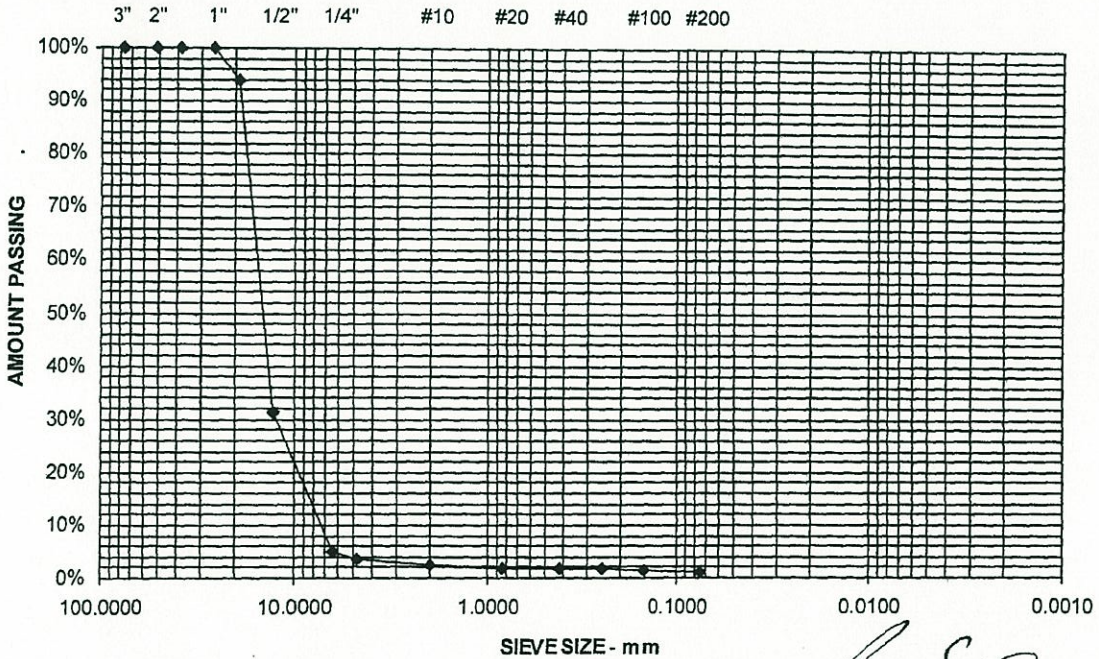
S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name	PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING	Project Number	07-1299
Client	BECKER STRUCTURAL ENGINEERS, INC.	Lab ID	8512G
Material Type	1/2" STONE	Date Received	5/27/2008
Material Source	SHAW BROTHERS H-PIT	Date Complete	5/29/2008
		Tested By	JUSTIN BISSON

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	SPECIFICATIONS (%)
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	94	
12.5 mm	1/2"	31	
6.3 mm	1/4"	5	
4.75 mm	No. 4	3	
2.00 mm	No. 10	3	
850 um	No. 20	2	
425 um	No. 40	2	
250 um	No. 60	2	
150 um	No. 100	1	
75 um	No. 200	1.1	



Comments

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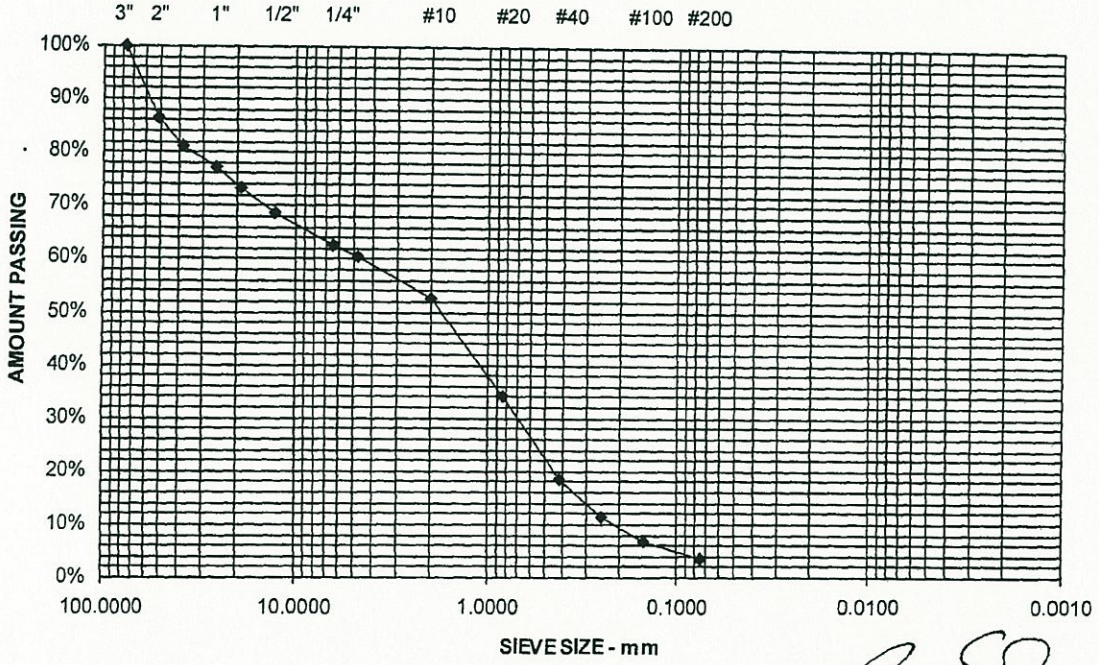
S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name	PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING	Project Number	07-1299
Client	BECKER STRUCTURAL ENGINEERS, INC.	Lab ID	8513G
Material Type	3" GRAVEL	Date Received	5/27/2008
Material Source	PHINNEY PIT	Date Complete	5/29/2008
		Tested By	JUSTIN BISSON

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	SPECIFICATIONS (%)
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	86	
38.1 mm	1-1/2"	81	
25.0 mm	1"	77	
19.0 mm	3/4"	73	
12.5 mm	1/2"	69	
6.3 mm	1/4"	63	
4.75 mm	No. 4	60	
2.00 mm	No. 10	53	
850 um	No. 20	34	
425 um	No. 40	18	
250 um	No. 60	11	
150 um	No. 100	7	
75 um	No. 200	3.6	



Comments

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BECKER
structural engineers, inc.

03300

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1829

OBSERVATION REPORT
Cast in Place Concrete

Date:	June 11, 2008
Time:	9:30
Temp:	80s
Weather:	Sunny

Observation Location: Elevator, Garage Footings H/3-H/7, Canopy Footing H.58/10.7-11.6

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☐	☒	☐	☐	See notes
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☐	☒	☐	☐	See notes
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☐	
Additional Items	☐	☐	☐	☐	

Notes:
The reinforcement for garage piers H/6 and H/7 were set individually and not lapped together. This issue was brought to Newman Concrete. A lap tie will be placed for the two piers and will be inspected at the next visit. Also, water was found at the base of the elevator mat. Newman Concrete was instructed to pump out the water before placing.

Signed: Christopher G. Williams, E.I.

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Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1829

OBSERVATION REPORT
Cast in Place Concrete

Date:	June 13, 2008
Time:	9:00
Temp:	70s
Weather:	Sunny

Observation Location: Stair Footings and Walls, Garage Footings: H/8-11

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☐	☒	☐	☐	Cover for H/9 and H/10 less than 3" for footing reinforcement. Issue brought to superintendent.
Embed/Anchors	☐	☐	☒	☐	Anchor bolts for many footings not installed during inspection. Issue brought forward to superintendent. Installation of AB's will be confirmed at next visit
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Reinforcement inspected for pier at H/6-7. Lap bar confirmed to be installed to tie two piers together.

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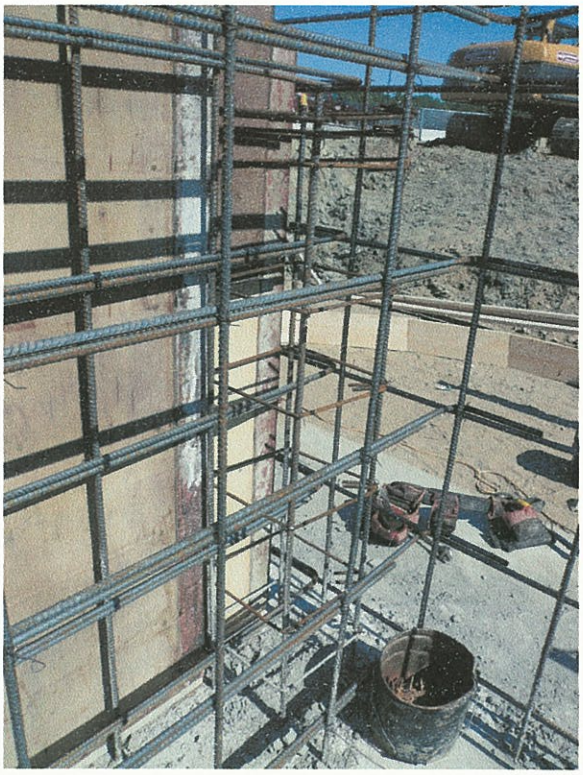
Cover less than 3 inches



AB's not yet installed

Signed: Christopher G. Williams, E.I.

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Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1829

OBSERVATION REPORT
Cast in Place Concrete

Date:	June 18, 2008
Time:	8:00
Temp:	60s
Weather:	Overcast

Observation Location: Garage Footings: G/5-9 ; Garage Piers: H/8-10, Stair Tower Wall along G.9 line from 1 to 1", and radius section between G.9/1 and H.25/1' ; Existing wall along E-line at level 1 ; Existing piers at grids E/12 and E/13

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☐	☒	☐	☐	Wall thickness from G.9/1 to H.25/1' formed as 8" wall with one mat of steel. Newman Concrete instructed to increase wall thickness to 10" and add another layer of steel. Wall thickness to be expanded into the lobby area, and not into the stair well.
Quantity	☐	☒	☐	☐	See above
Condition	☒	☐	☐	☐	
Placement	☐	☒	☐	☐	See above
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Existing garage piers at E/12 and E/13 inspected. It was confirmed that there is no built-up pier at this locations above the slab. Ledgewood drilled down through the slab an confirmed that the column baseplate are as much as 12" below slab. Ledgewood will hammer these areas out before this situation can be addressed.

Existing wall at E-line inspects. and it was confirmed that clip angles have been attached to wall to support DT stems (reference SK-S-010)

Signed: Christopher G. Williams, E.I.

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Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	June 20, 2008
Time:	10:00
Temp:	80s
Weather:	Sunny

Observation Location: Forming walls and piers at stair tower. Forming Piers at G.8/1", G.9/1" and G/5,6,7, & 8 in Garage

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☐	☒	☐	☐	Vertical bars on line 2' are short on east face and (2)#5's are required at top of wall
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☐	☐	☐	☒	
Embed/Anchors	☐	☒	☐	☐	AB's at H.2/2 appear to not have the correct extension
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Non conforming items were discussed with Chris the site superintendent for Newman. Chris noted that they had not checked the elevation of the AB's at this time.

Signed: Todd M. Neal, P.E.

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Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	June 24, 2008
Time:	11:00
Temp:	80
Weather:	Sunny

Observation Location: Stair Tower - Walls @ Stair Well and Mechanical Room

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☒	☐	☐	☐	
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:

Signed: Christopher G. Williams, E.I.

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Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	July 7, 2008
Time:	10:00
Temp:	80s
Weather:	Sunny

Observation Location: Garage Footings G.7/13 and G/13

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☒	☐	☐	☐	
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☐	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Footing G.7/13 was changed to a F10 type (6'-0" x 6'-0" x 2'-0") when ledge was found to be higher than expected [Ref. SK-S-015 series]. Footing G/12 and G/13 remained unchanged.

Signed: Christopher G. Williams, E.I.

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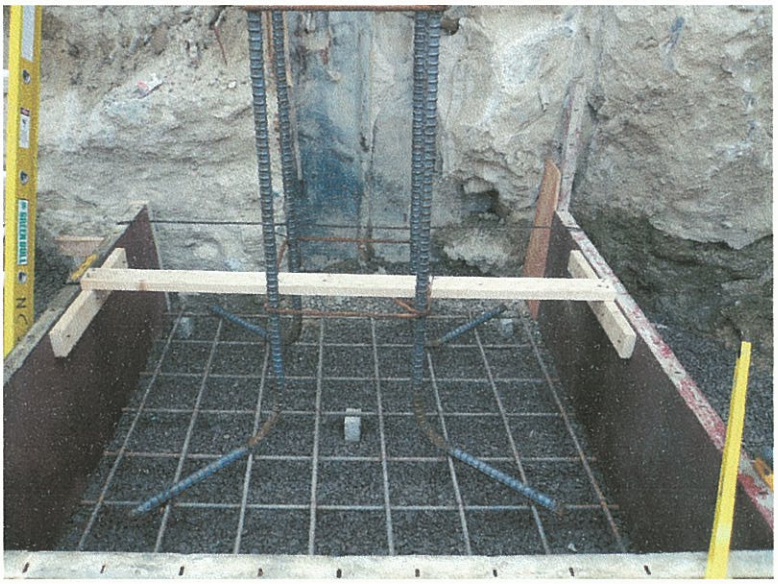

Footing G.7/13 – Revised to 6x6 footing w/ ledge bearing

Footing G/12-13

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Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	July 9, 2008
Time:	10:00
Temp:	80s
Weather:	Sunny

Observation Location: Forming Piers at G.7/13 and G/12-13 ("T" type pier), and footing for vault Stair

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☐	☐	☐	☒	
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Concrete to be placed on 7/10/08.

Signed: Todd M. Neal, P.E.

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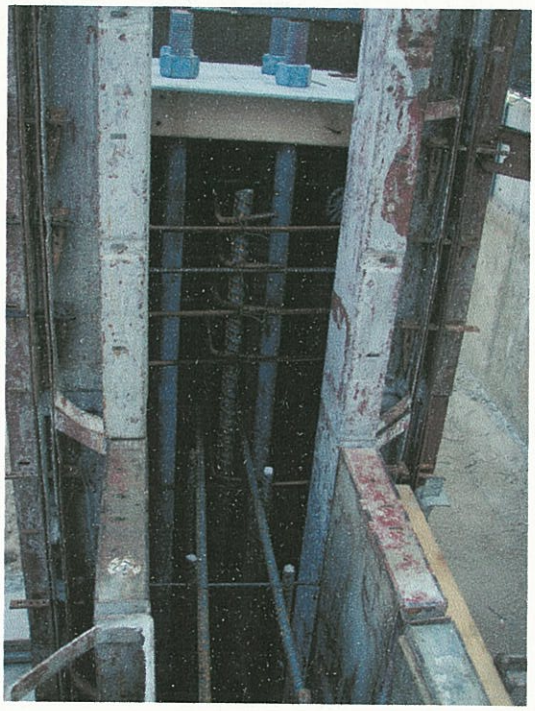
Pier @ G.7/13

T-pier @ G/12-13



AB's @ G/12

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Wall Intersection at T Pier (G/13)

Vault Stair Footing

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Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	July 15, 2008
Time:	10:00
Temp:	81 F
Weather:	Sunny & Breezy

Observation Location: Reinforcement at G/3 & G/4 to be placed July 15, 2008

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☐	☐	☐	☒	
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Pier reinforcement at G/14 completed, no forms.
Starting to form walls at vault stair.
Starting pier At G.7/11.9 and footing at H/11.9.
First load of structural steel for stair tower is on site.

Signed: Todd M. Neal, P.E.

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Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	July 16, 2008
Time:	9:00 am
Temp:	78
Weather:	Sunny

Observation Location: AB's Installation on Line E.1 at Existing piers

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☐	☐	☐	☒	
Quantity	☐	☐	☐	☒	
Condition	☐	☐	☐	☒	
Placement	☐	☐	☐	☒	
Embed/Anchors	☒	☐	☐	☐	AB's and leveling plates have been installed on E.1 line. They are unable to install 2 bolts at E.1/13. There are gaps in the grout and leveling plate at Line E.1/1. This condition was brought to the attention of Bob Parson
Lap Splices	☐	☐	☐	☒	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Holes have been cut in the existing DT's in Phase 1 so the E.1 columns can be set.

Signed: Todd M. Neal, P.E.

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Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	July 23, 2008
Time:	7:30
Temp:	60s
Weather:	Cloudy

Observation Location: Garage Pier H/11.9, Canopy Piers RC/12 and RD/12

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☒	☐	☐	☐	
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:

Signed: Christopher G. Williams, E.I.

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Garage Pier H/11.9 (left) and Canopy Pier RC/12 (right)

Reinforcement for Canopy Pier RD/12

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BECKER
structural engineers, inc.

03300

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	July 25, 2008
Time:	9:30
Temp:	70s
Weather:	Sunny

Observation Location: Garage Footing F/12-13

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☒	☐	☐	☐	
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☐	☐	☐	☒	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Footing F/12-13 revised from an F2 type (31'-0" x 22'-0" x 3'-0", #9's @ 8" O/C E.W.B.) to a 31'-0" x 14'-0" x 4'-0" footing with #9's @ 6" O/C E.W.B and #4's @ 24" O/C/ E.W.T. (reference RFI #78 and SK-S-016). This change was required to avoid intereference with a nearby manhole.

Signed: Christopher G. Williams, E.I.

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Revised footing F/12-13 near Manhole (far right)

Footing F/12-13 reinforcement

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BECKER
structural engineers, inc.

03300

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	July 29, 2008
Time:	9:30
Temp:	80s
Weather:	Sunny

Observation Location: Garage Footings F/10 and F/11, Truckshed Slab

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☒	☐	☐	☐	
Embed/Anchors	☐	☐	☒	☐	AB's had not been placed at time of visit
Lap Splices	☐	☐	☐	☒	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

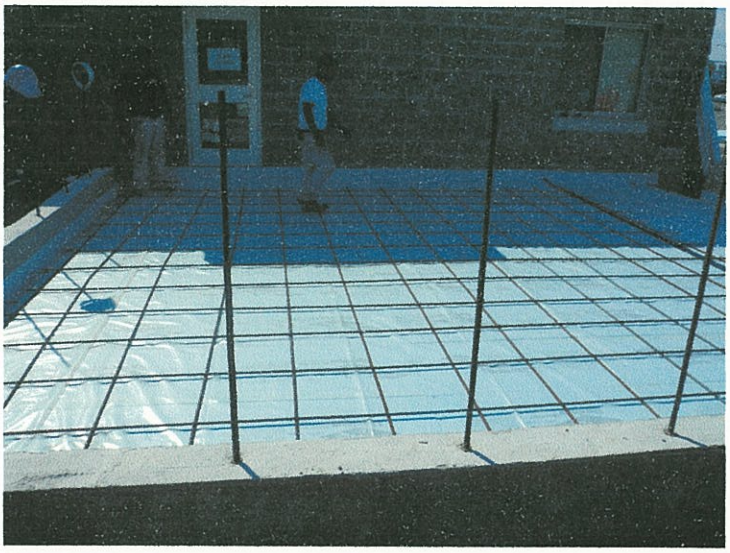
Notes:

Signed: Christopher G. Williams, E.I.

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

Garage Footing F/11 Reinforcement

Garage Footing F/10 Reinforcement



Truckshed slab reinforcement and insulation

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

Pier F/9 Reinforcement

Pier F/8 Reinforcement

Pier Reinforcement @ F/6-7 footing

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BECKER
structural engineers, inc.

03300

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	July 30, 2008
Time:	3:00 pm
Temp:	80
Weather:	Overcast

Observation Location: Pre-placement inspection of T-pier F/12 & F/13, piers at F/10 & F/9, and Truck Shed Slab

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☒	☐	☐	☐	
Embed/Anchors	☐	☐	☐	☒	AB's are not set
Lap Splices	☐	☐	☐	☒	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Owen Haskell is on site doing as-built survey of Anchor Bolts.

Truck Shed slab placed this morning and finished at noon. No visible material for a wet cure. S.W. Cole on site to take cylinders.

Signed: Todd M. Neal, P.E.

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

BECKER
structural engineers, inc.

03300

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	August 5, 2008
Time:	10:00
Temp:	70s
Weather:	Overcast

Observation Location: Garage Piers @ F/8 and F/9; Garage footings F/6-7, F/5, F/4

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☒	☐	☐	☐	
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Inspected reinforcement for piers and footings on grid F listed above. Reinforcement found to be acceptable.

Signed: Christopher G. Williams, E.I.

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

BECKER
structural engineers, inc.

03300

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	August 7, 2008
Time:	9:30
Temp:	60s
Weather:	Cloudy

Observation Location: Inspecting garage footings @ F/2 and F/3

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☒	☐	☐	☐	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☐	☒	☐	☐	Rain had cause brick supports for footing reinforcement to sag into the ground. Therefore, cover was less than 3" between reinforcement and footing base. Issue was brought to Newman Concrete. They reset the reinforcement prior to placement
Embed/Anchors	☒	☐	☐	☐	
Lap Splices	☒	☐	☐	☐	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Reinforcement size and spacing were correct. Other than those listed above, no issues were found.

Signed: Christopher G. Williams, E.I.

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Footing F/2 – Clear cover distance between reinforcement and crushed stone found to be less than the required 3”

Footing F/3

BECKER
structural engineers, inc.

03300

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

OBSERVATION REPORT
Cast in Place Concrete

Date:	October 3, 2008
Time:	7:00
Temp:	40s
Weather:	Sunny

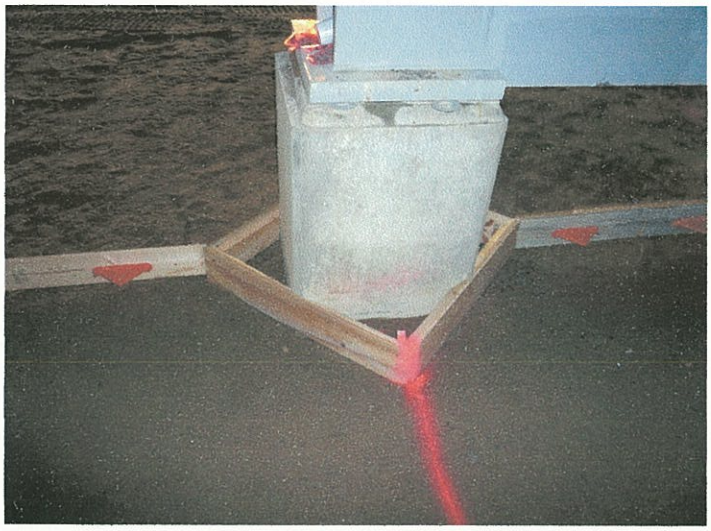
Observation Location: Observed slab-on-grade pour between grid lines 11 and 13.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Reinforcement Size	☐	☐	☐	☒	
Quantity	☒	☐	☐	☐	
Condition	☒	☐	☐	☐	
Placement	☐	☒	☐	☐	Dowel baskets at control joints not set correctly into slab
Embed/Anchors	☐	☒	☐	☐	See above
Lap Splices	☐	☐	☐	☒	
Hot Weather	☐	☐	☐	☒	
Cold Weather	☐	☐	☐	☒	
Bond Beams	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

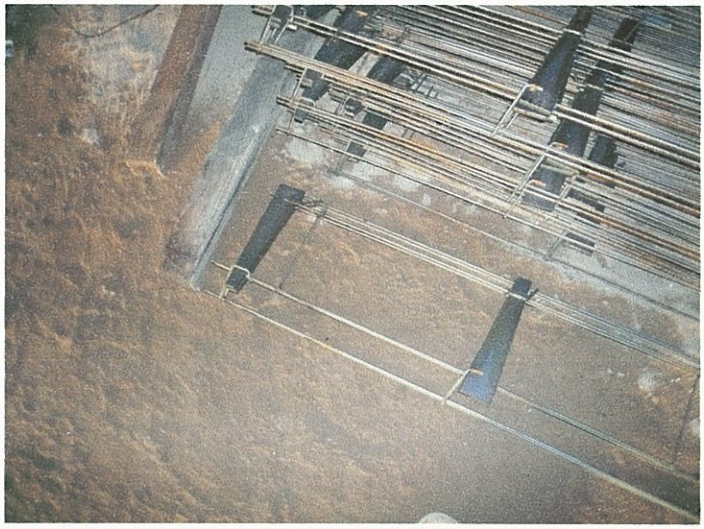
Notes:
At control joint locations, workers were pouring concrete over the control joint locations, and then coming back in after and setting the dowel baskets into the concrete. The dowel baskets are suppose to first be set on the ground before the concrete is poured. Then, the concrete shall be poured over the basket and then formed around it. This problem was brought forward to Bob Parsons from Ledgewood Construction, and he confirmed the procedure would be revised.

Signed: Christopher G. Williams, E.I.

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822



Typical bond-out at concrete pier



Dowel basket with 3/8" plate

Diamond dowels @ construction joint

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	6-11-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	Elevator Pit Footing: G.8 to H, 1" to 2' Spread Footings: line H, 4 to 6	**SWCE Rep.:**	VLT
Placement Type:	Footing ☒ Wall ☐ Column ☐ Slab ☐ Other ☐		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Conc. blocks
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	Water pumped
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☒	No ☐	☐	See notes

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Harmac	5-2-08	R-1	6-4-08	A 615 ☒	40 ☐ 50 ☐ 60 ☒
Harmac	5-2-08	R-1A	6-4-08	A 616 ☐ A 617 ☐	75 ☐
				A 706 ☐	A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000psi ¾" agg.
Placement and consolidation of concrete observed	Yes ☒	☐	☐	
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	Multiple lifts
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	Vibrated
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-2 & 3 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes: Water pumped out of trench at Elevator pit by Gorham Sand and Gravel. Excess water pushed out of form as concrete placed. Concrete placed in multiple lifts. ¾" stone placed as embedment material only in areas where sub grade was gray clay.

Attachments: NONE

Reviewed By: **RED**

RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Jetport Parking Garage, Phase II	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	06-13-08
Concrete Contractor:	Ledgewood	**Sheet:**	1 of 1
Placement Location:	G-2,G-10,G.5 to G.8	**SWCE Rep.:**	DMR
Placement Type:	Footing ☒ Wall ☒ Column ☐ Slab ☐ Other ☐	**Arrived at Site:**	12:00
	Wall H-8 to 11,footing between G.9, 7 H.5 and 1&3,G.7-12	**Left Site:**	3:55

PRE PLACEMENT OBSERVATIONS	In Compliance		N/O	Comments
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	Correct Size
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	Correct Number
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Tied Off, spacers used
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	Clean Rebar
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☐	By others

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
harmac	5-2-08	R-1, R-1a		**A 615** ☒ **A 616** ☐ **A 617** ☐ **A 706** ☐	**40** ☐ **50** ☐ **60** ☒ **75** ☐ **A 775 Epoxy** ☐

CONCRETE PLACEMENT OBSERVATIONS	In Compliance		N/O	Comments
Required mix used	Yes ☒	☐	☐	3000 psi, ¾"
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Vibrator Used
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Conveyed&tailgated
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	None Used

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-4&5 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	In Compliance		N/O	Comments
Specified finish	Yes ☒	☐	☐	Trowel Finish
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments:_____ Reviewed By:___RED_____

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	6-18-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	4 Line 5-9	**SWCE Rep.:**	BZM
Placement Type:	Footing ☐ Wall ☐ Column ☒ Slab ☒ Other ☐		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☒	

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Harmac	5-2-08	Struct. Rebar	5-19-08	A 615 ☒ A 616 ☐ A 617 ☐ A 706 ☐	40 ☐ 50 ☐ 60 ☒ 75 ☐ A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi ¾" Agg
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Vibrated
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-6 & 7 ←*refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☐	☐	☒	
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes: Rebar Observations for column & Pier footing. Concrete for pier footing.l

Attachments: NONE

Reviewed By: **RED**

P:\2007\07-1299 M-Becker Structural Engineers - Portland, ME - Phase II Parking Garage - RED\DFR's\6-18-08 Concrete.doc

RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	6-19-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	Lines H, RB, RA, H.58, H.83: #4-11 (Piers) #10.7, 11, 11.3, 11.6 & 12 [(Tubes) Piers P.5]	**SWCE Rep.:**	BZM
Placement Type:	Footing ☐ Wall ☐ Column ☐ Slab ☐ Other ☒		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	* see note
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☒	No ☐	☐	

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Construction Plans	2-25-08	SO o-2-5		A 615 ☒ A 616 ☐ A 617 ☐ A 706 ☐	40 ☐ 50 ☐ 60 ☒ 75 ☐ A 775 Epoxy ☐
Harmac	5-2-08	Struct. Rebar	5-19-08		

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Vibration
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Conveyor
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-8 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:	Pier #4 Line H Rebar Spacing
Action Taken by SWCE:	Informed Ledgewood & Debbie (Superintendant w/ Stantec)
Person(s) Notified:	Debbie (Stantec) & Chris (Ledgewood)

N/O = Not Observed

Notes: * Informed Ledgewood that Pier #4 Line H Spacing was not in compliance, Ledgewood re-spaced the Rebar prior to pour

Attachments: NONE

Reviewed By: **RED**

RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	6-20-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	Elevator Pit Wall & East Wall	**SWCE Rep.:**	BZM
Placement Type:	Footing ☒ Wall ☒ Column ☐ Slab ☐ Other ☐		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☐	NA

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Construction Plans	2-2-08	S 0.0 – S2.5		A 615 ☒ A 616 ☐ A 617 ☐ A 706 ☐	40 ☐ 50 ☐ 60 ☒ 75 ☐ A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi
Placement and consolidation of concrete observed	Yes ☒	☐	☐	
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Conveyor
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☒	☐	☐	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-9 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☒	☐	☐	Covered to Protect from Rain

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: NONE

Reviewed By: **RED**

RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Jetport Parking Garage, Phase II	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	06-24-08
Concrete Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	G-2,G-10,G.5 to G.8	**SWCE Rep.:**	DMR
Placement Type:	Footing ☐ Wall ☒ Column ☐ Slab ☐ Other ☐	**Arrived at Site:**	7:30
		Left Site:	4:30

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	Correct Size
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	Correct Number
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Tied Off, spacers used
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	Clean Rebar
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☐	n/a

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
harmac	5-2-08	R-1, R-1a		**A 615** ☒ **A 616** ☐ **A 617** ☐ **A 706** ☐	**40** ☐ **50** ☐ **60** ☒ **75** ☐ **A 775 Epoxy** ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi, ¾"
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Vibrator Used
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	None Used

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-10&11 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Trowel Finish
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments:_____ Reviewed By:____RED_____

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Jetport Parking Garage, Phase II	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	06-25-08
Concrete Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	1 line G.8 to H.3,G.8-1 to 3 line,radius wall between 1 & 3	**SWCE Rep.:**	DMR
Placement Type:	Footing ☐ Wall ☒ Column ☐ Slab ☐ Other ☐		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	Correct Size
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	Correct Number
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	2' Overlap
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Tied Off, spacers used
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	Clean Rebar
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☐	n/a

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
harmac	5-2-08	R-1, R-1a		**A 615 ☒** **A 616 ☐** **A 617 ☐** **A 706 ☐**	**40 ☐ 50 ☐ 60 ☒** **75 ☐** **A 775 Epoxy ☐**

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi, ¾"
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Vibrator Used
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	None Used

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-12 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Trowel Finish
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: none

Reviewed By: RED

P:\2007\07-1299 M-Becker Structural Engineers - Portland, ME - Phase II Parking Garage - RED\DFR's\06-25-08 Concrete.docm

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	7-02-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	12 to 13 @ G and G.7-13	**SWCE Rep.:**	DMR
Placement Type:	Footing ☒ Wall ☐ Column ☐ Slab ☐ Other ☐		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☐	By others

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
harmac	5/2/08	R-1, R-1a		**A 615** ☒ **A 616** ☐ **A 617** ☐ **A 706** ☐	**40** ☐ **50** ☐ **60** ☒ **75** ☐ **A 775 Epoxy** ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi
Placement and consolidation of concrete observed	Yes ☒	☐	☐	
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	conveyor
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☒	☐	☐	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-15&16 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: NONE

Reviewed By: **RED**

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	7-03-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	Truck shed footing	**SWCE Rep.:**	DMR
Placement Type:	Footing ☒ Wall ☐ Column ☐ Slab ☐ Other ☐		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☐	By others

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Construction Plans truck shed foundation plan	5/13/08			**A 615** ☒	**40** ☐ **50** ☐ **60** ☒
				A 616 ☐	**75** ☐
				A 617 ☐	
				A 706 ☐	**A 775 Epoxy** ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi
Placement and consolidation of concrete observed	Yes ☒	☐	☐	
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Tailgated &conveyor
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☒	☐	☐	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-17 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: NONE

Reviewed By: **RED**

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	7-10-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	G-11,G.7 on12 line,13 to 14,G&G.7,wall G-12 to 13,G.7-13	**SWCE Rep.:**	DMR
Placement Type:	Footing ☒ Wall ☒ Column ☐ Slab ☐ Other ☐		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☐	By others

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Construction Plans	5/2/08	R-1, R1a		**A 615** ☒ **A 616** ☐ **A 617** ☐ **A 706** ☐	**40** ☐ **50** ☐ **60** ☒ **75** ☐ **A 775 Epoxy** ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi
Placement and consolidation of concrete observed	Yes ☒	☐	☐	
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Tailgated &conveyor
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☒	☐	☐	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-18&19 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	Covered to Protect from Rain

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: NONE

Reviewed By: **RED**

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Jetport Parking Garage, Phase II	**Project No:**	07-1299
Client/Client's Rep.:	Becker	**Date:**	07-11-08
Concrete Contractor:	Ledgewood	**Sheet:**	1 of 1
Placement Location:	Operator's Building Walls, Walkway Footing	**SWCE Rep.:**	SJC
Placement Type:	Footing ☒ Wall ☒ Column ☐ Slab ☐ Other ☐		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	Correct Size
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	Correct Number
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	2' Overlap
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Tied Off, spacers used
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	Clean Rebar
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☒	No ☐	☐	Concrete Footing

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Harmac	5-2-08	All	5-19-08	A 615 ☒	40 ☐ 50 ☐ 60 ☒
				A 616 ☐	75 ☐
				A 617 ☐	
				A 706 ☐	A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi, ¾"
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Vibrator Used
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	None Used

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-20 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Trowel Finish
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: _____ Reviewed By: RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	7-18-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	Pier footings G-3&4	**SWCE Rep.:**	DMR
Placement Type:	Footing ☒ Wall ☐ Column ☐ Slab ☐ Other ☐		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☐	By others

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Construction Plans	2-2-08	S 0.0 – S2.5		**A 615** ☒ **A 616** ☐ **A 617** ☐ **A 706** ☐	**40** ☐ **50** ☐ **60** ☒ **75** ☐ **A 775 Epoxy** ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi
Placement and consolidation of concrete observed	Yes ☒	☐	☐	
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	tailgated
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☒	☐	☐	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-21 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	Covered to Protect from Rain

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: NONE

Reviewed By: **RED**

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Jetport Parking Garage, Phase II	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	8-05-08
Concrete Contractor:	Ledgewood	**Sheet:**	1 of 1
Placement Location:	Footings: 4, 5, 6 & 7 and a mud pad @ F/3	**SWCE Rep.:**	BZM
Placement Type:	Footing ☒ Wall ☐ Column ☐ Slab ☒ Other ☐	**Arrived at Site:**	7:50 +/-
		Left Site:	5:00 +/-

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	Correct Size
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	Correct Spacing
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Chairs and Wiring
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☒	No ☐	☐	Crushed Stone

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Harmac	5/2/08	All	5/19/08	A 615 ☒	40 ☐ 50 ☐ 60 ☒
				A 616 ☐	75 ☐
				A 617 ☐	
				A 706 ☐	A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi, ¾"
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Vibrated
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Tailgate
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☒	☐	☐	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-20 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Trowel
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: PHOTOS

Reviewed By: RED

RED

S.W.COLE ENGINEERING, INC.

Soils Observation Report

Project Name/Location:	Jetport Parking Garage, Phase II	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers/ Stantec	**Date:**	8/5/08
Earthwork Contractor:	Gorham Sand & Gravel	**Sheet:**	1 of 1
		SWCE Rep.:	BZM

Weather			**Site Conditions**		**Materials Used**	
☐ Clear	☐ Snow	☒ Warm	☐ Wet	☐ Dusty	☐ Site Fill	☐ Foundation Backfill
☒ Overcast	☐ Fog	☐ Hot	☒ Muddy	☐ Frozen	☐ Utility Bedding	☐ Subbase
☐ Rain	☐ Cold	☐ Windy	Temperatures: 70° F +/-		☐ Base	☒ Subgrade Fill

Soils Work Performed: ☐ Site Prep (Sect. 2230) ☒ Building Earthwork (Sect. 2315) ☐ Earthwork (Sect. 2300) ☐ Utilities Earthwork (Sect. 2316) ☐ Planting Soils (Sect. 2310) ☐ _____

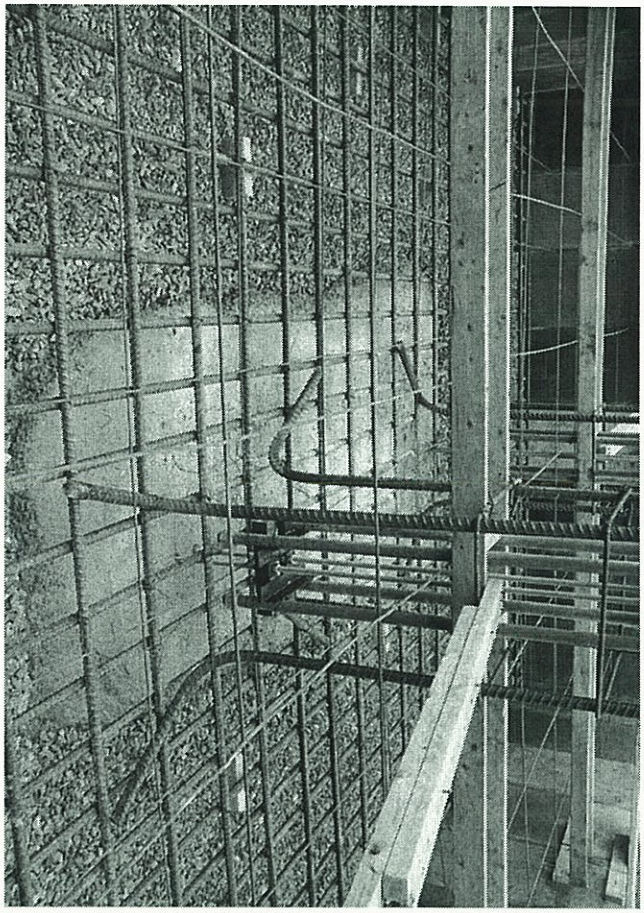
Compaction Equipment Used: ☒ Large Roller ☐ Small Roller ☐ Trench Roller ☐ Large Plate Tamp ☐ Small Tamp ☐ Jumping Jack ☒ Whacker ☐ _____

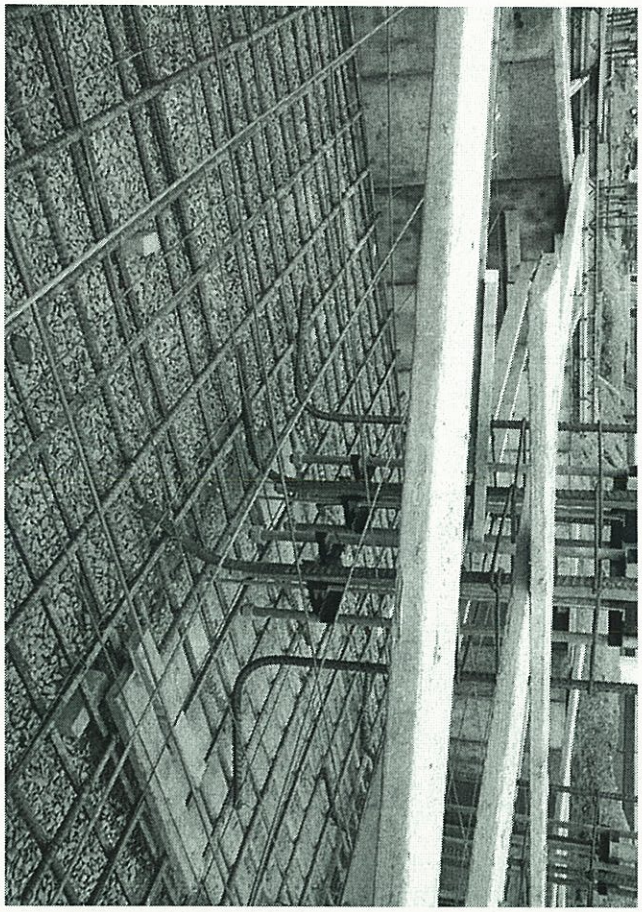
Soils Observations	Observed		Comments
Site Preparation	Yes ☐	No ☒	
Fill Placement:	Yes ☒	No ☐	Footing Subgrade & Backfill
Material Type (proper material used for construction)	Yes ☒	No ☐	Lab ID : 8513G & 8533G
Lift Size	Yes ☒	No ☐	Approximately 1'
Compaction	Yes ☒	No ☐	Rolled & Whacked
In-place Densities	Yes ☒	No ☐	Test #'s: 249-261
In-place Density Frequency	Yes ☐	No ☐	☒ N/A
Non-Conformance Items Observed	Yes ☒	No ☒	
Non-Conformance Item Description:			
Action Taken by SWCE:			
Person(s) Notified:			

Area(s) of Observation:

Notes:
SWCE observed the placement and consolidation of various lifts in the F/2 and F/3 footing subgrade areas and near the Northeast building corner. All compaction tests passed with 95% or better.

Attachments: PHOTOS Reviewed By: RED





S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	8-7-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	Footing: F-2, F-3. Pier: line F-7 & F-8.	**SWCE Rep.:**	VLT
Placement Type:	Footing ☒ Wall ☐ Column ☐ Slab ☐ Other ☒		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Conc. blocks
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☒	No ☐	☐	¾" Crushed stone

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Harmac	5-2-08	R1& R1A		A 615 ☒ A 616 ☐ A 617 ☐ A 706 ☐	40 ☐ 50 ☐ 60 ☒ 75 ☐ A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi footing
Placement and consolidation of concrete observed	Yes ☒	☐	☐	5000 psi pier
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	tailgated
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	Vibrated
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-80 & 81 ←*refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: NONE

Reviewed By: RED

RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	8-11-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	Footing: F-1. Pier: line F-4 to F6.	**SWCE Rep.:**	VLT
Placement Type:	Footing ☒ Wall ☐ Column ☐ Slab ☐ Other ☒		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Conc. blocks
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☒	No ☐	☐	¾" Crushed stone

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Harmac	5-2-08	R1& R1A		A 615 ☒ A 616 ☐ A 617 ☐ A 706 ☐	40 ☐ 50 ☐ 60 ☒ 75 ☐ A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	3000 psi footing
Placement and consolidation of concrete observed	Yes ☒	☐	☐	5000 psi pier
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	tailgated
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	Vibrated
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-32 & 33 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: NONE

Reviewed By: RED

RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Phase II Parking Garage / Portland International Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	8-13-08
General Contractor:	Ledgewood Construction	**Sheet:**	1 of 1
Placement Location:	Footing: F-6. Pier: line F-1 to F3.	**SWCE Rep.:**	VLT
Placement Type:	Footing ☐ Wall ☐ Column ☐ Slab ☐ Other ☒		

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	Spacing good
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	
Soil subgrade prepared in accordance with project specifications	Yes ☒	No ☐	☐	

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Harmac	5-2-08	R1& R1A		A 615 ☒ A 616 ☐	40 ☐ 50 ☐ 60 ☒
				A 617 ☐ A 706 ☐	75 ☐ A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	5000 psi pier
Placement and consolidation of concrete observed	Yes ☒	☐	☐	
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	tailgated
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	Vibrated
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-34 & 35 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Troweled
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

Notes: Temp of concrete 86° on only load placed. Due to high temp on small load of 4.5 yds concrete dried rapidly. S.W.C.E. advised Dragon, Ledgewood, Stantec, and Becker that concrete was possibly starting to set . Concrete placed with 5 gallon buckets at piers F-2 & F-1. Dragon added super plasticizer to improve workability but still had to reject last ½ yd of truck. S.W.C.E. made 2 extra cylinders on last yard of truck as directed by Becker and Ledgewood.

Attachments: NONE Reviewed By: RED

RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Portland Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	9-12-08
Concrete Contractor:	S Richer Concrete Floors	**Sheet:**	1 of 1
Placement Location:	Road crossing walk way between NW airlines and Continental	**SWCE Rep.:**	S. Benoit
Placement Type:	Footing ☐ Wall ☐ Column ☐ Slab ☒ Other ☐	**Arrived at Site:**	7:45am
		Left Site:	10:00am

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	# 4 bar
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	2mats12"oc3-inch cover
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	18" overlap tied
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Concrete brick/3" chairs
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	Clean
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	Yes
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☒	

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
				A 615 ☒	40 ☐ 50 ☐ 60 ☒
				A 616 ☐	75 ☐
				A 617 ☐	
				A 706 ☐	A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	5000PSI
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Vibratory screed
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Direct chute
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	8-inch slab
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	# 8 DWLS
Removal of temporary ties and spacers	Yes ☐	☐	☒	N/A

FIELD TESTING OF CONCRETE PERFORMED Yes ☐ No ☐

***CYLINDER SET NO:** 870-39 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Broom finish
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☐

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: NONE

Reviewed By: RED

ROD

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Portland Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	9-15-08
Concrete Contractor:	S Richer Concrete Floors	**Sheet:**	1 of 1
Placement Location:	Wes Traffic Table –Slab on grade	**SWCE Rep.:**	VLT
Placement Type:	Footing ☐ Wall ☐ Column ☐ Slab ☒ Other ☐	**Arrived at Site:**	7:40 am
		Left Site:	10:00am

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☒	No ☐	☐	# 5's
Location (# of bars, spacing, and cover)	Yes ☒	No ☐	☐	2mats12"oc3-inch cover
Splicing (weld joint, overlap)	Yes ☒	No ☐	☐	18" overlap tied
Stability (wiring, chairs, and spacers)	Yes ☒	No ☐	☐	Concrete brick/3" chairs
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☒	No ☐	☐	Clean
Reinforcement appears in conformance to specifications	Yes ☒	No ☐	☐	Yes
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☒	

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
Donenech, Hicks, & Krochmaanic Architects	2-25-08	C7-4		A 615 ☒	40 ☐ 50 ☐ 60 ☒
				A 616 ☐	75 ☐
				A 617 ☐	
				A 706 ☐	A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	5000PSI
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Vibratory screed
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Direct chute
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	8-inch slab
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	N/A

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-40 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Broom finish
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☐ No ☒

Non-Conformance Item Description:

Action Taken by SWCE:

Person(s) Notified:

N/O = Not Observed

Notes:

Attachments: NONE

Reviewed By: RED

RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Portland Jetport	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	10-2-08
Concrete Contractor:	S Richer Concrete Floors	**Sheet:**	1 of 1
Placement Location:	Lane #1 OPS Building and Phase II west traffic table	**SWCE Rep.:**	BZM
Placement Type:	Footing ☐ Wall ☐ Column ☐ Slab ☒ Other ☐	**Arrived at Site:**	9:45±
		Left Site:	12:35±

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☐	No ☐	☒	See Photos
Location (# of bars, spacing, and cover)	Yes ☐	No ☐	☒	
Splicing (weld joint, overlap)	Yes ☐	No ☐	☒	
Stability (wiring, chairs, and spacers)	Yes ☐	No ☐	☒	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☐	No ☐	☒	
Reinforcement appears in conformance to specifications	Yes ☐	No ☐	☒	
Soil subgrade prepared in accordance with project specifications	Yes ☐	No ☐	☒	

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
				A 615 ☐	40 ☐ 50 ☐ 60 ☐
NONE				A 616 ☐ A 617 ☐	75 ☐
				A 706 ☐	A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	5000psi, ¾"Agg., Midranged Pozzutec 20 2%
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Rake, Shovel & Vibrated
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Tailgate
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☒	☐	☐	
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-41 & 42 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Power Screed & Bull Float
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☒ No ☐

Non-Conformance Item Description:	8 ¼" Slump on Load #4
Action Taken by SWCE:	SWCE informed S Richer concrete floors
Person(s) Notified:	Scott Richer

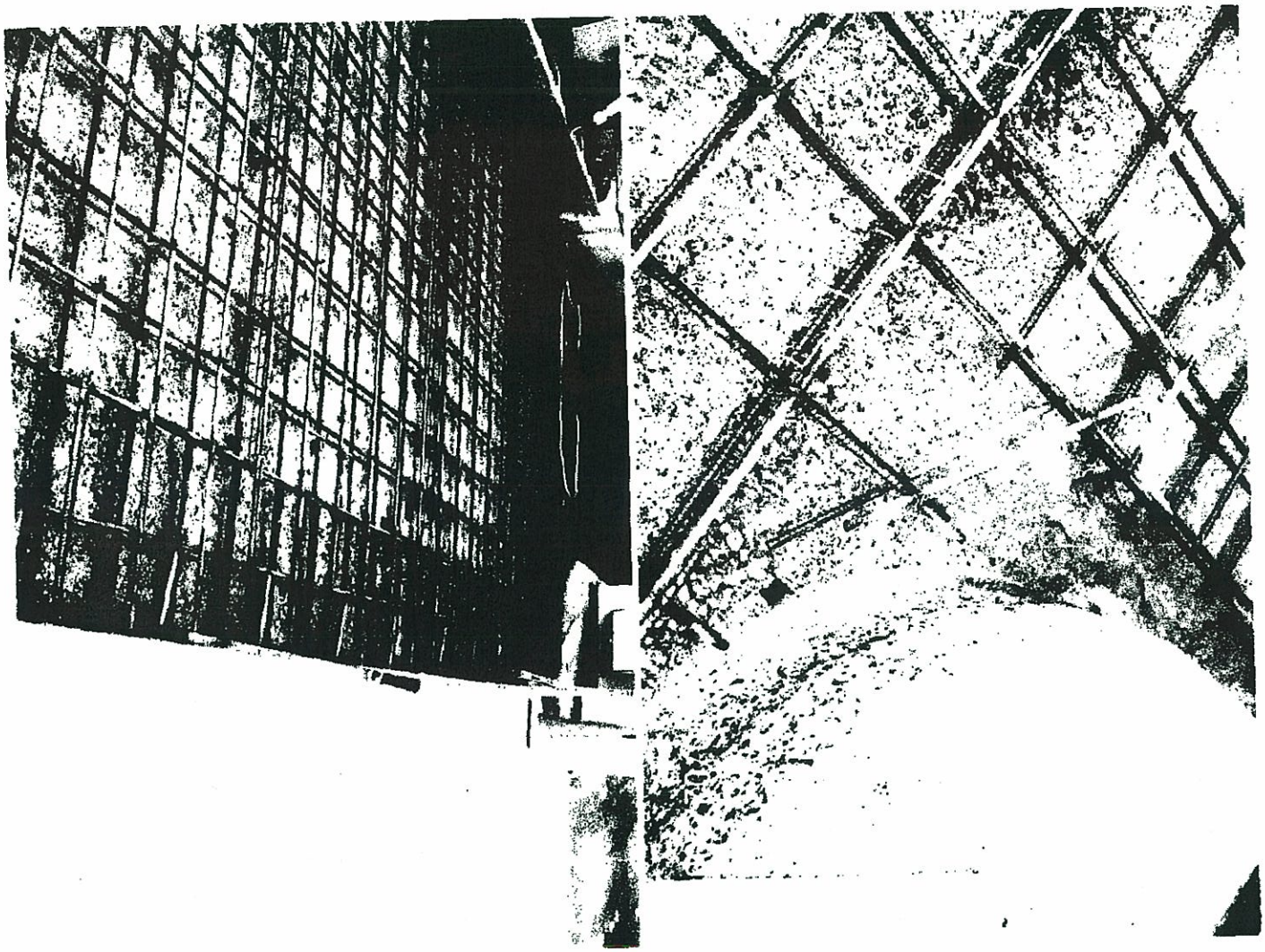
N/O = Not Observed

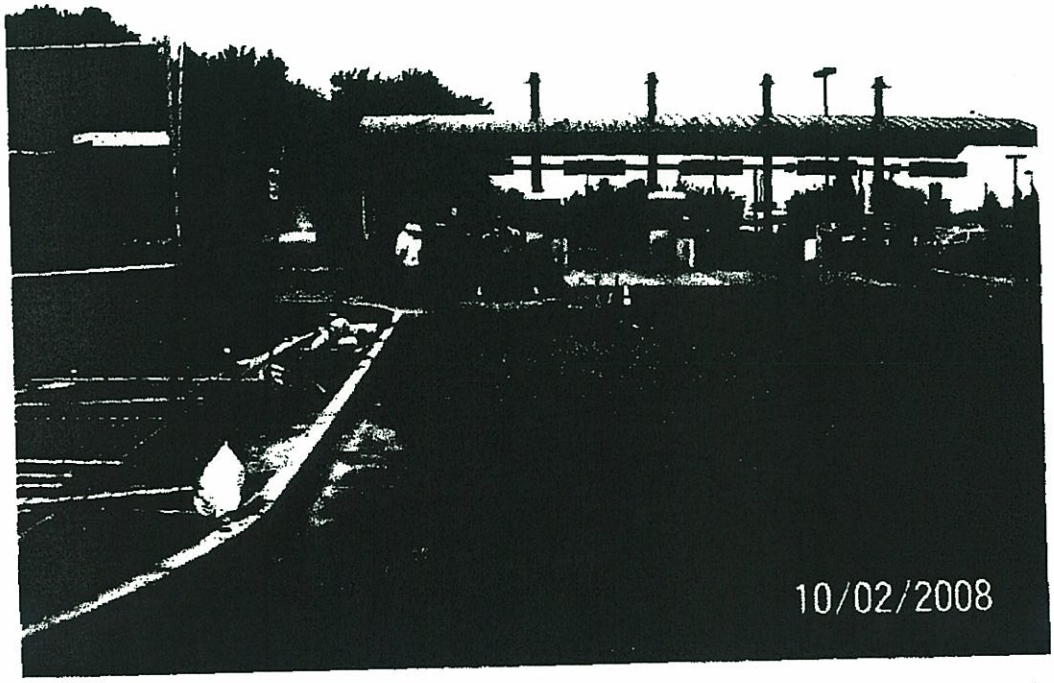
Notes:

Attachments: Photos

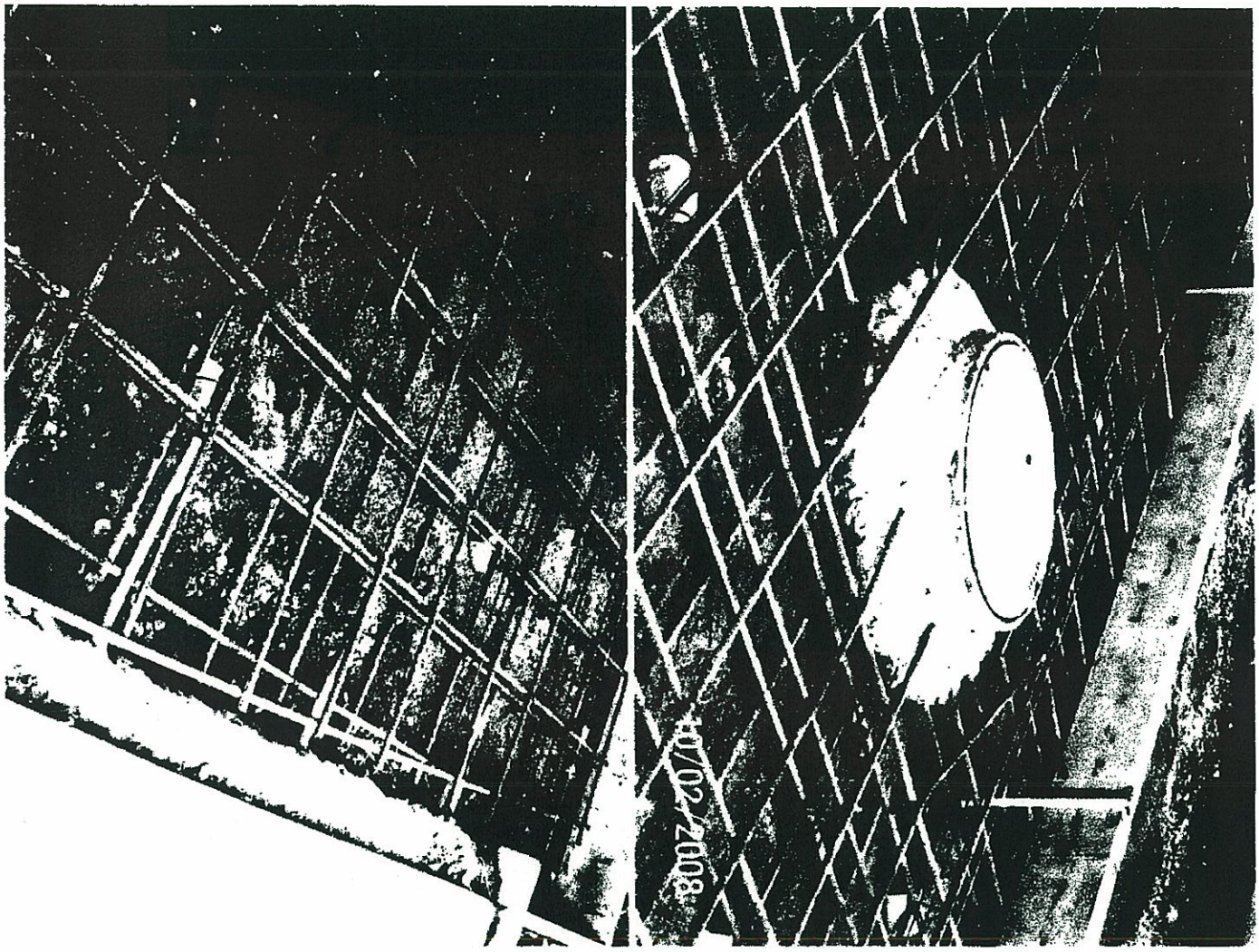
Reviewed By: RED

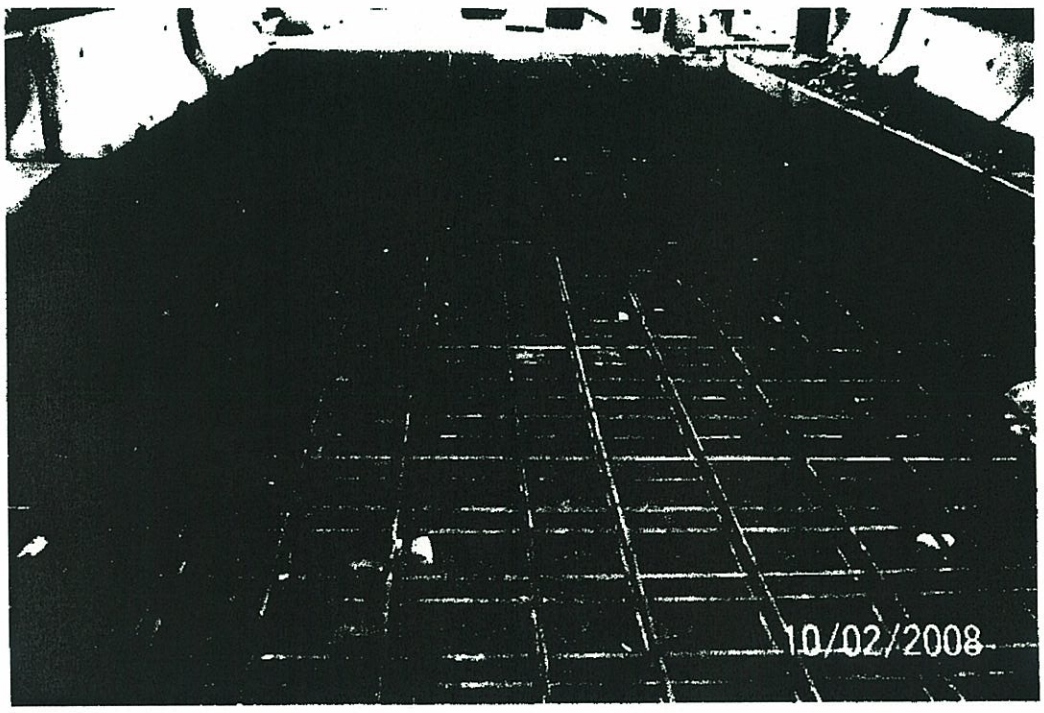
RED





07-1aa ~~06-0692-0~~ FROM 10-01-08





07-1299 FROM 10-01-08

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Portland Jetport PH II Garage	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers/ Todd Neal	**Date:**	10-9-08
Concrete Contractor:	S Richer Concrete Floors	**Sheet:**	1 of 1
Placement Location:	First Floor Slab in Garage	**SWCE Rep.:**	BZM
Placement Type:	Footing ☐ Wall ☐ Column ☐ Slab ☒ Other ☐	**Arrived at Site:**	6:30±
		Left Site:	10:30±

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☐	No ☐	☒	No rebar used in Slab
Location (# of bars, spacing, and cover)	Yes ☐	No ☐	☒	
Splicing (weld joint, overlap)	Yes ☐	No ☐	☒	
Stability (wiring, chairs, and spacers)	Yes ☐	No ☐	☒	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☐	No ☐	☒	
Reinforcement appears in conformance to specifications	Yes ☐	No ☐	☒	
Soil subgrade prepared in accordance with project specifications	Yes ☒	No ☐	☐	

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
				A 615 ☐	40 ☐ 50 ☐ 60 ☐
NONE				A 616 ☐ A 617 ☐	75 ☐
				A 706 ☐	A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	5000psi, ¾"Agg., Polyheed 997
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Raked
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Georgia Buggy
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☐	☐	☒	None Used
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870-47, 48 & 49 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Bull Float & Trowel
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☒ No ☐

Non-Conformance Item Description:	Over 6" Slump on Loads 6 and 11
Action Taken by SWCE:	SWCE informed Dragon and Stantec
Person(s) Notified:	Phil Nunley (Dragon) and Ryan (Stantec)

N/O = Not Observed

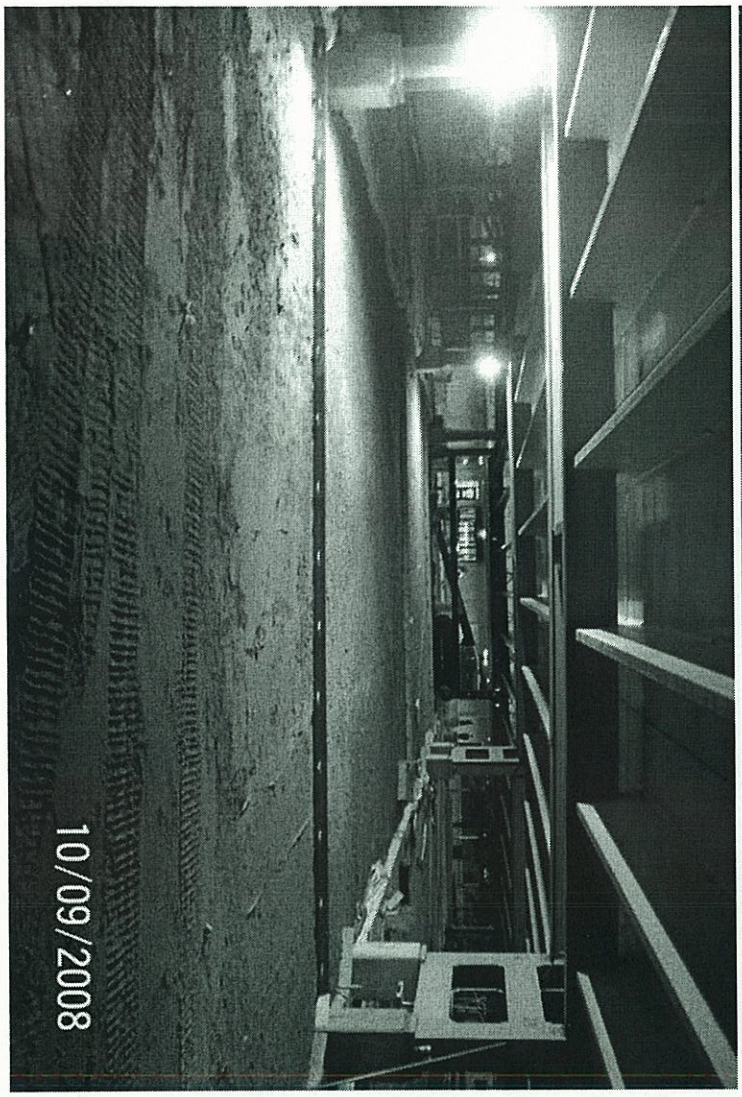
Notes:

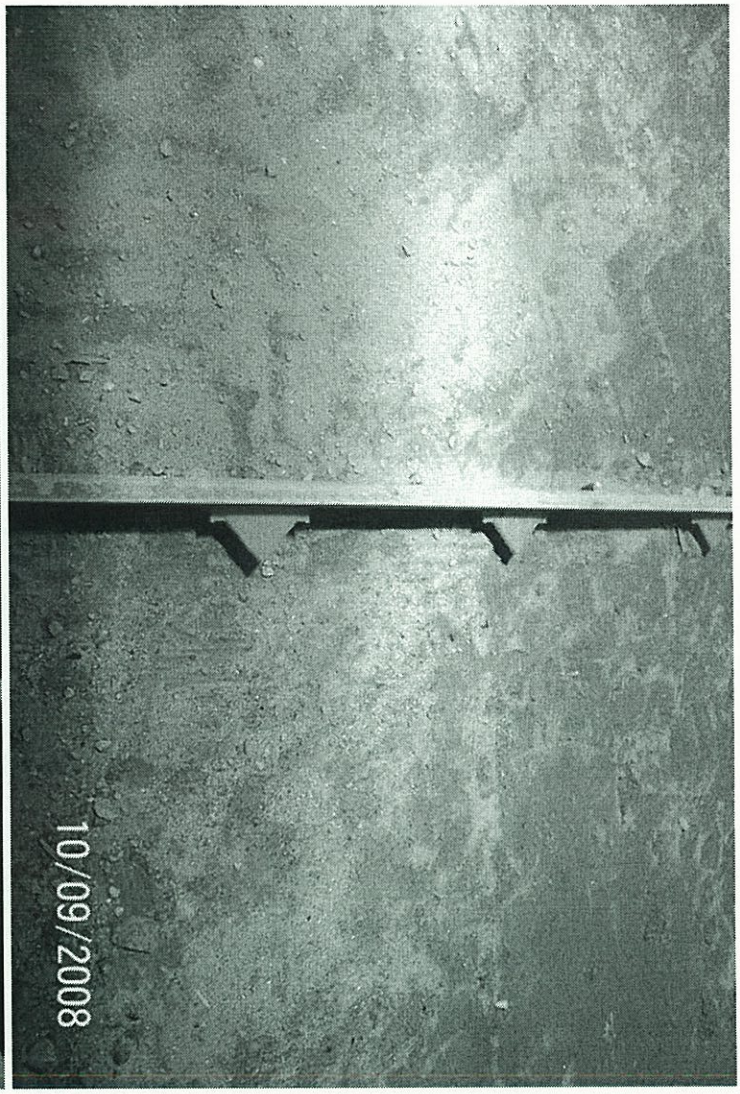
All other aspects of Loads 6 and 11 were in Spec.

Attachments: Photos

Reviewed By: RED

RED


10/09/2008


10/09/2008


10/09/2008

S.W.COLE ENGINEERING, INC.

Soils Observation Report

Project Name/Location:	Portland Jetport PH II Garage	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers	**Date:**	10-15-08
Earthwork Contractor:	Gorham Sand & Gravel	**Sheet:**	1 of 1
		SWCE Rep.:	BZM
		Arrived at Site:	9:50±
		Left Site:	10:30±

Weather			**Site Conditions**		**Materials Used**	
☒ Clear	☐ Snow	☐ Warm	☐ Wet	☒ Dusty	☐ Site Fill	☐ Foundation Backfill
☐ Overcast	☐ Fog	☐ Hot	☐ Muddy	☐ Frozen	☐ Utility Bedding	☐ Subbase
☐ Rain	☐ Cold	☐ Windy	Temperatures:55°±		☒ Base	☐ _____

Soils Work Performed: ☐ Site Prep (Sect. 2230) ☐ Earthwork (Sect. 2300) ☐ Planting Soils (Sect. 2310)
☒ Building Earthwork (Sect. 2315) ☐ Utilities Earthwork (Sect. 2316) ☐ _____

Compaction Equipment Used: ☐ Large Roller ☐ Small Roller ☐ Trench Roller ☐ Large Plate Tamp
☐ Small Tamp ☐ Jumping Jack ☒ None Observed ☐ _____

Soils Observations	**Observed**		**Comments**
Site Preparation	Yes ☐	No ☒	
Fill Placement:	Yes ☐	No ☒	
Material Type (proper material used for construction)	Yes ☒	No ☐	Type C, ID # 8532G
Lift Size	Yes ☐	No ☒	Informed 10"
Compaction	Yes ☐	No ☒	
In-place Densities	Yes ☒	No ☐	Test #s: 282-285
In-place Density Frequency	Yes ☐	No ☐	NA
Non-Conformance Items Observed	Yes ☐	No ☒	
Non-Conformance Item Description:			
Action Taken by SWCE:			
Person(s) Notified:			

Area(s) of Observation:
First Floor Parking Garage

Notes:
All compaction testes were located between column Lines 7, 8, 9 and H.

Attachments: NONE Reviewed By: RED

RED

S.W.COLE ENGINEERING, INC.

Concrete Construction Observation Report

Project Name/Location:	Portland Jetport PH II Garage	**Project No:**	07-1299
Client/Client's Rep.:	Becker Structural Engineers/ Todd Neal	**Date:**	10-29-08
Concrete Contractor:	Ledgewood	**Sheet:**	1 of 1
Placement Location:	Between 3 & 4 Lines and E through H every other slab: 4 total	**SWCE Rep.:**	BZM
Placement Type:	Footing ☐ Wall ☐ Column ☐ Slab ☒ Other ☐	**Arrived at Site:**	8:35±
		Left Site:	9:40±

PRE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Bar Size (diameter, length, bend and anchorage)	Yes ☐	No ☐	☒	
Location (# of bars, spacing, and cover)	Yes ☐	No ☐	☒	
Splicing (weld joint, overlap)	Yes ☐	No ☐	☒	
Stability (wiring, chairs, and spacers)	Yes ☐	No ☐	☒	
Reinforcement free from mud, oil, rust, or other nonmetallic coatings	Yes ☐	No ☐	☒	
Reinforcement appears in conformance to specifications	Yes ☐	No ☐	☒	
Soil subgrade prepared in accordance with project specifications	Yes ☒	No ☐	☐	

Referenced Drawings	**Date**	**Page**	**Rev.**	**ASTM**	**GRADE**
				A 615 ☐	40 ☐ 50 ☐ 60 ☐
NONE				A 616 ☐ A 617 ☐	75 ☐
				A 706 ☐	A 775 Epoxy ☐

CONCRETE PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Required mix used	Yes ☒	☐	☐	5000psi, ¾"Agg., Polyheed 997
Placement and consolidation of concrete observed	Yes ☒	☐	☐	Raked & Shoveled
Concrete properly conveyed to all areas of placement	Yes ☒	☐	☐	Georgia Buggy & Chute
Depth of layer maximum limits not exceeded	Yes ☒	☐	☐	
Internal vibration (depth of insertion, spacing, time, vertical insertion, no conveyance of concrete by vibration)	Yes ☐	☐	☒	None Used
Even layering around openings and embedments	Yes ☒	☐	☐	
Removal of temporary ties and spacers	Yes ☐	☐	☒	

FIELD TESTING OF CONCRETE PERFORMED Yes ☒ No ☐

***CYLINDER SET NO:** 870- 64 ←**refer to associated concrete test report*

POST PLACEMENT OBSERVATIONS	**In Compliance**		**N/O**	**Comments**
Specified finish	Yes ☒	☐	☐	Bullfloat, Screed & Trowel
Protection of surfaces from cracking due to rapid drying	Yes ☐	☐	☒	
Proper curing procedures implemented	Yes ☐	☐	☒	

NON-CONFORMANCE ITEMS OBSERVED Yes ☒ No ☐

Non-Conformance Item Description:	Low % air (3.8%) and High Slump (6 ½") on Load #8
Action Taken by SWCE:	SWCE informed Ledgewood
Person(s) Notified:	Superintendant on-site for Ledgewood

N/O = Not Observed

Notes:

All other aspects of Load #8 were in spec. When SWCE arrived, 70cy had already been placed

Attachments: Photos

Reviewed By: RED

RED


10/29/2008


10/29/2008


10/29/2008


10/29/2008

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/6/2008 **Time Cast:** 1:45 **Date Received:** 6/10/2008

Placement Location: SPREAD FOOTINGS 2 - H.55 + H.85, 1-H.5, 3 - H.55 + H.85

Placement Method: TAILGATE
Cylinders Made By: DMR
Placement Vol. (yd^3): 20
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

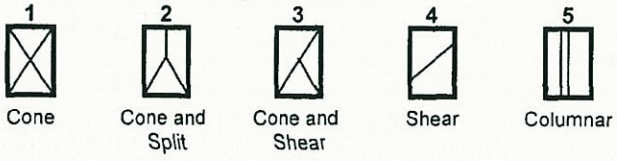
TEST RESULTS

Slump (in) (C-143): 4.5
Air Content (%) (C-231): 6.1
Air Temp (°F): 60
Conc. Temp (°F) (C-1064): 60

Load Number: 1
Mixer Number: 170
Ticket Number: 4529428
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-1A		6.00	28.27	6/13/2008	Lab	**7**	4	101.5	**3590**
870-1B		6.00	28.27	7/7/2008	Lab	**31**	4	129.0	**4560**
870-1C		6.00	28.27	7/7/2008	Lab	**31**	4	130.0	**4600**
870-1D				Hold	Lab				

Fracture Types



Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/11/2008 **Time Cast:** 12:40 **Date Received:** 6/12/2008

Placement Location: ELEVATOR PIT FOOTING: G.8 TO H, 1 TO 2 SPREAD FOOTINGS: LINE H, 4 - 6

Placement Method: CONVEYER*
Cylinders Made By: VLT
Placement Vol. (yd^3): 80
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5
Air Content (%) (C-231): **Air WR:** 5.5
Air Temp (°F): 83
Conc. Temp (°F) (C-1064): 76

Load Number: 2
Mixer Number: 177
Ticket Number: 4529500
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-2A		6.00	28.27	6/18/2008	Lab	**7**	4	106.0	**3750**
870-2B		6.00	28.27	7/9/2008	Lab	**28**	4	145.0	**5130**
870-2C		6.00	28.27	7/9/2008	Lab	**28**	4	143.0	**5060**
870-2D				Hold	Lab				

Fracture Types

Remarks: * NEWMAN CONCRETE

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/11/2008 **Time Cast:** 2:00 **Date Received:** 6/12/2008

Placement Location: ELEVATOR PIT FOOTING: G.8 TO H, 1 TO 2 SPREAD FOOTINGS: LINE H, 4 - 6

Placement Method: CONVEYER*
Cylinders Made By: VLT
Placement Vol. (yd³): 80
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 4
Air Content (%) (C-231): **Air WR:** 5.1
Air Temp (°F): 83
Conc. Temp (°F) (C-1064): 79

Load Number: 6
Mixer Number: 170
Ticket Number: 4529505
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-3A		6.00	28.27	6/18/2008	Lab	**7**	4	101.5	**3590**
870-3B		6.00	28.27	7/9/2008	Lab	**28**	4	130.0	**4600**
870-3C		6.00	28.27	7/9/2008	Lab	**28**	4	133.5	**4720**
870-3D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks: * NEWMAN CONCRETE

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/13/2008 **Time Cast:** 2:25 **Date Received:** 6/17/2008

Placement Location: H, 8 - 11 PIER FOOTING BETWEEN G.4 + H.5 AND 1 + 3, G.7 - 12

Placement Method: CONVEYOR + TAILGATE
Placement Vol. (yd^3): 80
Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5.5
Air Content (%) (C-231): 6.0
Air Temp (°F): 78
Conc. Temp (°F) (C-1064): 76

Load Number: 3
Mixer Number: 189
Ticket Number: 4529569
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-4A		6.00	28.27	6/20/2008	Lab	**7**	4	90.0	**3180**
870-4B		6.00	28.27	7/11/2008	Lab	**28**	4	128.0	**4530**
870-4C		6.00	28.27	7/11/2008	Lab	**28**	4	129.0	**4560**
870-4D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/13/2008 **Time Cast:** 3:05 **Date Received:** 6/17/2008

Placement Location: H, 8 - 11 PIER FOOTING BETWEEN G.4 + H.5 AND 1 + 3, G.7 - 12

Placement Method: CONVEYOR + TAILGATE
Placement Vol. (yd³): 80
Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

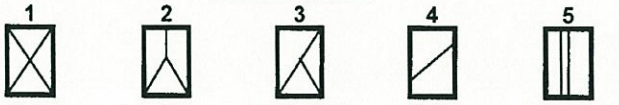
TEST RESULTS

Slump (in) (C-143): 5
Air Content (%) (C-231): 6.1
Air Temp (°F): 78
Conc. Temp (°F) (C-1064): 78

Load Number: 7
Mixer Number: 173
Ticket Number: 4529574
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-5A		6.00	28.27	6/20/2008	Lab	**7**	4	81.0	**2870**
870-5B		6.00	28.27	7/11/2008	Lab	**28**	4	122.0	**4320**
870-5C		6.00	28.27	7/11/2008	Lab	**28**	4	126.0	**4460**
870-5D				Hold	Lab				

Fracture Types



1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/18/2008 **Time Cast:** 12:20 **Date Received:** 6/20/2008

Placement Location: G LINE 5-9

Placement Method: TAILGATE
Cylinders Made By: BZM

Placement Vol. (yd^3): 180
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 6.0
Air Temp (°F): 63
Conc. Temp (°F) (C-1064): 68

Load Number: 3
Mixer Number: 183
Ticket Number: 4529613
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-6A		6.00	28.27	6/25/2008	Lab	**7**	4	93.5	**3310**
870-6B		6.00	28.27	7/16/2008	Lab	**28**	4	133.5	**4720**
870-6C		6.00	28.27	7/16/2008	Lab	**28**	4	128.0	**4530**
870-6D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/18/2008 **Time Cast:** 2:13 **Date Received:** 6/20/2008

Placement Location: G LINE 5-9

Placement Method: TAILGATE
Placement Vol. (yd³): 180

Cylinders Made By: BZM
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

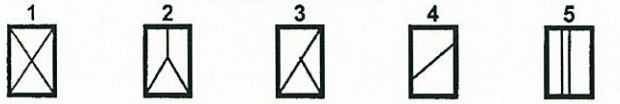
TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 5.9
Air Temp (°F): 69
Conc. Temp (°F) (C-1064): 70

Load Number: 13
Mixer Number: 175
Ticket Number: 4529625
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-7A		6.00	28.27	6/25/2008	Lab	**7**	4	94.5	**3340**
870-7B		6.00	28.27	7/16/2008	Lab	**28**	4	133.0	**4700**
870-7C		6.00	28.27	7/16/2008	Lab	**28**	4	134.5	**4760**
870-7D				Hold	Lab				

Fracture Types



1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/19/2008 **Time Cast:** 1:32 **Date Received:** 6/23/2008

Placement Location: LINES H, RB, RAM H.58, H.83: 4-11 PIERS, 10.7, 1111.3, 11.6, 12 SONA TUBES, PIERS (P.S)

Placement Method: CONVEYOR
Cylinders Made By: BZM
Placement Vol. (yd³): 10.5
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5 3/4
Air Content (%) (C-231): **Air WR:** 5.1*
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 70

Load Number: 1
Mixer Number: 192
Ticket Number: 4529626
Cubic Yards: 10.5
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-8A		6.00	28.27	6/26/2008	Lab	**7**	4	123.5	**4370**
870-8B		6.00	28.27	7/17/2008	Lab	**28**	4	148.5	**5250**
870-8C		6.00	28.27	7/17/2008	Lab	**28**	4	149.5	**5290**
870-8D				Hold	Lab				

Fracture Types

Remarks: * AIR METER CLAMP IS DAMAGED

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/20/2008 **Time Cast:** 12:37 **Date Received:** 6/24/2008

Placement Location: ELEVATOR PIT WALL + EASAT WALL OF WEST STAIR

Placement Method: CONVEYOR
Cylinders Made By: BZM
Placement Vol. (yd³): 42
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5.5
Air Content (%) (C-231):
Air Temp (°F): 67
Conc. Temp (°F) (C-1064): 70

Load Number: 2
Mixer Number: 180
Ticket Number: 4529670
Cubic Yards: 10.5
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-9A		6.00	28.27	6/27/2008	Lab	**7**	4	83.0	**2940**
870-9B		6.00	28.27	7/18/2008	Lab	**28**	4	120.0	**4250**
870-9C		6.00	28.27	7/18/2008	Lab	**28**	4	127.0	**4490**
870-9D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/24/2008 **Time Cast:** 1:28
Date Received: 6/26/2008

Placement Location: G - 2, G - 10 FOOTING
G.5 + OG.8 PIERS

Placement Method: CONVEYOR
Placement Vol. (yd^3): 76

Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 4
Air Content (%) (C-231): 7.0
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 75

Load Number: 3
Mixer Number: 181
Ticket Number: 4529708
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-10A		6.00	28.27	7/1/2008	Lab	**7**	4	88.0	**3110**
870-10B		6.00	28.27	7/22/2008	Lab	**28**	4	121.5	**4300**
870-10C		6.00	28.27	7/22/2008	Lab	**28**	4	114.0	**4030**
870-10D				Hold	Lab				

Fracture Types

Remarks: 5000 (PIERS)

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/24/2008 **Time Cast:** 4:00
Date Received: 6/26/2008

Placement Location: G - 2, G - 10 FOOTING
G.5 + OG.8 PIERS

Placement Method: CONVEYOR
Placement Vol. (yd^3): 76

Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 4.5
Air Content (%) (C-231): 6.1
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 74

Load Number: 1
Mixer Number: 173
Ticket Number: 4529721
Cubic Yards: 6.5
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-11A		6.00	28.27	7/1/2008	Lab	**7**	4	137.5	**4860**
870-11B		6.00	28.27	7/22/2008	Lab	**28**	4	169.5	**6000**
870-11C		6.00	28.27	7/22/2008	Lab	**28**	4	165.5	**5850**
870-11D				Hold	Lab				

Fracture Types

Remarks: 5000 (PIERS)

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Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/25/2008 **Time Cast:** 2:30 **Date Received:** 6/26/2008

Placement Location: WALLS 1 LINE G.8 TO H.3 - G.8 - 1 TO 3, RADIUS WALLS BETWEEN 1 + 3

Placement Method: CONVEYOR
Placement Vol. (yd³): 21
Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures
Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

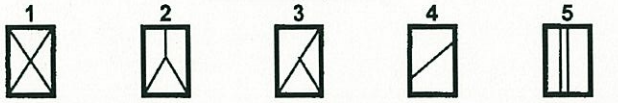
TEST RESULTS

Slump (in) (C-143): 5 3/4
Air Content (%) (C-231): 6.8
Air Temp (°F): 75
Conc. Temp (°F) (C-1064): 74

Load Number: 1
Mixer Number: 177
Ticket Number: 4529736
Cubic Yards: 10.5
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-12A		6.00	28.27	7/2/2008	Lab	**7**	4	89.5	**3170**
870-12B		6.00	28.27	7/23/2008	Lab	**28**	4	123.5	**4370**
870-12C		6.00	28.27	7/23/2008	Lab	**28**	4	120.5	**4260**
870-12D				Hold	Lab				

Fracture Types



Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/27/2008 **Time Cast:** 10:40 **Date Received:** 7/2/2008

Placement Location: G - 1 FOOTING SONOTUBES, SOUTH OF WEST STAIR TOWER

Placement Method:
Cylinders Made By: SJC
Placement Vol. (yd³): 51.5
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures
Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

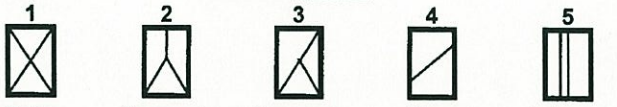
TEST RESULTS

Slump (in) (C-143): **Slump WR:** 4
Air Content (%) (C-231): **Air WR:** 4.6
Air Temp (°F): 76
Conc. Temp (°F) (C-1064): 76

Load Number: 2
Mixer Number: 185
Ticket Number: 4529782
Cubic Yards: 10.5
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-13A		6.00	28.27	7/7/2008	Lab	**10**	4	126.5	**4480**
870-13B		6.00	28.27	7/25/2008	Lab	**28**	4	147.0	**5200**
870-13C		6.00	28.27	7/25/2008	Lab	**28**	4	149.0	**5270**
870-13D				Hold	Lab				

Fracture Types



Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 6/27/2008 **Time Cast:** 11:55 **Date Received:** 7/2/2008

Placement Location: G - 1 FOOTING SONOTUBES, SOUTH OF WEST STAIR TOWER

Placement Method:
Cylinders Made By: SJC
Placement Vol. (yd³): 51.5
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 4.25
Air Content (%) (C-231): **Air WR:** 4.5
Air Temp (°F): 80
Conc. Temp (°F) (C-1064): 79

Load Number: 5
Mixer Number: 192
Ticket Number: 4529789
Cubic Yards: 10.5
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-14A		6.00	28.27	7/7/2008	Lab	**10**	4	149.5	**5290**
870-14B		6.00	28.27	7/25/2008	Lab	**28**	4	176.0	**6230**
870-14C		6.00	28.27	7/25/2008	Lab	**28**	4	179.5	**6350**
870-14D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/2/2008 **Time Cast:** 2:38
Date Received: 7/10/2008

Placement Location: FOOTING 12 TO 13 LINE G G.7 13

Placement Method: CONVEYOR
Placement Vol. (yd^3): 80

Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

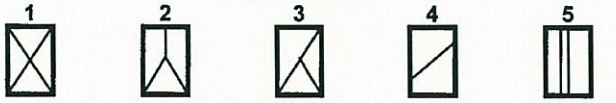
TEST RESULTS

Slump (in) (C-143): 5.5
Air Content (%) (C-231): 5.7
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 73

Load Number: 3
Mixer Number: 183
Ticket Number: 4529873
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-15A		6.00	28.27	7/9/2008	Lab	**7**	4	91.0	**3220**
870-15B		6.00	28.27	7/30/2008	Lab	**28**	4	122.0	**4320**
870-15C		6.00	28.27	7/30/2008	Lab	**28**	4	127.5	**4510**
870-15D				Hold	Lab				

Fracture Types



Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/2/2008 **Time Cast:** 3:18
Date Received: 7/10/2008

Placement Location: FOOTING 12 TO 13 LINE G G.7 13

Placement Method: CONVEYOR
Placement Vol. (yd³): 80

Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5
Air Content (%) (C-231): 5.8
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 73

Load Number: 2
Mixer Number: 173
Ticket Number: 4529878
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-16A		6.00	28.27	7/9/2008	Lab	**7**	4	95.5	**3380**
870-16B		6.00	28.27	7/30/2008	Lab	**28**	4	133.0	**4700**
870-16C		6.00	28.27	7/30/2008	Lab	**28**	4	131.0	**4630**
870-16D				Hold	Lab				

Fracture Types

1 Cone · 2 Cone and Split · 3 Cone and Shear · 4 Shear · 5 Columnar

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/3/2008 **Time Cast:** 10:10 **Date Received:** 7/11/2008

Placement Location: TRUCK SHED FOOTINGS

Placement Method: PUMPED
Cylinders Made By: DMR

Placement Vol. (yd³): 17
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5
Air Content (%) (C-231): 6.0
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 73

Load Number: 1
Mixer Number: 173
Ticket Number: 4529895
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-17A		6.00	28.27	7/10/2008	Lab	**7**	4	92.0	**3250**
870-17B		6.00	28.27	7/31/2008	Lab	**28**	4	114.0	**4030**
870-17C		6.00	28.27	7/31/2008	Lab	**28**	4	115.0	**4070**
870-17D				Hold	Lab				

Fracture Types

1 Cone
2 Cone and Split
3 Cone and Shear
4 Shear
5 Columnar

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/10/2008 **Time Cast:** 12:06 **Date Received:** 7/11/2008

Placement Location: FOOTING G-11 + G.7 - 12 LINE STOPPED FOOTING BETWEEN 13 + 4 AND G + G.7

Placement Method: CONVEYOR
Cylinders Made By: DMR
Placement Vol. (yd^3): 48
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5.5
Air Content (%) (C-231): 6.4
Air Temp (°F): 78
Conc. Temp (°F) (C-1064): 74

Load Number: 3
Mixer Number: 160
Ticket Number: 4530016
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-18A		6.00	28.27	7/17/2008	Lab	**7**	4	102.5	**3630**
870-18B		6.00	28.27	8/7/2008	Lab	**28**	4	123.5	**4370**
870-18C		6.00	28.27	8/7/2008	Lab	**28**	4	128.0	**4530**
870-18D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/10/2008 **Time Cast:** 1:28 **Date Received:** 7/11/2008

Placement Location: WALLS G - 12 TO 13 G.7 - 13

Placement Method: CONVEYOR
Placement Vol. (yd^3): 23

Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

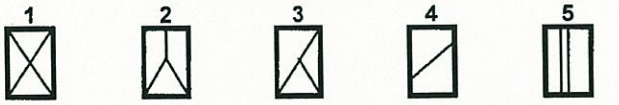
TEST RESULTS

Slump (in) (C-143): 5.5
Air Content (%) (C-231): 5.8
Air Temp (°F): 80
Conc. Temp (°F) (C-1064): 71

Load Number: 7
Mixer Number: 177
Ticket Number: 4530022
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-19A		6.00	28.27	7/17/2008	Lab	**7**	4	148.5	**5250**
870-19B		6.00	28.27	8/7/2008	Lab	**28**	4	159.0	**5620**
870-19C		6.00	28.27	8/7/2008	Lab	**28**	4	162.5	**5750**
870-19D				Hold	Lab				

Fracture Types



1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/11/2008 **Time Cast:** 11:10 **Date Received:** 7/14/2008

Placement Location: OPERATOR'S BUILDING, WALLS & WALKWAY FOOTING

Placement Method: PUMP (NORTHEAST)
Cylinders Made By: SJC

Placement Vol. (yd^3): 40
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 5.4
Air Temp (°F): 74
Conc. Temp (°F) (C-1064): 78

Load Number: 3
Mixer Number: 190
Ticket Number: 4530042
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-20A		6.00	28.27	7/18/2008	Lab	**7**	4	79.5	**2810**
870-20B		6.00	28.27	8/8/2008	Lab	**28**	4	106.0	**3750**
870-20C		6.00	28.27	8/8/2008	Lab	**28**	4	109.5	**3870**
870-20D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/15/2008 **Time Cast:** 1:38
Date Received: 7/17/2008

Placement Location: PIER FOOTINGS G- 3 + 4

Placement Method: TAILGATE
Cylinders Made By: DMR

Placement Vol. (yd³): 80
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5 1/2
Air Content (%) (C-231): 6.6
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 74

Load Number: 4
Mixer Number: 173
Ticket Number: 4530107
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-21A		6.00	28.27	7/22/2008	Lab	**7**	4	91.5	**3240**
870-21B		6.00	28.27	8/12/2008	Lab	**28**	4	119.0	**4210**
870-21C		6.00	28.27	8/12/2008	Lab	**28**	4	123.5	**4370**
870-21D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/18/2008 **Time Cast:** 1:50
Date Received: 7/22/2008

Placement Location: PIERS G-1, 3, 4 + 11, G.7-12
STAIRWELL WALL BET G + G.7 ON 14 LINE

Placement Method: CONVEYOR
Placement Vol. (yd³): 19

Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures:

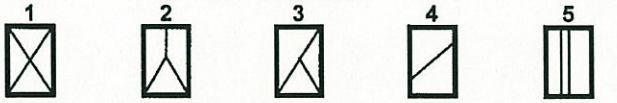
TEST RESULTS

Slump (in) (C-143): 4 1/2
Air Content (%) (C-231): 58
Air Temp (°F): 72
Conc. Temp (°F) (C-1064): 72

Load Number: 1
Mixer Number: 186
Ticket Number: 4530227
Cubic Yards: 9
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-22A		6.00	28.27	7/25/2008	Lab	**7**	4	134.0	**4740**
870-22B		6.00	28.27	8/15/2008	Lab	**28**	4	169.0	**5980**
870-22C		6.00	28.27	8/15/2008	Lab	**28**	4	174.5	**6170**
870-22D				Hold	Lab				

Fracture Types



1 Cone · 2 Cone and Split · 3 Cone and Shear · 4 Shear · 5 Columnar

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/25/2008 **Time Cast:** 1:57
Date Received: 7/30/2008

Placement Location: FOOTING F - 13 + 14

Placement Method: CONVEYOR
Placement Vol. (yd^3): 70
Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5
Air Content (%) (C-231): 6.5
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 74

Load Number: 4
Mixer Number: 183
Ticket Number: 4530315
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-23A		6.00	28.27	8/1/2008	Lab	**7**	4	77.5	**2740**
870-23B		6.00	28.27	8/22/2008	Lab	**28**	4	108.0	**3820**
870-23C		6.00	28.27	8/22/2008	Lab	**28**	4	109.5	**3870**
870-23D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/29/2008 **Time Cast:** 2:50 **Date Received:** 8/4/2008

Placement Location: SPREAD FOOTINGS F-10 + 11 ONE SIDED WALL ON 14 LINE

Placement Method: TAILGATE
Cylinders Made By: DMR

Placement Vol. (yd^3): 96
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5
Air Content (%) (C-231): 6.6
Air Temp (°F): 75
Conc. Temp (°F) (C-1064): 77

Load Number: 5
Mixer Number: 181
Ticket Number: 0730418
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-24A		6.00	28.27	8/5/2008	Lab	**7**	4	80.0	**2830**
870-24B		6.00	28.27	8/26/2008	Lab	**28**	4	112.0	**3960**
870-24C		6.00	28.27	8/26/2008	Lab	**28**	4	112.5	**3980**
870-24D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 7/30/2008 **Time Cast:** 8:30 **Date Received:** 8/4/2008

Placement Location: TRUCK SHEET & OFFICE SLAB ON GRADE 3 COLUMNS ON H - 12

Placement Method: TAILGATE
Cylinders Made By: DMR
Placement Vol. (yd³): 35
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5.5
Air Content (%) (C-231): 5.8
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 74

Load Number: 3
Mixer Number: 181
Ticket Number: 3930437
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-25A		6.00	28.27	8/6/2008	Lab	**7**	4	129.5	**4580**
870-25B		6.00	28.27	8/27/2008	Lab	**28**	4	154.5	**5470**
870-25C		6.00	28.27	8/27/2008	Lab	**28**	4	158.0	**5590**
870-25D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/1/2008 **Time Cast:** 10:30 **Date Received:** 8/5/2008

Placement Location: SPREAD FOOTING F-8 + 9

Placement Method: CONVEYOR
Cylinders Made By: DMR

Placement Vol. (yd^3): 96
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5
Air Content (%) (C-231): 6.3
Air Temp (°F): 75
Conc. Temp (°F) (C-1064): 74

Load Number: 5
Mixer Number: 192
Ticket Number: 4530409
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-26A		6.00	28.27	8/8/2008	Lab	**7**	4	79.5	**2810**
870-26B		6.00	28.27	8/29/2008	Lab	**28**	4	109.5	**3870**
870-26C		6.00	28.27	8/29/2008	Lab	**28**	4	111.0	**3930**
870-26D				9/26/2008	Lab	**56**			

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/1/2008 **Time Cast:** 11:45 **Date Received:** 8/5/2008

Placement Location: PIER F-10 + 11, WALL F-12 TO 14

Placement Method: CONVEYOR
Cylinders Made By: DMR

Placement Vol. (yd^3): 96
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

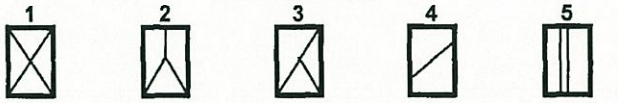
TEST RESULTS

Slump (in) (C-143): 5
Air Content (%) (C-231): 5.6
Air Temp (°F): 75
Conc. Temp (°F) (C-1064): 72

Load Number: 10
Mixer Number: 180
Ticket Number: 4530418
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-27A		6.00	28.27	8/8/2008	Lab	**7**	4	132.0	**4670**
870-27B		6.00	28.27	8/29/2008	Lab	**28**	4	157.5	**5570**
870-27C		6.00	28.27	8/29/2008	Lab	**28**	4	159.5	**5640**
870-27D				9/26/2008	Lab	**56**			

Fracture Types



1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/5/2008 **Time Cast:** 2:19 **Date Received:** 8/6/2008

Placement Location: FOOTINGS: F LINE: 6 & 7, 5, 4 MUD PAD @ F3

Placement Method: TAILGATE
Cylinders Made By: BZM
Placement Vol. (yd³): 132.5
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6.5
Air Content (%) (C-231): **Air WR:** 6.2
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 71

Load Number: 4
Mixer Number: 176
Ticket Number: 4530461
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-28A		6.00	28.27	8/12/2008	Lab	**7**	4	94.5	**3340**
870-28B		6.00	28.27	9/2/2008	Lab	**28**	4	139.0	**4920**
870-28C		6.00	28.27	9/2/2008	Lab	**28**	4	144.5	**5110**
870-28D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/5/2008 **Time Cast:** 3:18 **Date Received:** 8/6/2008

Placement Location: FOOTINGS: F LINE: 6 & 7, 5, 4 MUD PAD @ F3

Placement Method: TAILGATE
Cylinders Made By: BZM
Placement Vol. (yd^3): 132.5
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 4.5
Air Content (%) (C-231): **Air WR:** 5.6
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 70

Load Number: 8
Mixer Number: 183
Ticket Number: 4530465
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-29A		6.00	28.27	8/12/2008	Lab	**7**	4	83.5	**2950**
870-29B		6.00	28.27	9/2/2008	Lab	**28**	4	126.5	**4480**
870-29C		6.00	28.27	9/2/2008	Lab	**28**	4	127.0	**4490**
870-29D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/7/2008 **Time Cast:** 11:26 **Date Received:** 8/8/2008

Placement Location: FOOTINGS LINE: F,2 + F,3

Placement Method: TAILGATE
Placement Vol. (yd^3): 72

Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5.5
Air Content (%) (C-231): **Air WR:** 5.0
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 72

Load Number: 3
Mixer Number: 183
Ticket Number: 4530497
Cubic Yards: 10.5
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)^2	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-30A		6.00	28.27	8/14/2008	Lab	**7**	4	90.5	**3200**
870-30B		6.00	28.27	9/4/2008	Lab	**28**	4	134.0	**4740**
870-30C		6.00	28.27	9/4/2008	Lab	**28**	4	137.0	**4850**
870-30D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299
Client Contract Number:
Client: BECKER STRUCTURAL ENGINEERS, INC.
General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/7/2008 **Time Cast:** 12:30 **Date Received:** 8/8/2008
Placement Location: PIERS: LINE F-7 + F-8

Placement Method: TAILGATE
Cylinders Made By: VLT
Placement Vol. (yd^3): 72
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures
Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5.5
Air Content (%) (C-231): **Air WR:** 4.5
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 73
Load Number: 6
Mixer Number: 180
Ticket Number: 4530500
Cubic Yards: 3
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-31A		6.00	28.27	8/14/2008	Lab	**7**	4	105.5	**3730**
870-31B		6.00	28.27	9/4/2008	Lab	**28**	4	140.5	**4970**
870-31C		6.00	28.27	9/4/2008	Lab	**28**	4	135.5	**4790**
870-31D		6.00	28.27	10/2/2008	Lab	**56**	4	148.5	**5250**

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/11/2008 **Time Cast:** 1:30 **Date Received:** 8/12/2008

Placement Location: FOOTING: LINE F - 1

Placement Method: TAILGATE
Cylinders Made By: VLT

Placement Vol. (yd³): 45
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

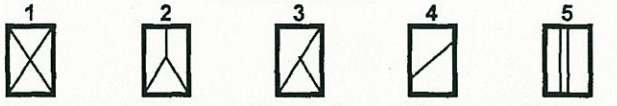
TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 4.3
Air Temp (°F): 65
Conc. Temp (°F) (C-1064): 73

Load Number: 2
Mixer Number: 179
Ticket Number: 4530528
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-32A		6.00	28.27	8/18/2008	Lab	**7**	4	91.5	**3240**
870-32B		6.00	28.27	9/8/2008	Lab	**28**	4	135.0	**4780**
870-32C		6.00	28.27	9/8/2008	Lab	**28**	4	131.0	**4630**
870-32D				Hold	Lab				

Fracture Types



Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/11/2008 **Time Cast:**
Date Received: 8/12/2008

Placement Location: PIERS: LINE F, 4 TO 6

Placement Method: TAILGATE
Placement Vol. (yd³): 45

Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 4.5
Air Temp (°F): 65
Conc. Temp (°F) (C-1064): 73

Load Number: 5
Mixer Number: 179
Ticket Number: 4530534
Cubic Yards: 5.5
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-33A		6.00	28.27	8/18/2008	Lab	**7**	4	130.5	**4620**
870-33B		6.00	28.27	9/8/2008	Lab	**28**	4	159.0	**5620**
870-33C		6.00	28.27	9/8/2008	Lab	**28**	4	161.5	**5710**
870-33D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299
Client Contract Number:
Client: BECKER STRUCTURAL ENGINEERS, INC.
General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/13/2008 **Time Cast:** 1:30 **Date Received:** 8/15/2008
Placement Location: PIERS: F-6, F-1 TO F-3
Placement Method: TAILGATE
Placement Vol. (yd³): 12
Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures
Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5 3/4
Air Content (%) (C-231): **Air WR:** 4.0
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 86
Load Number: 1
Mixer Number: 169
Ticket Number: 4530562
Cubic Yards: 6
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-34A		6.00	28.27	8/20/2008	Lab	**7**	4	144.5	**5110**
870-34B		6.00	28.27	9/10/2008	Lab	**28**	4	164.0	**5800**
870-34C		6.00	28.27	9/10/2008	Lab	**28**	4	170.5	**6030**
870-34D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 8/13/2008 **Time Cast:** 2:38 **Date Received:** 8/15/2008

Placement Location: PIERS: F-6, F-1 TO F-3

Placement Method: TAILGATE
Placement Vol. (yd^3): 12

Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 1 1/2
Air Content (%) (C-231): **Air WR:** 1.9
Air Temp (°F): 70
Conc. Temp (°F) (C-1064): 87

Load Number: 1
Mixer Number: 169
Ticket Number: 4530562
Cubic Yards: 6
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-35A		6.00	28.27	9/10/2008	Lab	**28**	4	142.5	**5040**
870-35B		6.00	28.27	9/10/2008	Lab	**28**	4	141.5	**5010**

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: F. R. CARROLL

PLACEMENT INFORMATION

Date Cast: 8/20/2008 **Time Cast:** 11:05 **Date Received:** 8/22/2008

Placement Location: EXIT TOLL SLAB AREA

Placement Method: TAILGATE
Cylinders Made By: DMR

Placement Vol. (yd^3): 70
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MID RANGE

TEST RESULTS

Slump (in) (C-143): 5
Air Content (%) (C-231): 4.8
Air Temp (°F): 75
Conc. Temp (°F) (C-1064): 75

Load Number: 4
Mixer Number: 3
Ticket Number: 22293
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-36A		6.00	28.27	8/27/2008	Lab	**7**	4	138.5	**4900**
870-36B		6.00	28.27	9/17/2008	Lab	**28**	4	180.5	**6380**
870-36C		6.00	28.27	9/17/2008	Lab	**28**	4	171.5	**6070**
870-36D				10/15/2008	Lab	**56**			

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: F. R. CARROLL

PLACEMENT INFORMATION

Date Cast: 9/5/2008 **Time Cast:** 10:20 **Date Received:** 9/8/2008

Placement Location: 10" EXTERIOR SLAB BETWEEN BOOTH 2 + 3

Placement Method: DIRECT
Placement Vol. (yd^3): 22

Cylinders Made By: JTR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MRWR

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 5
Air Temp (°F): 75
Conc. Temp (°F) (C-1064): 75

Load Number: 1
Mixer Number: 16
Ticket Number: 22360
Cubic Yards: 7.5
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-37A		6.00	28.27	9/12/2008	Lab	**7**	4	135.0	**4780**
870-37B		6.00	28.27	10/3/2008	Lab	**28**	4	171.5	**6070**
870-37C		6.00	28.27	10/3/2008	Lab	**28**	4	171.0	**6050**
870-37D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Grout Compressive Strength

ASTM C109

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING

Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.

Client Contract Number:

General Contractor:

Supplier: AUBURN CONCRETE

PLACEMENT INFORMATION

Date Cast: 9/9/2008 **Time Cast:**

Date Received: 9/11/2008

Placement Location: OPS BUILDING EXTERIOR WALL GROUT

Placement Method: PUMP

Cylinders Made By: RED

Placement Vol. (yd^3): 20

Aggregate Size (in): SAND

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures:

TEST RESULTS

Slump (in) (C-143):

Air Temp (°F):

Grout Temp (°F) (C-1064):

Batch Number:

Mixer Number:

Ticket Number:

Design (psi): **4000**

Cube Designation	Area(In)²	Date Of Test	Age (days)	Load (kips)	Strength (psi)
870-38A	12.25	9/16/2008	**7**	38.4	**3130**
870-38B	11.39	10/7/2008	**28**	56.2	**4930**
870-38C	11.39	10/7/2008	**28**	47.7	**4190**
870-38D					

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: F. R. CARROLL

PLACEMENT INFORMATION

Date Cast: 9/12/2008 **Time Cast:** 7:28 **Date Received:** 9/15/2008

Placement Location: CONCRETE WALKWAY BETWEEN NORTHWEST & CONTINENTAL ENTRANCE

Placement Method: DIRECT/COAL CHUTE
Placement Vol. (yd^3): 30

Cylinders Made By: SEB
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MRWR/AIR

TEST RESULTS

Slump (in) (C-143): 5.75
Air Content (%) (C-231): 5.7
Air Temp (°F): 64
Conc. Temp (°F) (C-1064): 68

Load Number: 2
Mixer Number: 17
Ticket Number: 22373
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-39A		6.00	28.27	9/19/2008	Lab	**7**	4	126.0	**4460**
870-39B		6.00	28.27	10/10/2008	Lab	**28**	4	174.5	**6170**
870-39C		6.00	28.27	10/10/2008	Lab	**28**	4	180.0	**6370**
870-39D				Hold	Lab				

Fracture Types

Remarks:

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Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: F. R. CARROLL

PLACEMENT INFORMATION

Date Cast: 9/15/2008 **Time Cast:** 9:10 **Date Received:** 9/17/2008

Placement Location: WEST- TRAFFIC TABLE SLAB ON GRADE

Placement Method: TAILGATE
Cylinders Made By: VLT

Placement Vol. (yd^3): 34
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MIDRANGE

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5 3/4
Air Content (%) (C-231): **Air WR:** 5.5
Air Temp (°F): 81
Conc. Temp (°F) (C-1064): 76

Load Number: 2
Mixer Number: 13
Ticket Number: 0022376
Cubic Yards: 9
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-40A		6.00	28.27	9/22/2008	Lab	**7**	4	118.0	**4170**
870-40B		6.00	28.27	10/13/2008	Lab	**28**	4	170.0	**6010**
870-40C		6.00	28.27	10/13/2008	Lab	**28**	4	166.5	**5890**
870-40D				Hold	Lab				

Fracture Types

Remarks:

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ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: F. R. CARROLL

PLACEMENT INFORMATION

Date Cast: 10/2/2008 **Time Cast:** 10:50 **Date Received:** 10/6/2008

Placement Location: LANE #1 OPS BUILDING PHASE II WEST TRAFFIC TABLE

Placement Method: TAILGATE
Cylinders Made By: BZM

Placement Vol. (yd^3): 59.5
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MIDRANGE
POZZUTEC 20 2%

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5
Air Content (%) (C-231): **Air WR:** 5.2
Air Temp (°F): 60
Conc. Temp (°F) (C-1064): 70

Load Number: 1
Mixer Number: 7
Ticket Number: 22473
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-41A		6.00	28.27	10/9/2008	Lab	**7**	4	163.5	**5780**
870-41B		6.00	28.27	10/30/2008	Lab	**28**	4	204.5	**7230**
870-41C		6.00	28.27	10/30/2008	Lab	**28**	4	206.5	**7300**
870-41D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: F. R. CARROLL

PLACEMENT INFORMATION

Date Cast: 10/2/2008 **Time Cast:** 12:16 **Date Received:** 10/6/2008

Placement Location: LANE #1 OPS BUILDING PHASE II WEST TRAFFIC TABLE

Placement Method: TAILGATE
Cylinders Made By: BZM

Placement Vol. (yd^3): 59.5
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MIDRANGE
POZZUTEC 20 2%

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 8 1/4
Air Content (%) (C-231): **Air WR:** 6.1
Air Temp (°F): 64
Conc. Temp (°F) (C-1064): 69

Load Number: 4
Mixer Number: 14
Ticket Number: 22476
Cubic Yards: 9.5
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-42A		6.00	28.27	10/9/2008	Lab	**7**	4	132.5	**4690**
870-42B		6.00	28.27	10/30/2008	Lab	**28**	4	177.0	**6260**
870-42C		6.00	28.27	10/30/2008	Lab	**28**	4	177.5	**6280**
870-42D				Hold	Lab				

Fracture Types

Remarks:

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Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/3/2008 **Time Cast:** 7:15 **Date Received:** 10/6/2008

Placement Location: 6" EXTERIOR SLAB GROUND LEVEL PARKING GARAGE SOUTH EAST SECTION

Placement Method: BUGGY
Placement Vol. (yd^3): 158

Cylinders Made By: JJR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MRWR - GLENIUM 7500

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 8
Air Temp (°F): 45
Conc. Temp (°F) (C-1064): 65

Load Number: 2
Mixer Number: 192
Ticket Number: 555077
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-43A		6.00	28.27	10/10/2008	Lab	**7**	4	124.5	**4400**
870-43B		6.00	28.27	10/31/2008	Lab	**28**	4	194.0	**6860**
870-43C		6.00	28.27	10/31/2008	Lab	**28**	4	182.0	**6440**
870-43D				11/28/2008	Lab	**56**			

Fracture Types

Remarks:

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Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/3/2008 **Time Cast:** 8:10 **Date Received:** 10/6/2008

Placement Location: 6" EXTERIOR SLAB GROUND LEVEL PARKING GARAGE SOUTH EAST SECTION

Placement Method: BUGGY
Cylinders Made By: JJR
Placement Vol. (yd³): 158
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MRWR - GLENIUM 7500

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6.5
Air Content (%) (C-231): **Air WR:** 5.4
Air Temp (°F): 45
Conc. Temp (°F) (C-1064): 65

Load Number: 6
Mixer Number: 177
Ticket Number: 555081
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-44A		6.00	28.27	10/10/2008	Lab	**7**	4	126.0	**4460**
870-44B		6.00	28.27	10/31/2008	Lab	**28**	4	184.0	**6510**
870-44C		6.00	28.27	10/31/2008	Lab	**28**	4	193.0	**6830**
870-44D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/3/2008 **Time Cast:** 9:30 **Date Received:** 10/6/2008

Placement Location: 6" EXTERIOR SLAB GROUND LEVEL PARKING GARAGE SOUTH EAST SECTION

Placement Method: BUGGY
Cylinders Made By: JJR
Placement Vol. (yd³): 158
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MRWR - GLENIUM 7500

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6.5
Air Content (%) (C-231): **Air WR:** 5.4
Air Temp (°F): 55
Conc. Temp (°F) (C-1064): 65

Load Number: 11
Mixer Number: 177
Ticket Number: 4531342
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-45A		6.00	28.27	10/10/2008	Lab	**7**	4	156.5	**5540**
870-45B		6.00	28.27	10/31/2008	Lab	**28**	4	195.0	**6900**
870-45C		6.00	28.27	10/31/2008	Lab	**28**	4	192.5	**6810**
870-45D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/3/2008 **Time Cast:** 11:00 **Date Received:** 10/6/2008

Placement Location: 6" EXTERIOR SLAB GROUND LEVEL PARKING GARAGE SOUTH EAST SECTION

Placement Method: BUGGY
Cylinders Made By: JJR
Placement Vol. (yd³): 158
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: MRWR - GLENIUM 7500

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5.5
Air Content (%) (C-231): **Air WR:** 4.5
Air Temp (°F): 55
Conc. Temp (°F) (C-1064): 66

Load Number: 16
Mixer Number: 192
Ticket Number: 4531349
Cubic Yards: 8
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-46A		6.00	28.27	10/10/2008	Lab	**7**	4	133.0	**4700**
870-46B		6.00	28.27	10/31/2008	Lab	**28**	4	186.5	**6600**
870-46C		6.00	28.27	10/31/2008	Lab	**28**	4	192.5	**6810**
870-46D				Hold	Lab				

Fracture Types

Remarks:

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Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/9/2008 **Time Cast:** 7:30
Date Received: 10/11/2008

Placement Location: FIRST FLOOR SLAB ON GRADE

Placement Method: TAILGATE & GEORGIA BUGGY
Placement Vol. (yd^3): 120

Cylinders Made By: BZM
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 6.8
Air Temp (°F): 55
Conc. Temp (°F) (C-1064): 67

Load Number: 2
Mixer Number: 170
Ticket Number: 4531492
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)^2	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-47A		6.00	28.27	10/16/2008	Lab	**7**	4	127.5	**4510**
870-47B		6.00	28.27	11/6/2008	Lab	**28**	4	167.0	**5910**
870-47C		6.00	28.27	11/6/2008	Lab	**28**	4	176.0	**6230**
870-47D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/9/2008 **Time Cast:** 8:50
Date Received: 10/11/2008

Placement Location: FIRST FLOOR SLAB ON GRADE

Placement Method: TAILGATE & GEORGIA BUGGY
Placement Vol. (yd³): 120

Cylinders Made By: BZM
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6.5
Air Content (%) (C-231): **Air WR:** 4.9
Air Temp (°F): 57
Conc. Temp (°F) (C-1064): 66

Load Number: 6
Mixer Number: 192
Ticket Number: 4531496
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-48A		6.00	28.27	10/16/2008	Lab	**7**	4	129.5	**4580**
870-48B		6.00	28.27	11/6/2008	Lab	**28**	4	161.5	**5710**
870-48C		6.00	28.27	11/6/2008	Lab	**28**	4	165.0	**5840**
870-48D				Hold	Lab				

Fracture Types

Remarks:

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Report of Concrete Compressive Strength

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Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/9/2008 **Time Cast:** 10:12 **Date Received:** 10/11/2008

Placement Location: FIRST FLOOR SLAB ON GRADE

Placement Method: TAILGATE & GEORGIA BUGGY
Placement Vol. (yd^3): 120

Cylinders Made By: BZM
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 7.5
Air Content (%) (C-231): **Air WR:** 5.3
Air Temp (°F): 30
Conc. Temp (°F) (C-1064): 67

Load Number: 11
Mixer Number: 190
Ticket Number: 4531501
Cubic Yards: 10
Design (psi): **3000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)^2	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-49A		6.00	28.27	10/16/2008	Lab	**7**	4	116.0	**4100**
870-49B		6.00	28.27	11/6/2008	Lab	**28**	4	153.5	**5430**
870-49C		6.00	28.27	11/6/2008	Lab	**28**	4	166.0	**5870**
870-49D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/10/2008 **Time Cast:** 7:38 **Date Received:** 10/11/2008

Placement Location: SLAB ON GRADE LINE F TO H, 11 TO 12 LINE E.1 TO F, 9 TO 10, F TO F.5, 11 TO 12 LINE G TO H, 9 TO 10

Placement Method: TAILGATE TO BUGGY
Placement Vol. (yd³): 110

Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 4.5
Air Temp (°F): 55
Conc. Temp (°F) (C-1064): 68

Load Number: 2
Mixer Number: 176
Ticket Number: 4531521
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-50A		6.00	28.27	10/17/2008	Lab	**7**	4	129.0	**4560**
870-50B		6.00	28.27	11/7/2008	Lab	**28**	4	157.0	**5550**
870-50C		6.00	28.27	11/7/2008	Lab	**28**	4	160.0	**5660**
870-50D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/10/2008 **Time Cast:** 8:30 **Date Received:** 10/11/2008

Placement Location: SLAB ON GRADE LINE F TO H, 11 TO 12 LINE E.1 TO F, 9 TO 10, F TO F.5, 11 TO 12 LINE G TO H, 9 TO 10

Placement Method: TAILGATE TO BUGGY
Placement Vol. (yd^3): 110

Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6 1/4
Air Content (%) (C-231): **Air WR:** 5.0
Air Temp (°F): 56
Conc. Temp (°F) (C-1064): 67

Load Number: 6
Mixer Number: 183
Ticket Number: 4531525
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-51A		6.00	28.27	10/17/2008	Lab	**7**	4	117.0	**4140**
870-51B		6.00	28.27	11/7/2008	Lab	**28**	4	157.0	**5550**
870-51C		6.00	28.27	11/7/2008	Lab	**28**	4	158.5	**5610**
870-51D				Hold	Lab				

Fracture Types

Remarks:

S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/10/2008 **Time Cast:** 10:20
Date Received: 10/11/2008

Placement Location: F TO H, 11 TO 12
F TO F.5, 11 TO 12

Placement Method: TAILGATE TO BUGGY
Placement Vol. (yd^3): 112

Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 5.2
Air Temp (°F): 57
Conc. Temp (°F) (C-1064): 68

Load Number: 11
Mixer Number: 177
Ticket Number: 4531531
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-52A		6.00	28.27	10/17/2008	Lab	**7**	4	125.0	**4420**
870-52B		6.00	28.27	11/7/2008	Lab	**28**	4	163.0	**5770**
870-52C		6.00	28.27	11/7/2008	Lab	**28**	4	166.0	**5870**
870-52D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/14/2008 **Time Cast:** 11:10 **Date Received:** 10/15/2008

Placement Location: PARKING GARAGE SW STAIR CASE LOADING SLABS

Placement Method: DIRECT/PUMP
Cylinders Made By: SEB
Placement Vol. (yd^3): 14
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5.5
Air Content (%) (C-231): **Air WR:** 5.5
Air Temp (°F): 66
Conc. Temp (°F) (C-1064): 64

Load Number: 1
Mixer Number: 177
Ticket Number: 4531571
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-53A		6.00	28.27	10/21/2008	Lab	**7**	4	136.0	**4810**
870-53B		6.00	28.27	11/11/2008	Lab	**28**	4	182.0	**6440**
870-53C		6.00	28.27	11/11/2008	Lab	**28**	4	180.0	**6370**
870-53D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/14/2008 **Time Cast:** 1:45 **Date Received:** 10/15/2008

Placement Location: SOUTH ROOF DRAIN

Placement Method: PUMP
Cylinders Made By: SEB

Placement Vol. (yd^3): 18
Aggregate Size (in): 3/8

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

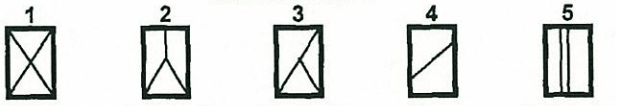
TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5.5
Air Content (%) (C-231): **Air WR:** 5.0
Air Temp (°F): 68
Conc. Temp (°F) (C-1064): 65

Load Number: 1
Mixer Number: 177
Ticket Number: 4531577
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-54A		6.00	28.27	10/21/2008	Lab	**7**	4	133.5	**4720**
870-54B		6.00	28.27	11/11/2008	Lab	**28**	4	173.0	**6120**
870-54C		6.00	28.27	11/11/2008	Lab	**28**	4	179.5	**6350**
870-54D				Hold	Lab				

Fracture Types



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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/16/2008 **Time Cast:** 7:25 **Date Received:** 10/17/2008

Placement Location: SLAB ON GRADE: LINE 7 TO 9 LINE E TO H

Placement Method: TAILGATE
Cylinders Made By: VLT

Placement Vol. (yd^3): 110
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 5.5
Air Content (%) (C-231): **Air WR:** 4.6
Air Temp (°F): 48
Conc. Temp (°F) (C-1064): 66

Load Number: 2
Mixer Number: 180
Ticket Number: 4531615
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-55A		6.00	28.27	10/23/2008	Lab	**7**	4	160.5	**5680**
870-55B				11/13/2008	Lab	**28**			
870-55C				11/13/2008	Lab	**28**			
870-55D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/16/2008 **Time Cast:** 8:32 **Date Received:** 10/17/2008

Placement Location: SLAB ON GRADE: LINE 7 TO 9 LINE E TO H

Placement Method: TAILGATE
Cylinders Made By: VLT
Placement Vol. (yd³): 110
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6 1/4
Air Content (%) (C-231): **Air WR:** 4.9
Air Temp (°F): 49
Conc. Temp (°F) (C-1064): 67

Load Number: 6
Mixer Number: 192
Ticket Number: 4531619
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-56A		6.00	28.27	10/23/2008	Lab	**7**	4	144.0	**5090**
870-56B				11/13/2008	Lab	**28**			
870-56C				11/13/2008	Lab	**28**			
870-56D				Hold	Lab				

Fracture Types

1 Cone; 2 Cone and Split; 3 Cone and Shear; 4 Shear; 5 Columnar

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/17/2008 **Time Cast:** 7:40 **Date Received:** 10/20/2008

Placement Location: SLAB ON GRADE: LINE G TO H, 8 TO 4 LINE E.1 TO F, 7 TO 8, LINE F.5 TO G.5, 7 TO 8, LINE F TO E.5, 8 TO 9

Placement Method: TAILGATE
Placement Vol. (yd^3): 113

Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

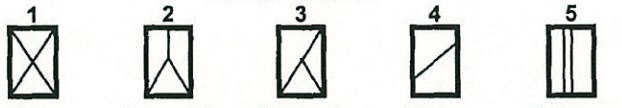
TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 5.5
Air Temp (°F): 47
Conc. Temp (°F) (C-1064): 65

Load Number: 2
Mixer Number: 181
Ticket Number: 4531635
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-57A		6.00	28.27	10/24/2008	Lab	**7**	4	151.0	**5340**
870-57B				11/14/2008	Lab	**28**			
870-57C				11/14/2008	Lab	**28**			
870-57D				Hold	Lab				

Fracture Types



Remarks:

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Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/17/2008 **Time Cast:** 9:18 **Date Received:** 10/20/2008

Placement Location: SLAB ON GRADE: LINE G TO H, 8 TO 4 LINE E.1 TO F, 7 TO 8, LINE F.5 TO G.5, 7 TO 8, LINE F TO E.5, 8 TO 9

Placement Method: TAILGATE
Placement Vol. (yd^3): 113

Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6 1/2
Air Content (%) (C-231): **Air WR:** 4.5
Air Temp (°F): 50
Conc. Temp (°F) (C-1064): 65

Load Number: 7
Mixer Number: 182
Ticket Number: 4531649
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-58A		6.00	28.27	10/24/2008	Lab	**7**	4	151.5	**5360**
870-58B				11/14/2008	Lab	**28**			
870-58C				11/14/2008	Lab	**28**			
870-58D				Hold	Lab				

Fracture Types

Remarks:

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Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/23/2008 **Time Cast:** 8:15
Date Received: 10/27/2008

Placement Location: WEST STAIRWELL LANDING FLOORS 1-4 PRECAST PLANK SEAMS- 1ST FLOOR

Placement Method: PUMP*
Placement Vol. (yd^3): 57

Cylinders Made By: VLT
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6
Air Content (%) (C-231): **Air WR:** 6.8
Air Temp (°F): 31
Conc. Temp (°F) (C-1064): 58

Load Number: 2
Mixer Number: 170
Ticket Number: 3930567
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-59A		6.00	28.27	10/30/2008	Lab	**7**	4	115.0	**4070**
870-59B				11/20/2008	Lab	**28**			
870-59C				11/20/2008	Lab	**28**			
870-59D				Hold	Lab				

Fracture Types

Remarks: * NORTHEAST CONCRETE PUMPING

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/23/2008 **Time Cast:** 10:24 **Date Received:** 10/27/2008

Placement Location: WEST STAIRWELL LANDING FLOORS 1-4 PRECAST PLANK SEAMS- 1ST FLOOR

Placement Method: PUMP*

Placement Vol. (yd^3): 57

Cylinders Made By: VLT

Aggregate Size (in): 3/8

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 4 1/2

Air Content (%) (C-231): **Air WR:** 4.9

Air Temp (°F): 34

Conc. Temp (°F) (C-1064): 66

Load Number: 5

Mixer Number: 170

Ticket Number: 3930578

Cubic Yards: 10

Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-60A		6.00	28.27	10/30/2008	Lab	**7**	4	130.5	**4620**
870-60B				11/20/2008	Lab	**28**			
870-60C				11/20/2008	Lab	**28**			
870-60D				Hold	Lab				

Fracture Types

Remarks: * NORTHEAST CONCRETE PUMPING

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/24/2008 **Time Cast:** 7:40 **Date Received:** 10/27/2008

Placement Location: 6" EXT SLAB GROUND LEVEL PARKING GARAGE E/6+7 TO H/6+7

Placement Method: DIRECT N BUGGY
Placement Vol. (yd^3): 115

Cylinders Made By: JJR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 7.5
Air Content (%) (C-231): **Air WR:** 7
Air Temp (°F): 35
Conc. Temp (°F) (C-1064): 65

Load Number: 2
Mixer Number: 176
Ticket Number: 3930595
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-61A		6.00	28.27	10/31/2008	Lab	**7**	4	115.5	**4090**
870-61B				11/21/2008	Lab	**28**			
870-61C				11/21/2008	Lab	**28**			
870-61D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/24/2008 **Time Cast:** 8:15 **Date Received:** 10/27/2008

Placement Location: 6" EXT SLAB GROUND LEVEL PARKING GARAGE E/6+7 TO H/6+7

Placement Method: DIRECT N BUGGY
Placement Vol. (yd^3): 115

Cylinders Made By: JJR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6.5
Air Content (%) (C-231): **Air WR:** 10
Air Temp (°F): 35
Conc. Temp (°F) (C-1064): 60

Load Number: 6
Mixer Number: 170
Ticket Number: 3930598
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-62A		6.00	28.27	10/31/2008	Lab	**7**	4	92.0	**3250**
870-62B				11/21/2008	Lab	**28**			
870-62C				11/21/2008	Lab	**28**			
870-62D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/24/2008 **Time Cast:** 10:00 **Date Received:** 10/27/2008

Placement Location: 6" EXT SLAB GROUND LEVEL PARKING GARAGE E/6+7 TO H/6+7

Placement Method: DIRECT N BUGGY
Placement Vol. (yd^3): 115

Cylinders Made By: JJR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6.5
Air Content (%) (C-231): **Air WR:** 7
Air Temp (°F): 40
Conc. Temp (°F) (C-1064): 60

Load Number: 11
Mixer Number: 181
Ticket Number: 604
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-63A		6.00	28.27	10/31/2008	Lab	**7**	4	129.5	**4580**
870-63B				11/21/2008	Lab	**28**			
870-63C				11/21/2008	Lab	**28**			
870-63D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 10/29/2008 **Time Cast:** 9:00 **Date Received:** 10/31/2008

Placement Location: SLABS AT 3 AND 4 LINE AND E THROUGH H EVERY OTHER: 4 TOTAL

Placement Method: BUGGY
Cylinders Made By: BZM
Placement Vol. (yd³): 110
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): **Slump WR:** 6.5
Air Content (%) (C-231): **Air WR:** 3.8
Air Temp (°F): 41
Conc. Temp (°F) (C-1064): 57

Load Number: 8
Mixer Number: 181
Ticket Number: 3930653
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	Age (days)	Fracture Type	Load (kips)	Strength (psi)
870-64A		6.00	28.27	11/5/2008	Lab	**7**	4	148.0	**5240**
870-64B				11/26/2008	Lab	**28**			
870-64C				11/26/2008	Lab	**28**			
870-64D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 11/5/2008 **Time Cast:** 7:55 **Date Received:** 11/7/2008

Placement Location: SLAB BETWEEN 2 & 4

Placement Method: BUGGY
Cylinders Made By: DMR

Placement Vol. (yd^3): 110
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5 3/4
Air Content (%) (C-231): 5.0
Air Temp (°F): 48
Conc. Temp (°F) (C-1064): 65

Load Number: 3
Mixer Number: 173
Ticket Number: 3930749
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-65A		4.00	12.57	11/12/2008	Lab	**7**	4	69.1	**5500**
870-65B				12/3/2008	Lab	**28**			
870-65C				12/3/2008	Lab	**28**			
870-65D				Hold	Lab				

Fracture Types

Remarks:

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S.W.COLE ENGINEERING, INC.

Report of Concrete Compressive Strength

ASTM C-31 & C-39

Project Name: PORTLAND - PHASE II PARKING GARAGE - MATERIALS TESTING
Project Number: 07-1299

Client: BECKER STRUCTURAL ENGINEERS, INC.
Client Contract Number:

General Contractor:
Concrete Supplier: DRAGON PRODUCTS

PLACEMENT INFORMATION

Date Cast: 11/5/2008 **Time Cast:** 9:50 **Date Received:** 11/7/2008

Placement Location: SLAB BETWEEN 2 & 4

Placement Method: BUGGY
Placement Vol. (yd^3): 110

Cylinders Made By: DMR
Aggregate Size (in): 3/4

INITIAL CURING CONDITIONS

Temperatures

Minimum (°F) **Maximum (°F)**

DELIVERY INFORMATION

Admixtures: POLYHEED 997

TEST RESULTS

Slump (in) (C-143): 5.5
Air Content (%) (C-231): 5.1
Air Temp (°F): 50
Conc. Temp (°F) (C-1064): 70

Load Number: 8
Mixer Number: 173
Ticket Number: 3930756
Cubic Yards: 10
Design (psi): **5000**

Cylinder Designation	Cylinder Weight (lbs)	Cylinder Diameter (in)	Cross Sectional Area(In)²	Date Of Test	Cure Type	**Age (days)**	Fracture Type	Load (kips)	**Strength (psi)**
870-66A		4.00	12.57	11/12/2008	Lab	**7**	4	61.2	**4870**
870-66B				12/3/2008	Lab	**28**			
870-66C				12/3/2008	Lab	**28**			
870-66D				Hold	Lab				

Fracture Types

Remarks:

OBSERVATION REPORT
Precast Concrete – DT's

Date:	8-05-08
Time:	10:00 a.m.
Temp:	80 F
Weather:	Mostly Clear w/Occasional Showers

Project:	Portland International Jetport Phase 2 Garage
Location:	Portland, Maine
Becker Job No:	1872

Observation Location: At the request of Wm. E. Dailey we visited there plant in Shaftsbury, VT to review the DT's produced to date.

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	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality					
DT Broom Finish	☒	☐	☐	☐	Overall the broom finish is much improved over the pieces (not for this project) that were shown to us as an example of the finish during previous visit. The depth is consistent with little variation and minimal clumping. See Photos 1 & 2.
DT Edge/Joint Detail	☒	☒	☐	☐	It is apparent that the joint finish detail has been a work in progress. The most recent DT's edge/joints are done very well (See Photo 3). On the DT's cast in June there will be remedial work required to provide and acceptable joint. The photos and descriptions noted as Photo 4x indicate a sample of the issues noted and repairs discussed with Wm. E. Dailey
Roof E.J. Blockout	☒	☒	☐	☐	Wm. E. Dailey showed us a condition where the form moved during placement and the block out is deeper than indicated (See photo 5a). It was agreed that this area should be filled to form a level bearing surface for the E.J. system. We noted another DT with this block-out fabricated correctly (See photo 5b)
Bearing Surfaces	☒	☒	☐	☐	Based on Bob Parson's (Ledgewood) previous site visit we understood that the bearing plates had floated in several pieces (see photo 6). Based on our conversations with Wm. E. Dailey we understand that his has occurred at approximately 80 locations. They provided a preliminary connection repair detail which they will be submitting for review. It appears that this issue has been resolved and is no longer occurring.
Tee to Tee Connections	☒	☐	☐	☐	Overall the Vector Connectors appear to be installed correctly. We noted only one location where the insert moved during casting (See Photo 7). A special wedge plate will be required at this location.
Additional Items	☐	☒	☐	☐	Based on our review it appears that there may be a significant amount of lifting inserts that will need to be cut down in the field. Per our typical detail on S3-2 the insert must be at least ¾" below the top surface of the precast. Discussing this with Wm. E. Dailey it was agreed that they would mark all lifters that would need to be cut in the field with spray paint prior to shipping them to the site (See Photo 8a). The blockouts around these inserts may require some additional grinding (See Photo 8b)
Additional Items	☒	☒	☐	☐	At one of the drain blockouts we noted that the edge had been tapered (See Photo 9). This may require some remedial work on site to get the correct pitch to the drain.

Signed: Todd M. Neal, P.E.

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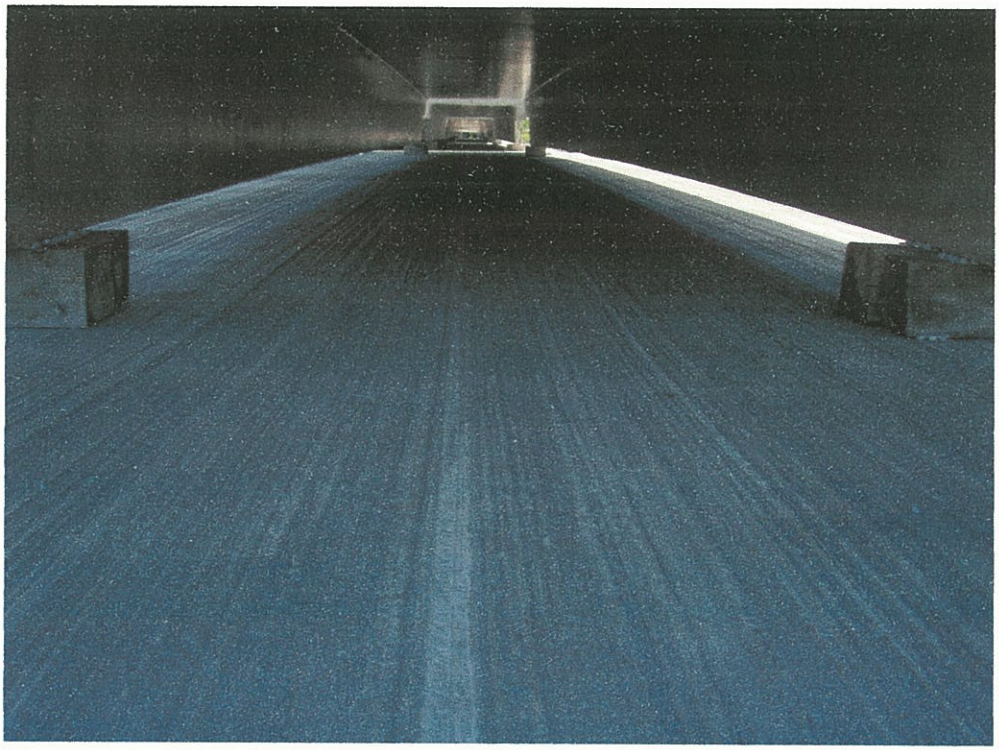

PHOTO 1

PHOTO 2

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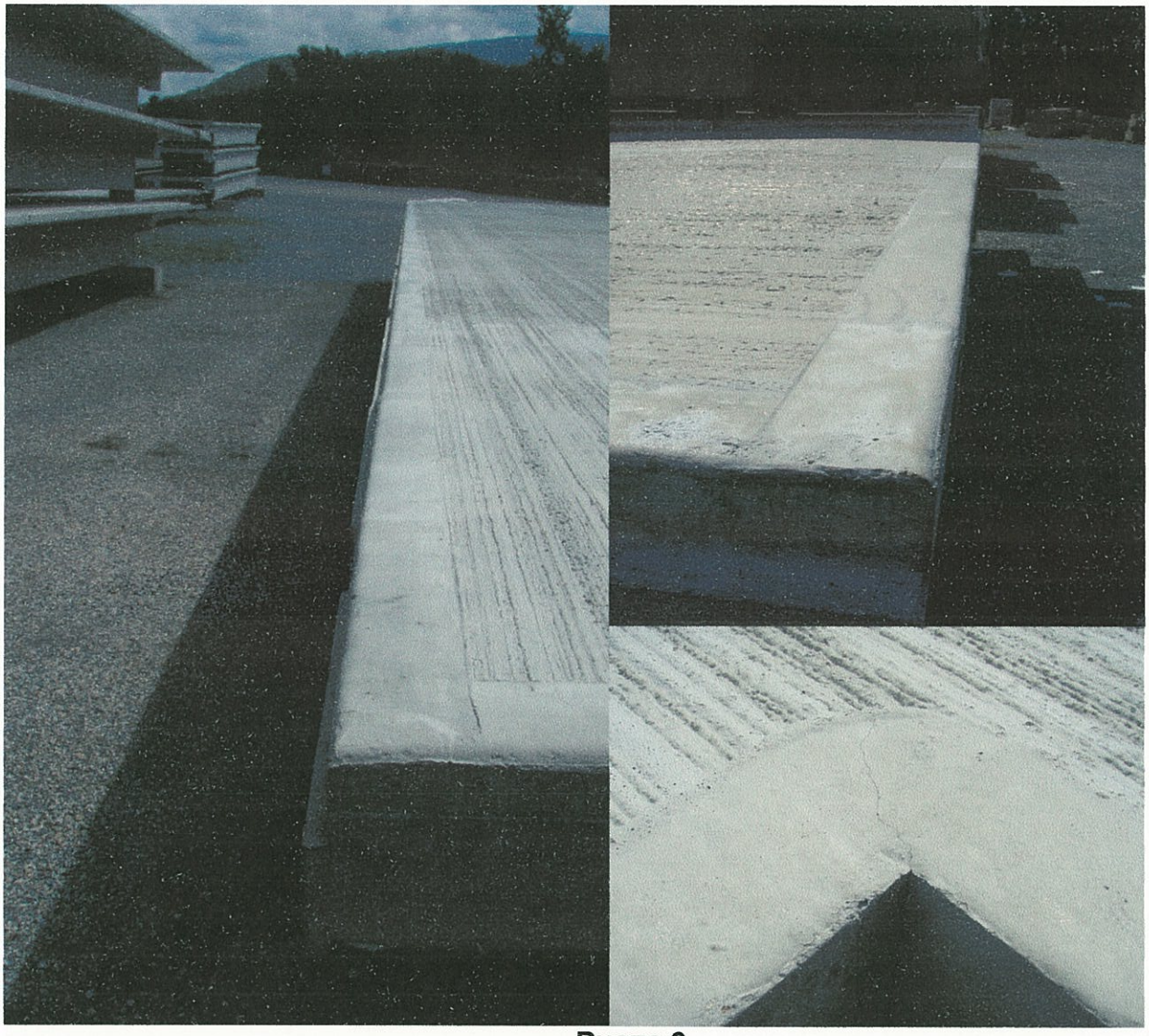
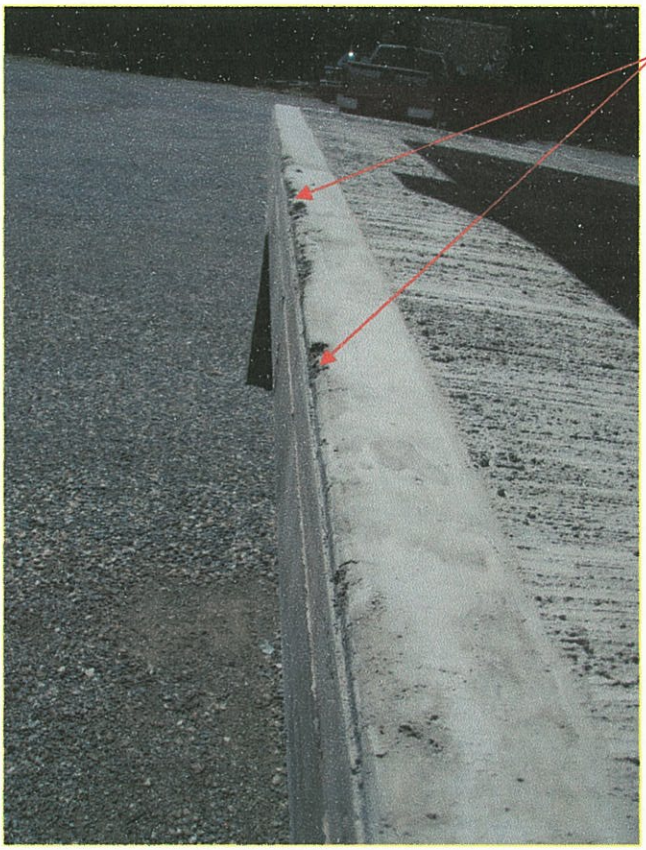


PHOTO 3

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822



DEEP POCKETS TO BE FILLED AND RE-TOOLED TO PROVIDE A SMOOTH, CONTINUOUS RADIUS

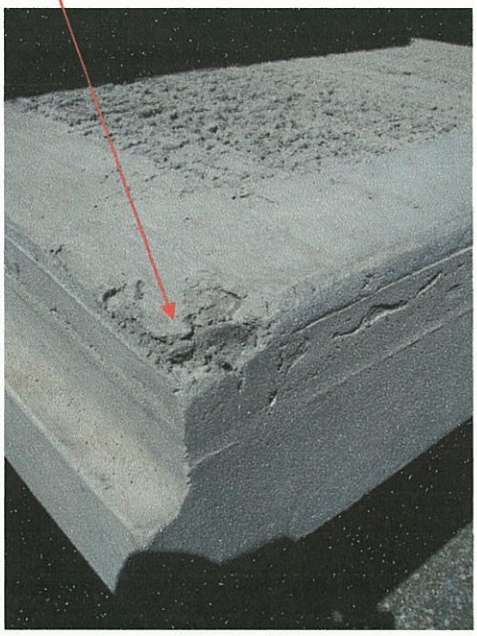


PHOTO 4A

PHOTO 4B

PHOTO 4C

GRIND CORNER AND TOP OF FLANGE TO MATCH (AS CLOSE AS POSSIBLE) THE EDGE DETAIL OF CURRENT PIECES BEING CAST

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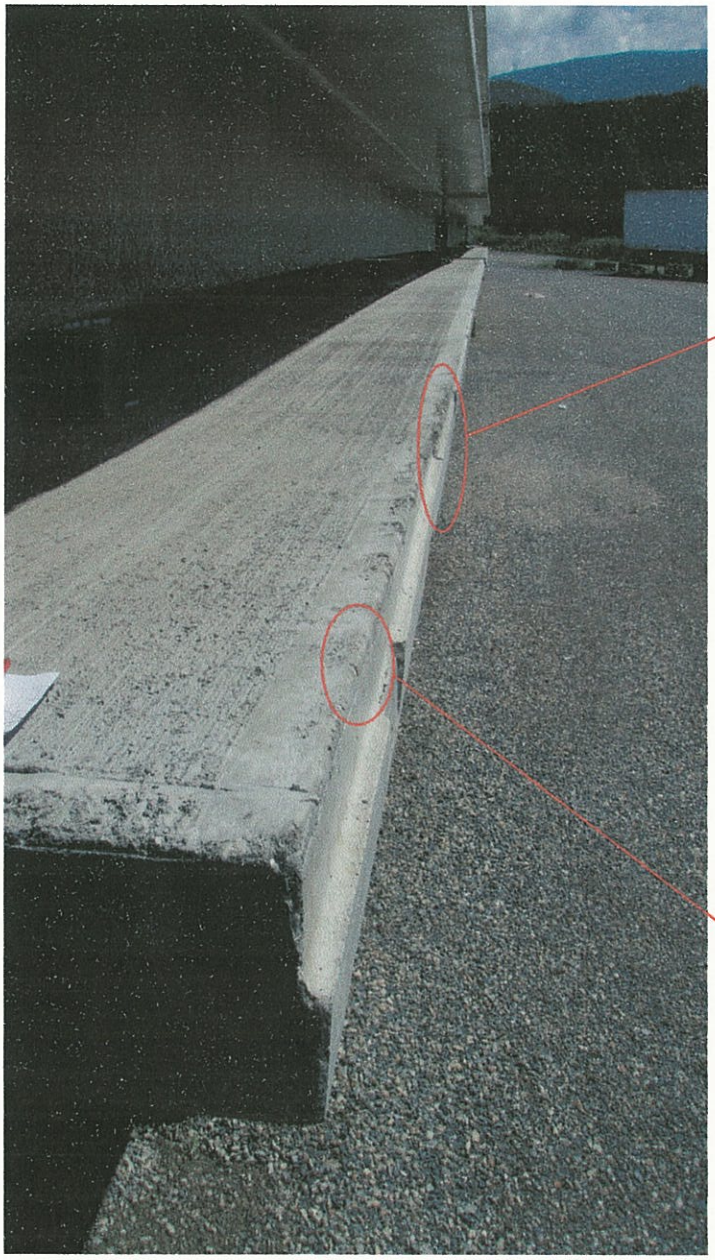

EDGES SIMILAR TO THIS WILL NEED TO BE RECONSTRUCTED AND RE-TOOLED SMOOTH

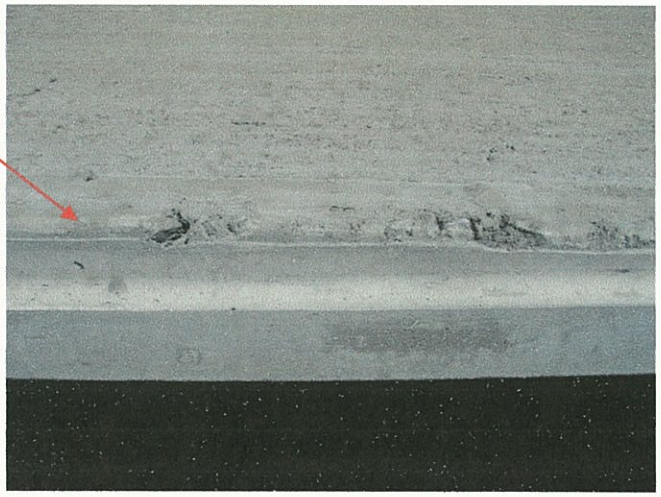

PHOTO 4D

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

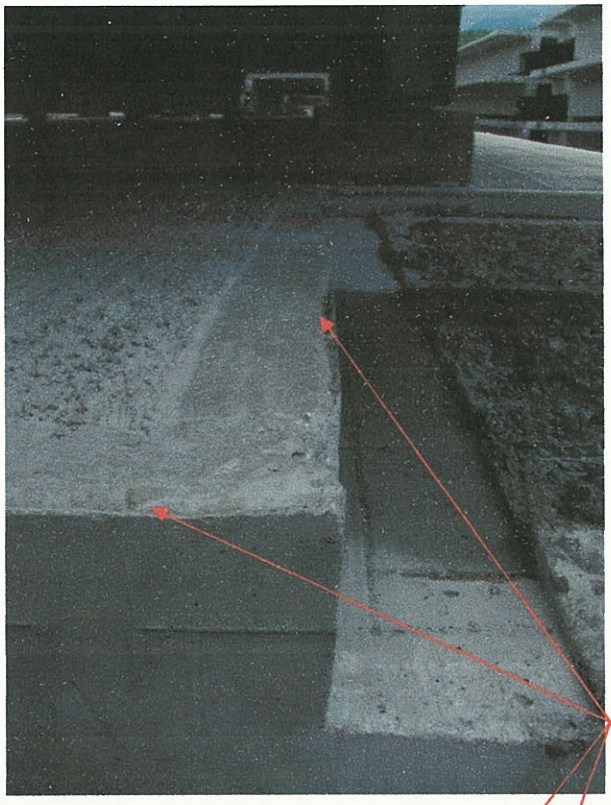

PHOTO 4E

SHARP EDGES AND CORNERS WILL NEED TO BE GROUND SMOOTH TO MATCH ¼" RADIUS OF OTHER PIECES

PHOTO 4F

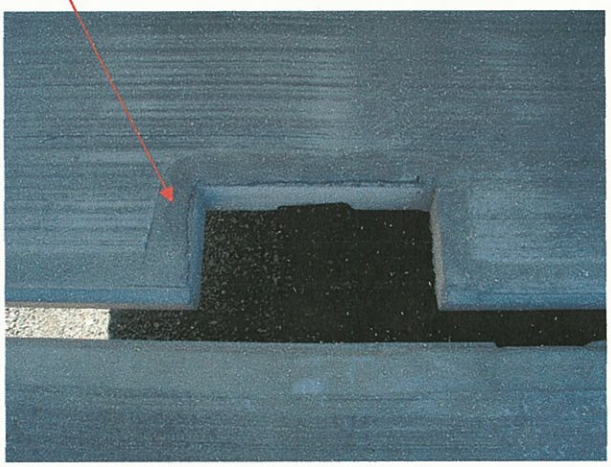

PHOTO 4G

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PHOTO 5A

PHOTO 5B

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

PHOTO 6

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

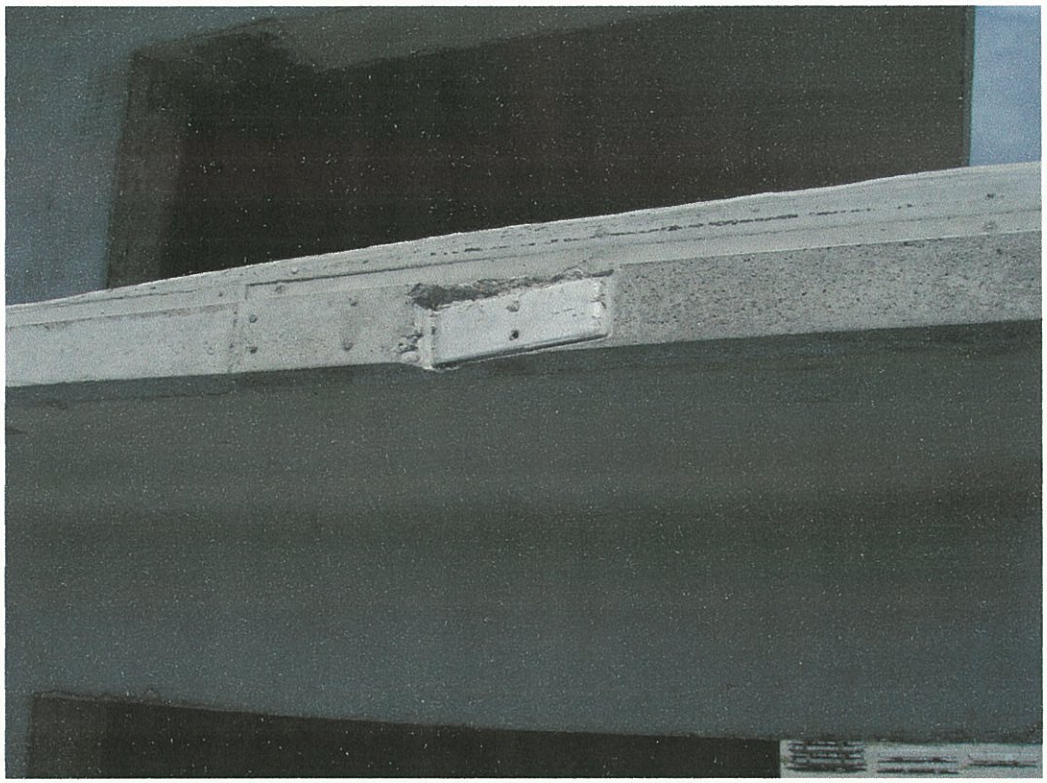

PHOTO 7

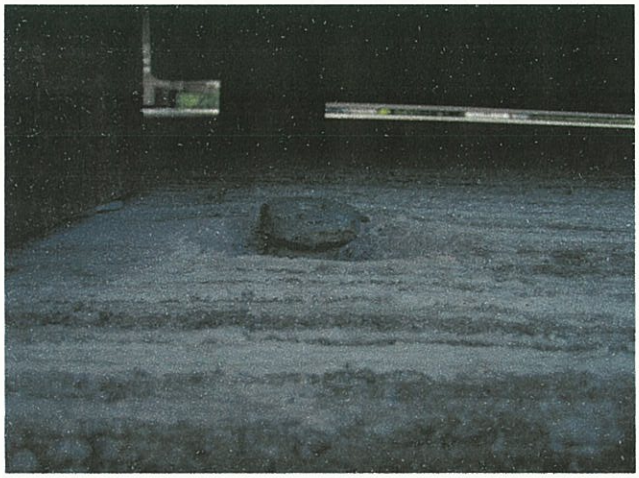

PHOTO 8A

PHOTO 8B

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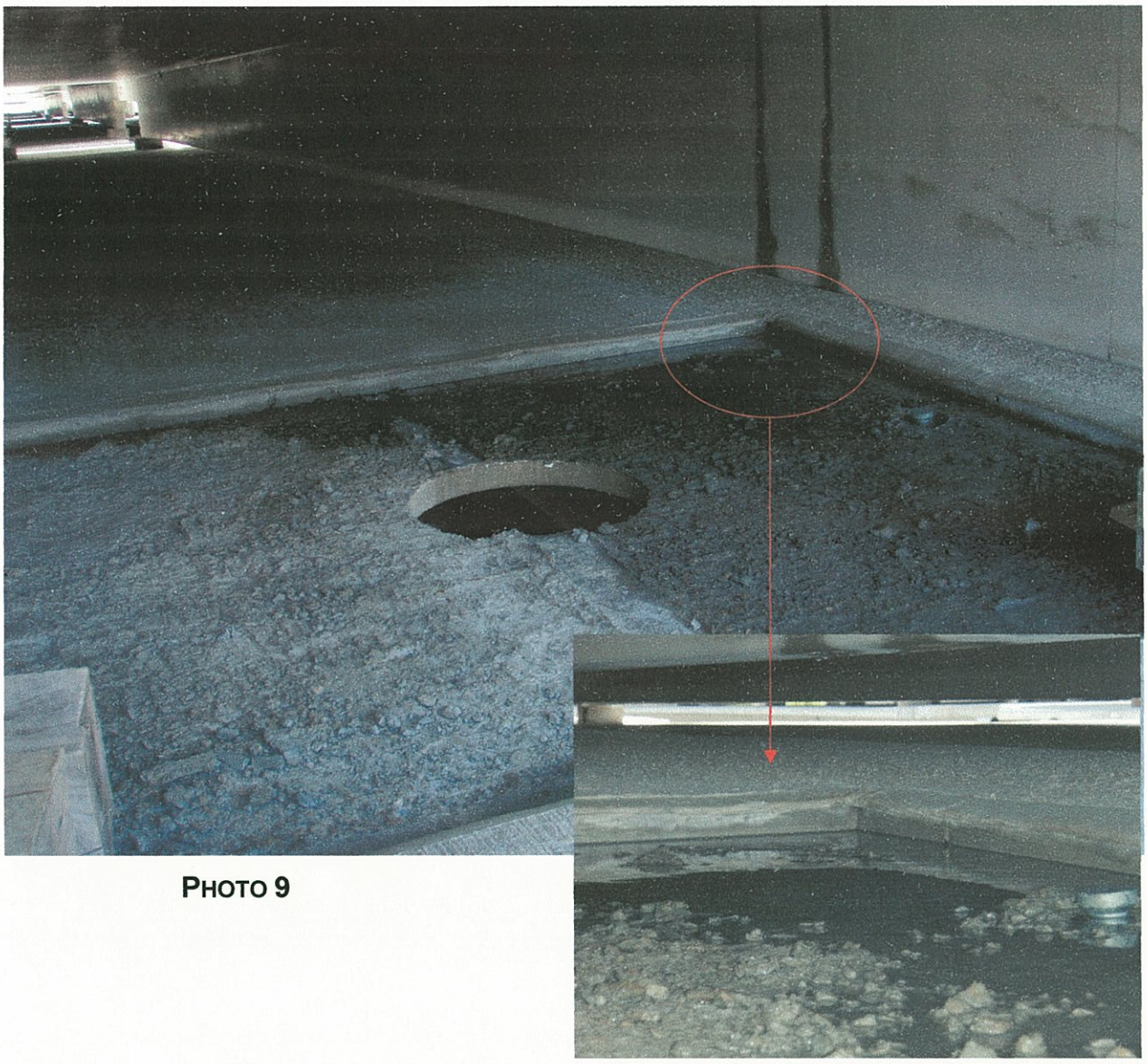

PHOTO 9

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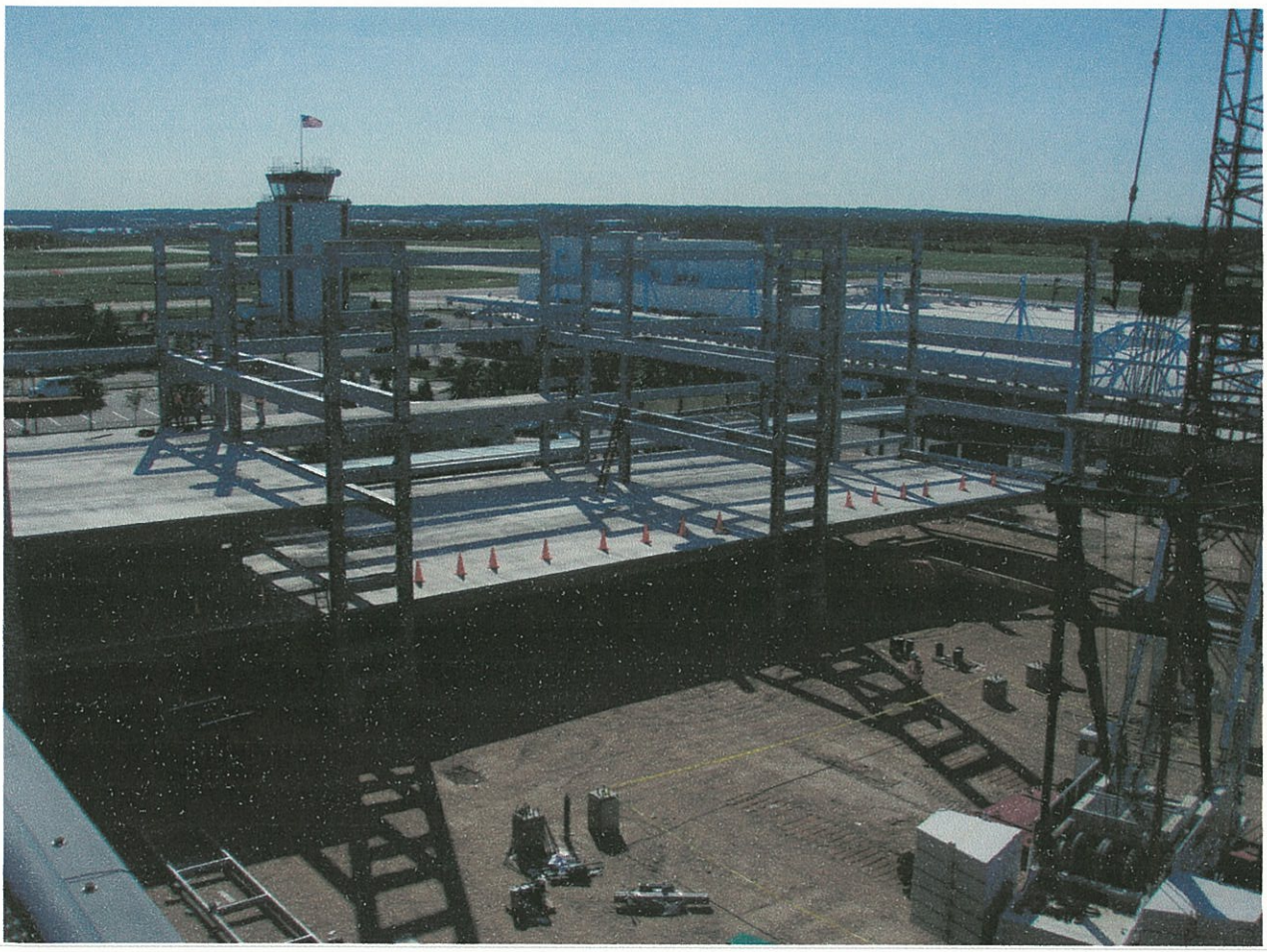
BECKER
structural engineers, inc.

OBSERVATION REPORT
Precast Concrete – DT's

Date:	8-27-08
Time:	7 a.m.
Temp:	70 F
Weather:	Sunny

Project:	Portland International Jetport Phase 2 Garage
Location:	Portland, Maine
Becker Job No:	1872

Observation Location: Installing DT's in bay between line 11 & 13. Level 2 complete, Level 3 between E.1 & F complete. 4 DT's set on day 1 (8/25/08), 12 DT's set on 8/26/08.



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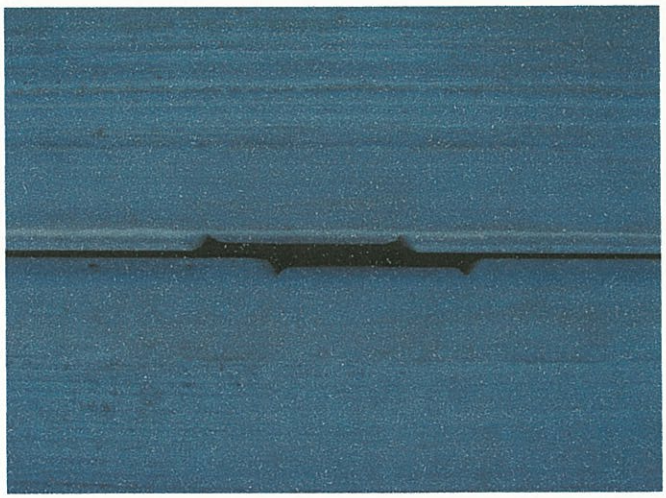
	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality					
DT Broom Finish	☒	☐	☐	☐	
DT Edge/Joint Detail	☒	☐	☐	☐	
	☒	☒	☐	☐	
Bearing Surfaces	☒	☐	☐	☐	Cracks were noted in the corner of the dap (See Photos) This is to be expected at this re-entrant corner.
Tee to Tee Connections	☒	☐	☐	☐	Miss-aligned vector connector on Level 1 at line G between lines 11 & 12 (See Photo)
Erection	☐	☒	☐	☐	DT flange cracked at level 1 at G.7/13 (See Photo
Additional Items	☐	☒	☐	☐	At one of the drain blockouts we noted that the edge had been tapered (See Photo 9). This may require some remedial work on site to get the correct pitch to the drain.

Notes:
Due to topping installed at the stair entrance on Phase 1 the DT are not aligning at E.1 & E between lines 12 & 13. Discussed with Bob Parsons and noted that they should shim the new DT's as much as possible to improve the alignment. The joint at this location is also larger than anticipated due to the precast panel that was removed. BSE to issue Sketches for this expansion joint.

Signed: **Todd M. Neal, P.E.**



Miss-aligned Vector Connector

Crack in DT Flange

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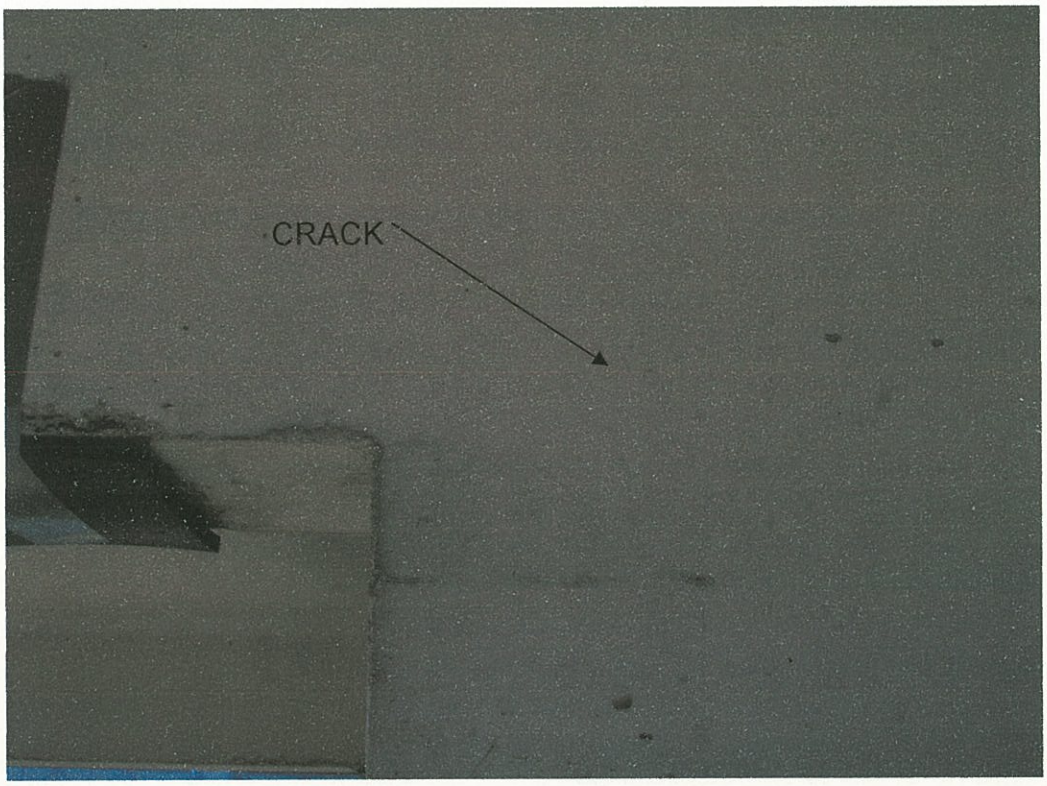

Phase 2 DT- Crack at Dapped Ends

Phase 1 DT – Cracks at Dapped Ends

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structural engineers, inc.

OBSERVATION REPORT
Precast Concrete – DT's

Date:	9-03-08
Time:	11 a.m.
Temp:	70 F
Weather:	Sunny

Project:	Portland International Jetport Phase 2 Garage
Location:	Portland, Maine
Becker Job No:	1872

Observation Location: Setting DT's on Level 2 between lines 10 & 11.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality					
DT Broom Finish	☒	☐	☐	☐	
DT Edge/Joint Detail	☒	☐	☐	☐	
	☐	☐	☐	☐	
Bearing Surfaces	☒	☐	☐	☐	.
Tee to Tee Connections	☒	☐	☐	☐	
Erection	☒	☒	☐	☐	Damaged DT Flange during erection See Photo
Additional Items	☐	☐	☐	☐	

Notes:
Only 2 DT's on site, the last one was set at around 10:00 am. According to Tim Yarnish of Ledgewood 10 more are on the road and due anytime. Crew is going back to shim level 2.

Spoke with Bob Parsons of Ledgewood regarding the shims at the Drain on F-line. Noted that BSE had provided SKS's for this area.

Signed: **Todd M. Neal, P.E.**

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Damaged DT Flange

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OBSERVATION REPORT
Precast Concrete – DT's

Date:	9-11-08
Time:	11 a.m.
Temp:	60 F
Weather:	Sunny

Project:	Portland International Jetport Phase 2 Garage
Location:	Portland, Maine
Becker Job No:	1872

Observation Location:
Level 2 & 3 DT's set to line 8. Level 4 & 5 set to line 7.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality					
DT Broom Finish	☒	☐	☐	☐	
DT Edge/Joint Detail	☒	☐	☐	☐	
	☐	☐	☐	☐	
Bearing Surfaces	☒	☐	☐	☐	.
Tee to Tee Connections	☒	☒	☐	☐	Welding of Vectors starting see photos. Several of the Vectors floated in the form and have cracked the concrete around the insert due to the heat of the welding (See Photos). Cracks and spalls will need to be removed and filled with sealant. Miss-aligned vectors line 11 between F & G on Level 2
Erection	☒	☒	☐	☐	Spalled edge of DT Flange (See Photo)
Connections	☐	☒	☐	☐	Based on conversations and our visual inspection it does not appear that they are removing the galvanizing prior to welding the flange to flange connection plates. This issue was brought to the attention of Jeff Solman of American Aerial Services.

Notes:

Signed: **Todd M. Neal, P.E.**

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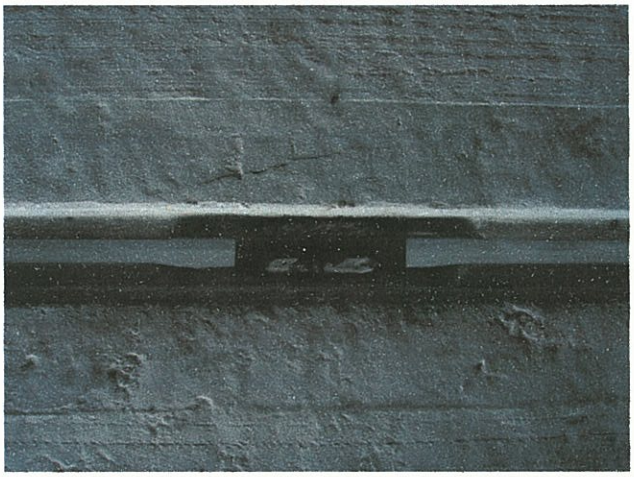

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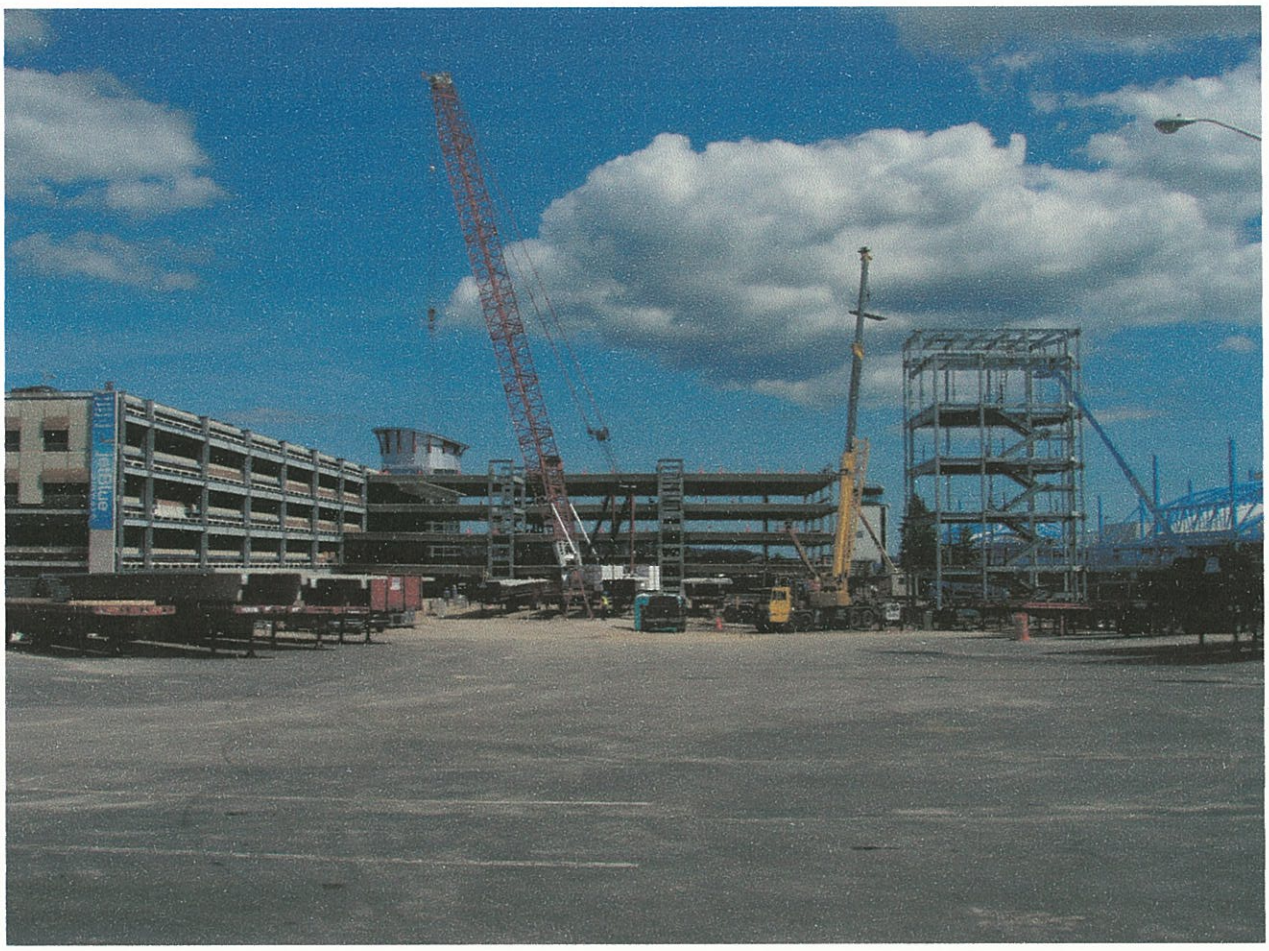

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OBSERVATION REPORT
Precast Concrete – DT's

Date:	9-17-08
Time:	8 a.m.
Temp:	60 F
Weather:	Sunny

Project:	Portland International Jetport Phase 2 Garage
Location:	Portland, Maine
Becker Job No:	1872

Observation Location:
Precast & Steel Erected to line 7, expansion joint.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality					
DT Broom Finish	☒	☐	☐	☐	
DT Edge/Joint Detail	☒	☐	☐	☐	
	☐	☐	☐	☐	
Bearing Surfaces	☒	☐	☐	☐	.
Tee to Tee Connections	☒	☒	☐	☐	
Erection	☒	☒	☐	☐	Shims miss-placed on line H to east of Line 7 all levels. Korolath shims installed (See Photo). Discussed with Bob Parsons of Ledgewood that lag bolts will need to be installed to ensure shims do not move. Blockout for drain on line F between lines 10 & 11 there is a crack in the DT Flange. Last DT at H/7, Level 5 end appears skewed.
Connections	☐	☐	☐	☒	

Notes:

Signed: **Todd M. Neal, P.E.**

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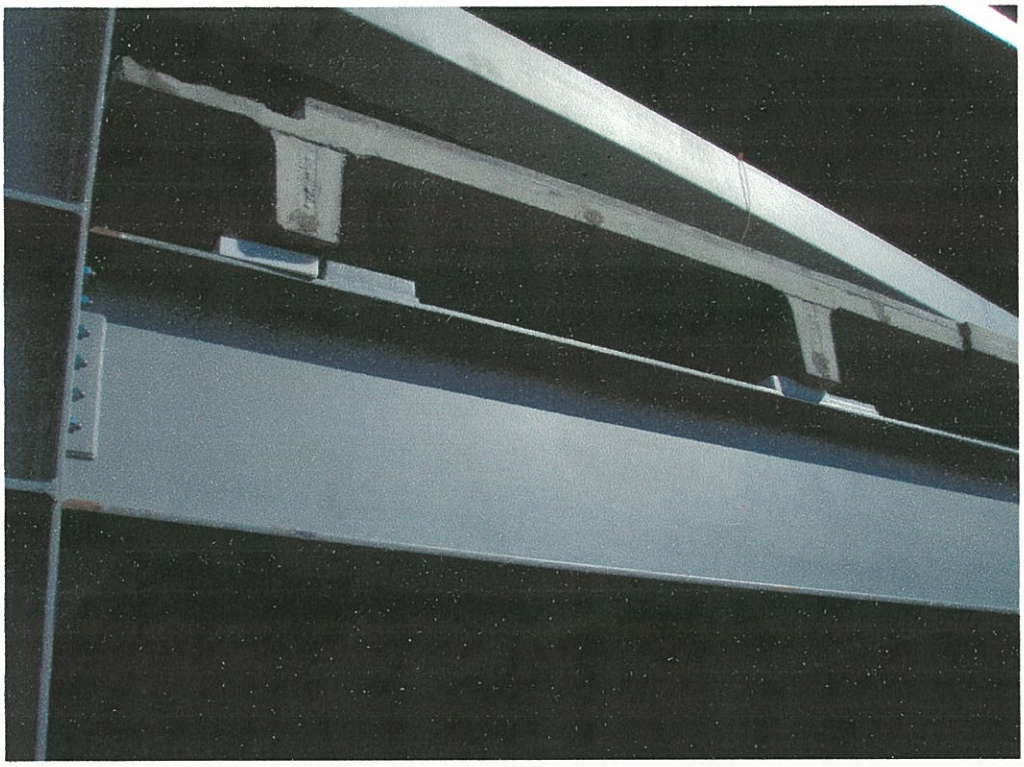
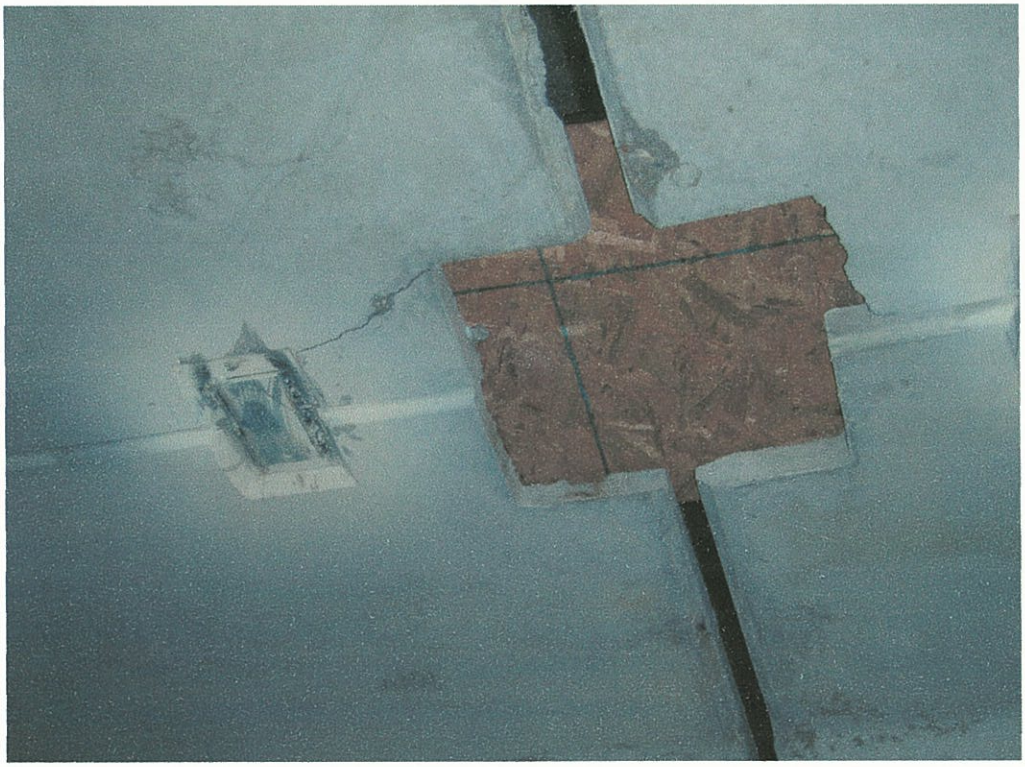


Miss-Aligned Steel Shims



Crack in DT Flange at Drain Blockout

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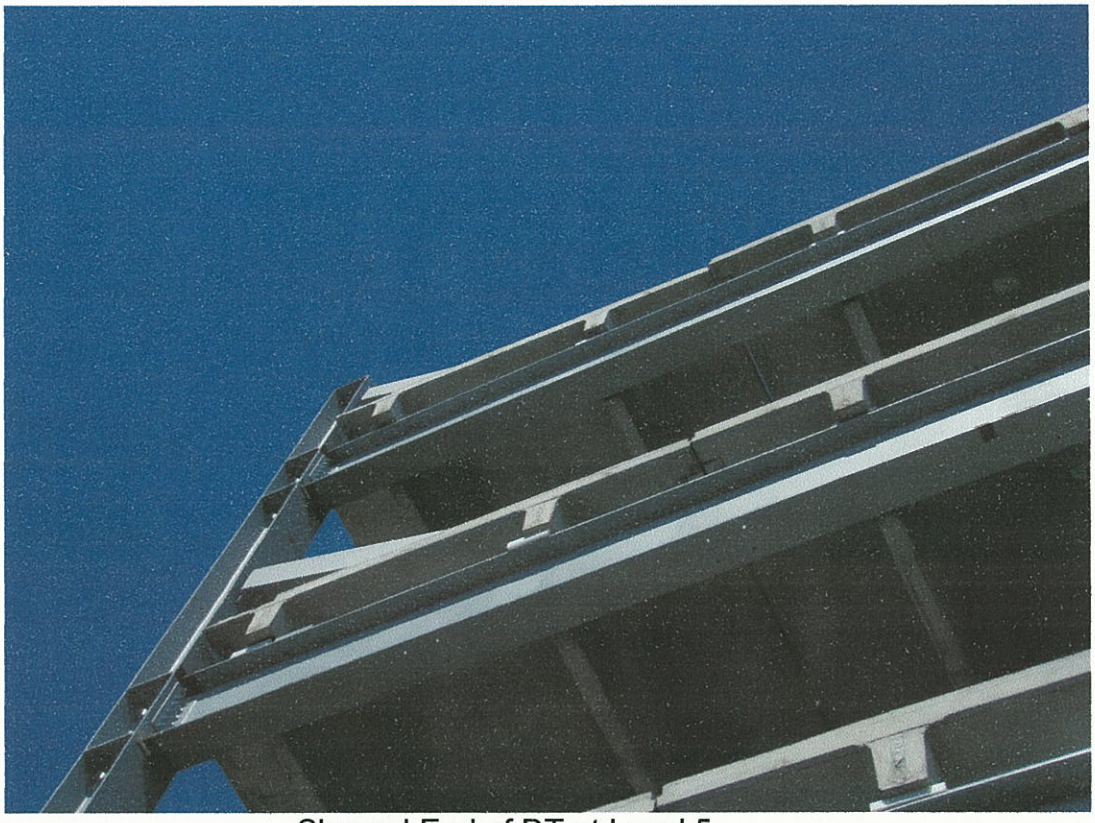
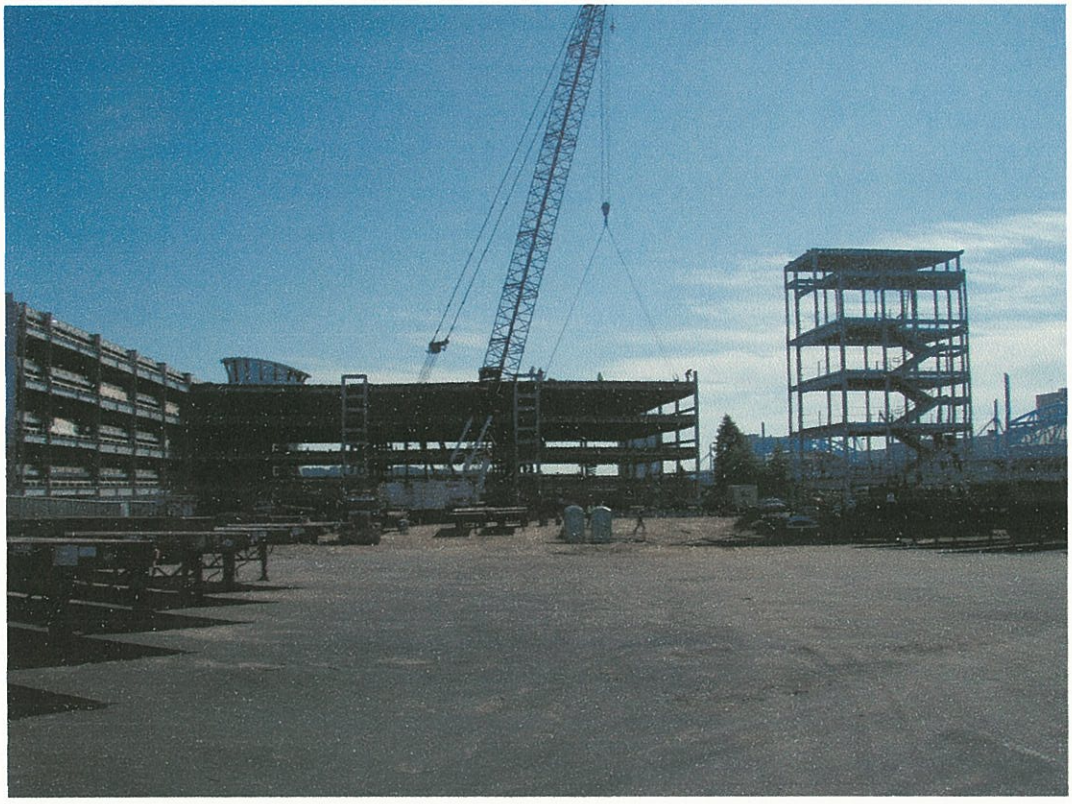


Skewed End of DT at Level 5



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BECKER
structural engineers, inc.

OBSERVATION REPORT
Precast Concrete – Sealant

Date:	10-03-08
Time:	1:00 p.m.
Temp:	70 F
Weather:	Sunny

Project:	Portland International Jetport Phase 2 Garage
Location:	Portland, Maine
Becker Job No:	1872

Observation Location: Observed placement of sealant in precast concrete joints at roof level. John Marcinek of Philly Wide Restoration (PWR), the joint sealant subcontractor, was present.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality					
Joint Preparation	☒	☐	☐	☐	The joints were clean and backer rod had been installed. Rough edges had been ground smooth where the concrete had spalled during connection welding. A primer was not being used. John Marcinek (PWR) called Sika District Manager Kevin Collins. Sika will provide letter stating that primer is not required and would not impact the 5 year warranty.
Material Installation	☒	☐	☐	☐	PWR was using Sika 2C NS to seal the bottom of the joints at the DT connectors before applying Sika 2C SL. The joint depths were approximately ½" to 5/8". The top of the sealant was recessed.

Signed: **John A. Burgess, P.E.**

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BECKER
structural engineers, inc.

OBSERVATION REPORT
Precast Concrete – Sealant

Date:	10-06-08
Time:	3:00 p.m.
Temp:	60 F
Weather:	Partly sunny

Project:	Portland International Jetport Phase 2 Garage
Location:	Portland, Maine
Becker Job No:	1872

Observation Location: Observed placement of sealant in precast concrete joints at Level 3. Philly Wide Restoration had worked through the weekend on the roof level joints.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Precast Quality					
Joint Preparation	☒	☐	☐	☐	Some of the butt joints between ends of DTs were almost 2" wide. Two pieces of backer were observed in some of the wider joints but sealant was not being placed in these areas. I was told by crew supervisor that John Marcinek had gone to Boston to obtain wider backing rod. Rough edges at spalled concrete had been ground smooth.
Material Installation	☒	☐	☐	☐	PWR was using Sika 2C NS to seal the bottom of the joints at the DT connectors before applying Sika 2C SL. The joint depths were approximately ½" to 5/8". The top of the sealant was recessed. Bubbles were observed in the sealant

Signed: **John A. Burgess, P.E.**

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PCI Precast/Prestressed Concrete Institute

4/28/2006

Mr. Noble Levesque
Plant Manager
William E. Dailey Precast, LLC
295 Airport Road
Shaftsbury, VT 05262

Dear Mr. Levesque:

Congratulations! You successfully completed your latest PCI Plant Certification audit. Please find enclosed a copy of your audit report.

This audit was conducted on 3/29/2006 and 3/30/2006 for your plant in Shaftsbury, VT. This continues your certification in good standing in the PCI Plant Certification Program in product groups and categories A1, B2A, and C3A.

Certified plants undergo at least two unannounced audits annually. Strict compliance with detailed industry standards is necessary to retain certification. Standards are found in the nationally recognized PCI Quality Control Manuals MNL-116, -117, and -130. Failure to achieve these minimum standards will result in decertification. Specially qualified and accredited engineers from Ross Bryan Associates, Inc., of Nashville, Tennessee, perform all plant audits on behalf of PCI to ensure a high degree of independence, consistency, and uniformity in the program.

Within 30 days of receiving this letter and your enclosed audit report, a written response showing the corrective actions taken to the nonconformances noted in Appendix B of your audit report **must be sent to PCI.**

PCI is recognized as a quality assurance agency by the National Evaluation Service, representing BOCA, SBBCI, and by the International Accreditation Services, Inc. (formerly part of ICBO Evaluation Service, Inc.) The program is highly recommended by the Federal Highway Administration and is required in the specifications of most federal agencies and state departments of transportation as well as numerous municipalities.

For further information, please contact the Director of the Certification Programs.

On behalf of the Precast/Prestressed Concrete Institute and the PCI Plant Certification Committee, we congratulate you on your continued certification.

Sincerely,

John P. Wilke

John A. Wilke
Director of Certification Programs

Enclosure

209 West Jackson Boulevard | Suite 500
Chicago, IL 60606 | Phone: 312-786-0300
Fax: 312-786-0353 | www.pci.org

Todd Neal

From: Clint Gendreau [cgendreau@ledgewoodconstruction.com]
Sent: Tuesday, October 28, 2008 11:08 AM
To: Todd Neal
Subject: FW: Jetport Special Inspections

Let me know if you need anything else.

Clint Gendreau
Project Manager

Ledgewood Construction
27 Main Street
South Portland, ME 04106
207-767-1866
fax 207-767-1869
cell 207-415-7992

cgendreau@ledgewoodconstruction.com
http://www.ledgewoodconstruction.com

From: Jeff Solman [mailto:JSolman@americanaerialservices.com]
Sent: Tuesday, October 28, 2008 10:57 AM
To: Clint Gendreau; 'Todd Neal'
Cc: 'Jim Read (E-mail)'
Subject: RE: Jetport Special Inspections

Clint here is my experience as it relates to PCI.
I have PCI certifications in the following areas:
CFA (Certified Field Auditor)
IES (Industry Erection Standards)
CCA (Certified Company Auditor)

To my understanding PCI has two erector programs running; Qualified Erector Program and Certified Erector Program. I conducted two Certified Field Audits on the erection crew during the erection process at the Portland Jetport. When the audits are processed, PCI should designate AASI as a Qualified Erector.

Wade Strickland our project foreman also has years of experience erecting parking structures for American Steel Erectors.

Jeff Solman
American Aerial Services, Inc.
Project Manager
(207)899-9648

From: Clint Gendreau [mailto:cgendreau@ledgewoodconstruction.com]
Sent: Tuesday, October 28, 2008 8:44 AM
To: Jim Read; Jeff Solman
Subject: FW: Jetport Special Inspections

Jim/ Jeff - See email below from Todd Neal. Please address item # 4 below, this week. Thanks, Clint

Clint Gendreau
Project Manager

Ledgewood Construction
27 Main Street
South Portland, ME 04106
207-767-1866
fax 207-767-1869
cell 207-415-7992

cgendreau@ledgewoodconstruction.com
http://www.ledgewoodconstruction.com

From: Todd Neal [mailto:todd@beckerstructural.com]
Sent: Monday, October 27, 2008 4:50 PM
To: Clint Gendreau
Cc: Cuyler Feagles; George Katsoufis
Subject: Jetport Special Inspections

Clint,
I have reviewed the Statement of Special Inspections and for the project I need the following:

1. Certificate of Compliance or copy of AISC Certification from Megquire and Jones.
2. Certificate of Compliance or copy of PCI Certification from Wm. E. Dailey.
3. Mill certs for bolts (unless they are in the link that M & J sent).
4. If possible I would like to get Jim to give me an updated summary of there experience including Jeff as I will have provide a reason for not using a PCI certified erector.

I have attached a sample of the Certificate of Compliance for your use.

Let me know if you have any questions.

Todd M. Neal, P.E.
Vice President

BECKER STRUCTURAL ENGINEERS, INC
75 York Street
Portland, ME 04101
(p) 207-879-1838 ext 111
(c) 207-329-4467
(f) 207-879-1822
www.beckerstructural.com

Not Part of this Phase of Work

Not Part of this Phase of Work

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05120

OBSERVATION REPORT
Structural Steel

Date:	July 23, 2008
Time:	7:30
Temp:	60s
Weather:	Overcast

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1829

Observation Location:
Stair Tower

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☒	☐	☐	☐	
Weld Condition	☐	☒	☐	☐	Curved tube beams on Y-line incorrectly cut for connection to column H.3/1. As a result, unable to get groove weld on all 4 sides of tube beam Intermediate landing beams along line 1 are cut short of landing column, and thus no weld can be made
Anchor Bolts, Nuts, & Washers	☒	☐	☐	☐	
Grout/Leveling Plates	☒	☐	☐	☐	
Fit Up/Plumbness	☐	☒	☐	☐	See above
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

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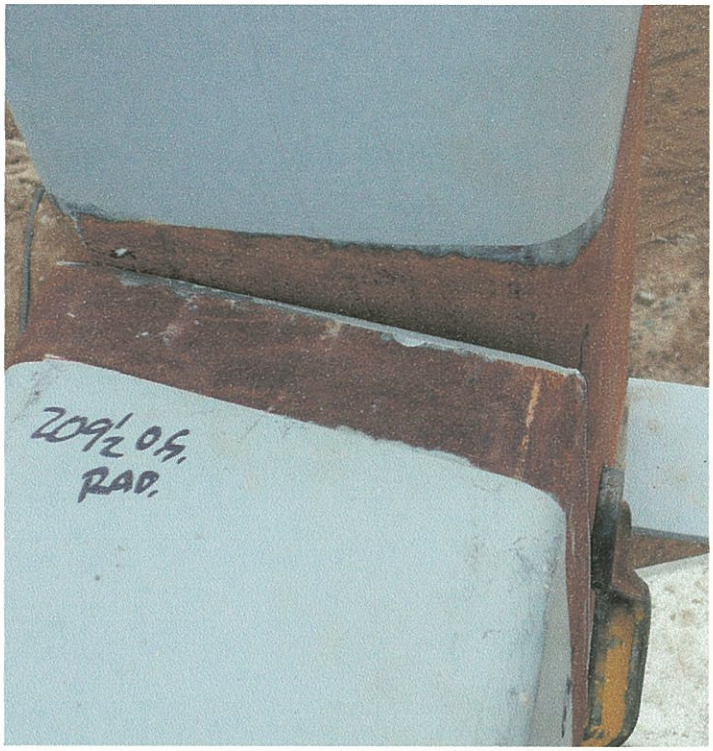
Notes:
Megquier and Jones has been made aware of both issues listed above. The landing tubes will be re-fabricated. The curved tube issue is still outstanding, and will be resolved at a later date.

Signed: Christopher G. Williams, E.I.

Stair Tower structural steel as of July 23, 2008



Incorrectly cut HSS beam @ H.3/1 column
(side view)

Incorrectly cut HSS beam @ H.3/1 column
(side view)

HSS landing beam cut short of column

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OBSERVATION REPORT

Structural Steel

Date:	July 25, 2008
Time:	9:30
Temp:	70s
Weather:	Sunny

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1829

Observation Location:
Stair Tower - Curved Beam along line Y between 1 and 1'

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☐	☐	☐	☒	
Weld Condition	☒	☐	☐	☐	Oringal beam was fabricated incorrectly, and therefore the weld could not be made to the column at grid 1. As a solution, Megquier & Jones proposed a new section of tube approcimately 3" long to be full pen welded to the oringal tube to make up the difference. Reference RFI #94 for more information.
Anchor Bolts, Nuts, & Washers	☐	☐	☐	☒	
Grout/Leveling Plates	☐	☐	☐	☒	
Fit Up/Plumbness	☐	☐	☐	☒	
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:

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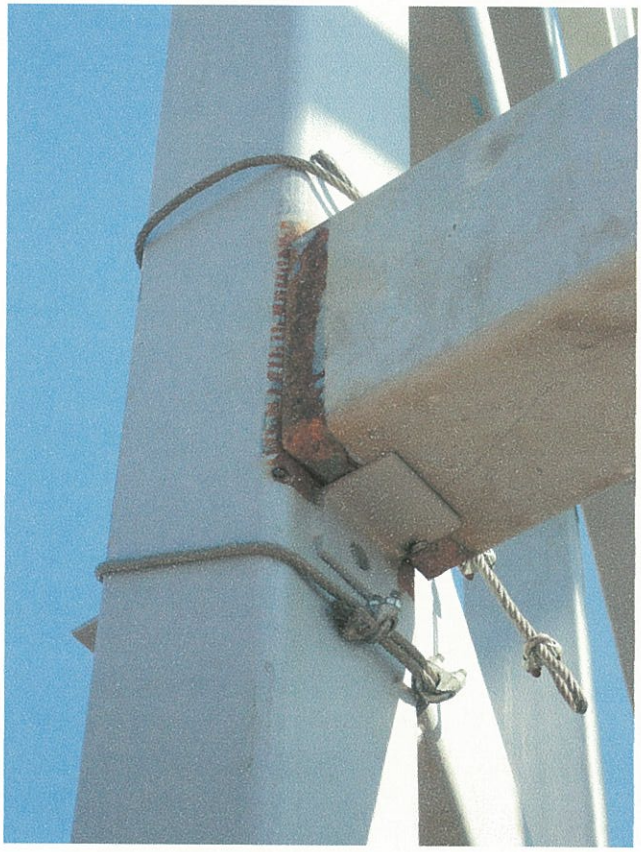
Signed: Christopher G. Williams, E.I.

3" Tube stub (left)full pen welded to beam @ Grid 1
(view from inside Stair Tower)



3" Tube stub (right) full pen welded to beam @ Grid 1
(view from outside Stair Tower)

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OBSERVATION REPORT
Structural Steel

Date:	August 5, 2008
Time:	10:00
Temp:	70s
Weather:	Overcast

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1829

Observation Location:
Stair Tower Landing Tube Beam

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☐	☐	☐	☒	
Weld Condition	☐	☐	☒	☐	Tube fabricated incorrectly, and therefore welds cannot be made on all sides of the beam.
Anchor Bolts, Nuts, & Washers	☐	☐	☐	☒	
Grout/Leveling Plates	☐	☐	☐	☒	
Fit Up/Plumbness	☐	☐	☐	☒	
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Tube beam does not support the intermediate landings, and therefore no structural problems are anticipated. DHK to confirm if the gap will cause any other issues.

Signed: Christopher G. Williams, E.I.

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HSS beam incorrectly fabricated, resulting in large opening

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OBSERVATION REPORT
Structural Steel

Date:	8/19/2008
Time:	8:00
Temp:	70s
Weather:	Overcast

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1829

Observation Location:
Took field measurements for foundation wall @ existing stair tower on West side of garage. Also observed column connections @ E.1 line in basement.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☒	☐	☐	☐	
Weld Condition	☒	☐	☐	☐	Columns offset as much as 1/2" between existing Phase I garage and Phase II garage. Because of this, welds on connector plate between columns unable to be made on three sides (see sect. 1/S2-3)
Anchor Bolts, Nuts, & Washers	☒	☐	☐	☐	
Grout/Leveling Plates	☒	☐	☐	☐	
Fit Up/Plumbness	☒	☐	☐	☐	
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Welders intend to clamp 3/8" plate to column so they can make the fillet weld on 3 sides. If they are unable to do this, they are instructed to add shim plates between the 3/8" plate and the column.

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Field measurements were taken at the foundation wall for the east stair tower at the existing phase 1 garage. A column will eventually be placed on this wall to support the new west canopy. A column is needed because we were unable to make a tension cable connection at this location due to the 8" thick precast wall near the stair tower. Using these measurements, a sketch (SK-S-013 series) was issued as part of a bulliten for Megquier and Jones to review.

Signed: Christopher G. Williams, E.I.

Foundation wall @ existing East Stair Tower

Foundation wall @ existing East Stair Tower

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Offset columns @ E.1 line w/ 3/8" plate

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OBSERVATION REPORT
Structural Steel

Date:	August 20, 2008
Time:	10:00
Temp:	70s
Weather:	Sunny

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

Observation Location:
Weld column to base plate at E.1/12
Erecting "H" Columns at F/11 & G/11

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☐	☐	☐	☒	
Weld Condition	☒	☐	☐	☐	Weld of column to base plate is acceptable and hole can be filled in exisiting bathroom
Anchor Bolts, Nuts, & Washers	☐	☐	☐	☒	
Grout/Leveling Plates	☐	☐	☐	☒	
Fit Up/Plumbness	☐	☐	☐	☒	
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Erection continues with H frames being installed at F & H/11 and frames at F & H/13 (See Photos).

First DT is on site.

Signed: Todd M. Neal, P.E.

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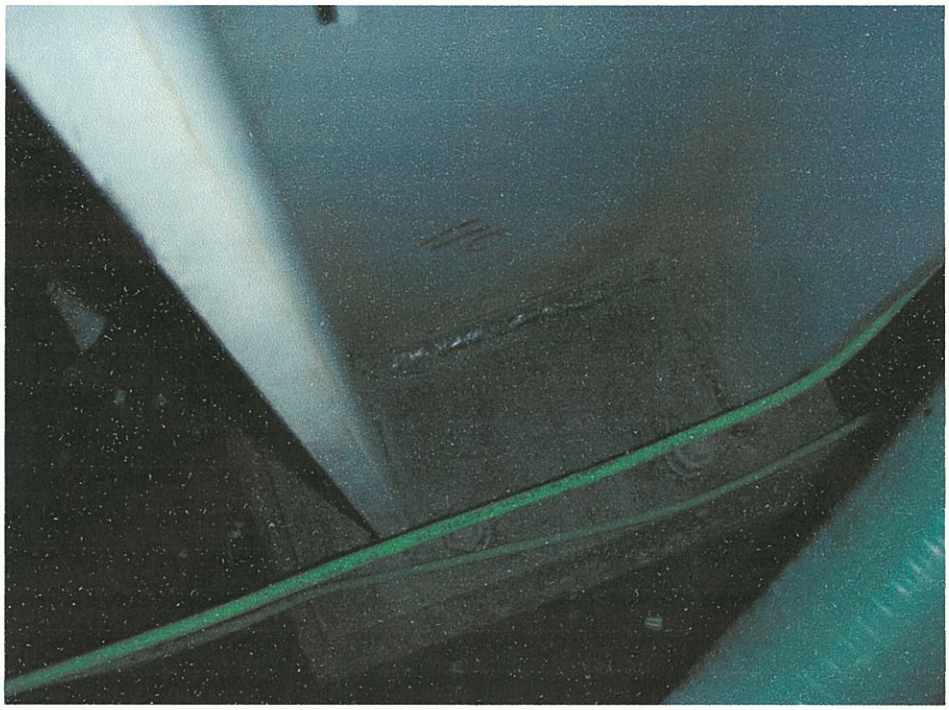
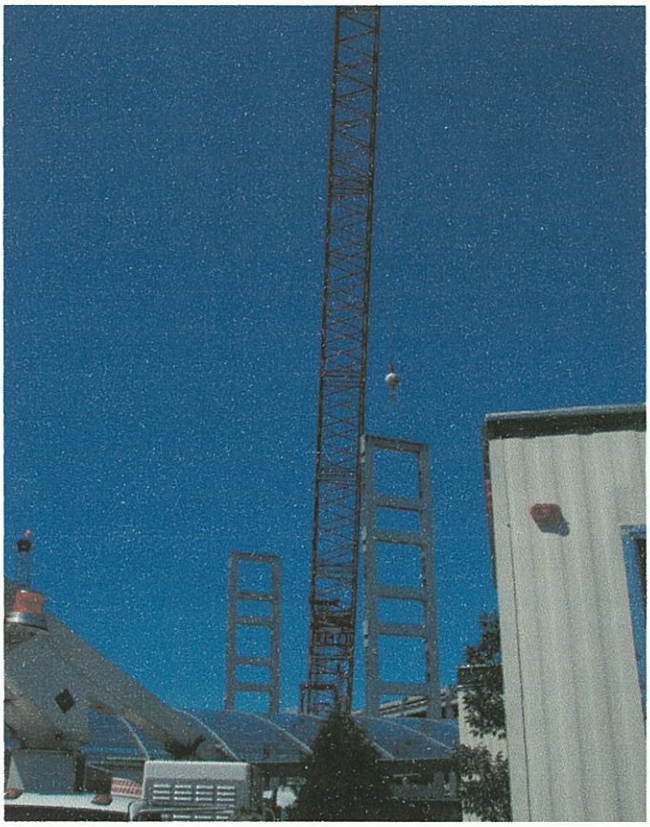
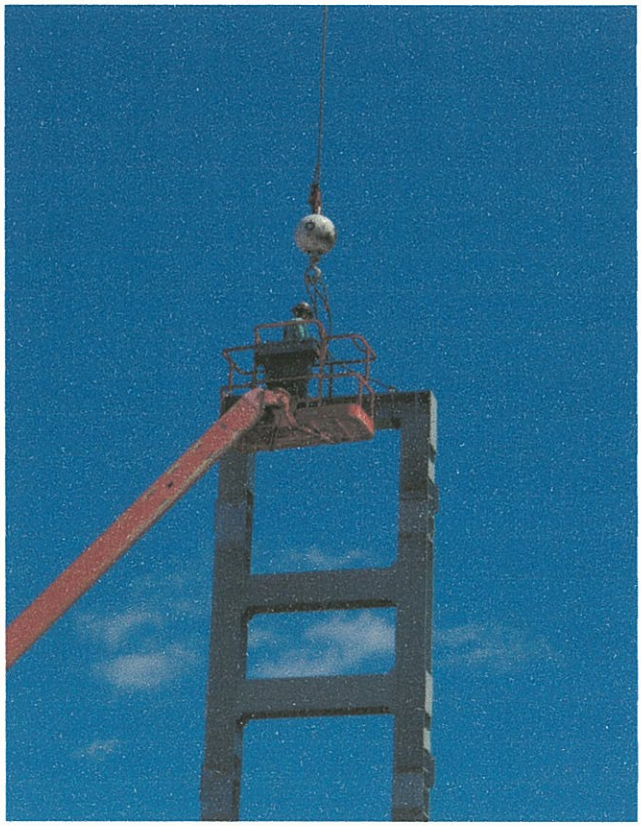


Weld of Column to Base Plate E.1/12



Installation of H Frame G/13



Detaching Crane from Frame

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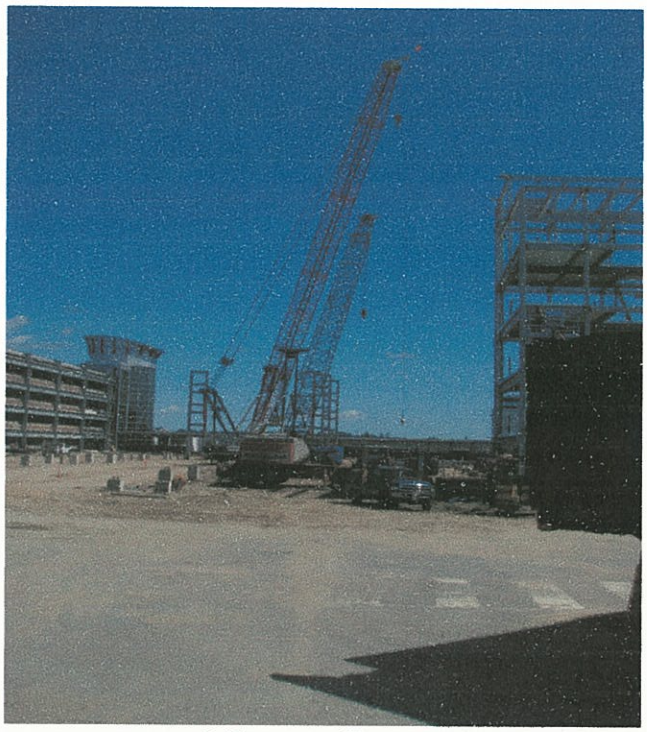

3 Frames Erected

First DT Delivered to Site

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OBSERVATION REPORT
Structural Steel

Date:	8/26/08
Time:	
Temp:	75°F
Weather:	SUNNY

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1829

Observation Location:
Garage Steel between lines 11 and 13; East Canopy; Stair Tower Landings

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☒	☐	☐	☐	
Weld Condition	☒	☐	☐	☐	
Anchor Bolts, Nuts, & Washers	☒	☐	☐	☐	
Grout/Leveling Plates	☒	☐	☐	☐	
Fit Up/Plumbness	☒	☐	☐	☐	
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
The landing tubes were observed at the stair tower. The two exterior HSS12x8 tubes and the W8x10 beam were confirmed to all be raised two inches. This was done to allow the for the stair railing attachment. The flight header HSS 12x4 beam was also confirmed to not be raised, as was intended.

The garage steel between lines 11 and 13 is about 75% complete. The columns are in place, and most of the beams. Double tees have been erected in some bays @ level 2.

Portions of the east canopy have been erected. HSS tubes between lines G.7 and G have been placed, but nothing else. Some tension cables have been attached at this point.

Signed: Christopher G. Williams, E.I.

HSS landing beams (center and far left) are raised 2", while HSS flight header (far right) has not been raised.

W8x10 landing beam (right) and HSS flight header (left). The W8x10 was raised 2".

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OBSERVATION REPORT
Structural Steel

Date:	August 27, 2008
Time:	10:00
Temp:	70s
Weather:	Sunny

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

Observation Location:
Weld column to base plate at E.1/12
Erecting "H" Columns at F/11 & G/11

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☐	☐	☐	☒	
Weld Condition	☒	☐	☐	☐	Weld of column to base plate is acceptable and hole can be filled in exisiting bathroom
Anchor Bolts, Nuts, & Washers	☐	☐	☐	☒	
Grout/Leveling Plates	☐	☐	☐	☒	
Fit Up/Plumbness	☐	☐	☐	☒	
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Erection continues with H frames being installed at F & H/11 and frames at F & H/13 (See Photos).

First DT is on site.

Signed: Todd M. Neal, P.E.

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Weld of Column to Base Plate E.1/12

Installation of H Frame G/13

Detaching Crane from Frame

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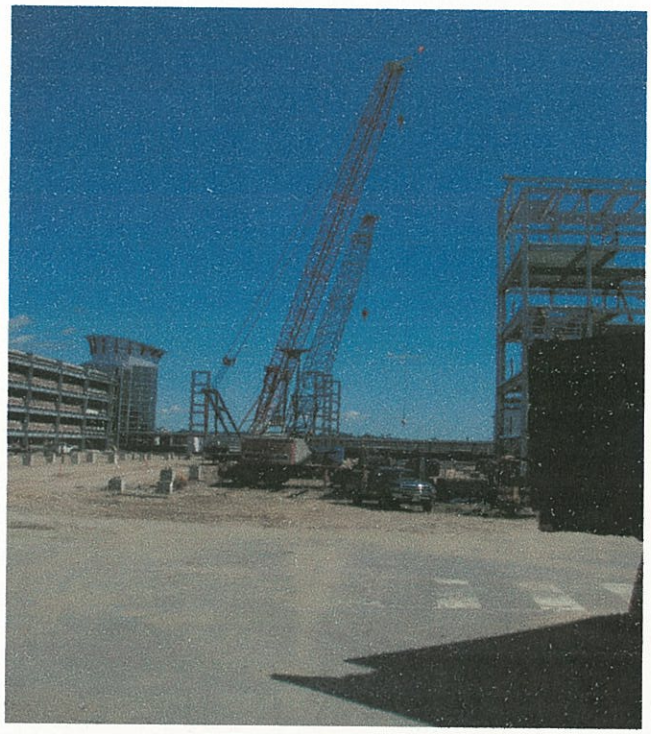

3 Frames Erected

First DT Delivered to Site

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OBSERVATION REPORT
Structural Steel

Date:	September 3, 2008
Time:	11:00 am
Temp:	70s
Weather:	Sunny

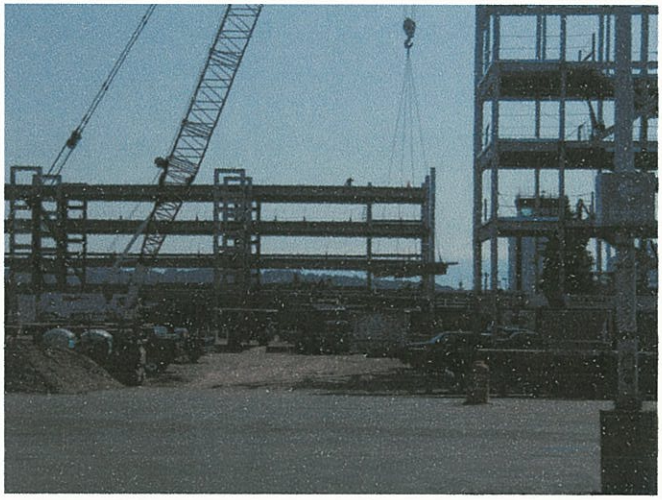
Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

Observation Location: Steel Erected to Level 4 between lines 10 & 11

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☐	☐	☐	☒	
Weld Condition	☐	☐	☐	☒	
Anchor Bolts, Nuts, & Washers	☐	☐	☐	☒	
Grout/Leveling Plates	☒	☐	☐	☐	
Fit Up/Plumbness	☒	☐	☐	☐	
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Reference Precast notes from same day.

Signed: Todd M. Neal, P.E.



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OBSERVATION REPORT
Structural Steel

Date:	September 5, 2008
Time:	11:00 am
Temp:	70s
Weather:	Sunny

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

Observation Location: "T" Frames at F/12 & G/12

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☐	☒	☐	☐	See Notes Below
Weld Condition	☐	☒	☐	☐	See Notes Below
Anchor Bolts, Nuts, & Washers	☐	☐	☐	☒	
Grout/Leveling Plates	☒	☐	☐	☐	
Fit Up/Plumbness	☐	☒	☐	☐	See Notes Below
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Bob Parsons of Ledgwood contact us and requested that we come to the site to review some cracks in the structural steel. On site we noted that at some of the "T" beams at F & G/12 cracks were forming at the top and bottom of the web at the rat holes.

BSE reviewed the cracks visually. We contacted QA Labs and requested they map the cracks to determine the extent. Based on the review by QA Labs BSE will provide repair details.

Signed: Todd M. Neal, P.E.

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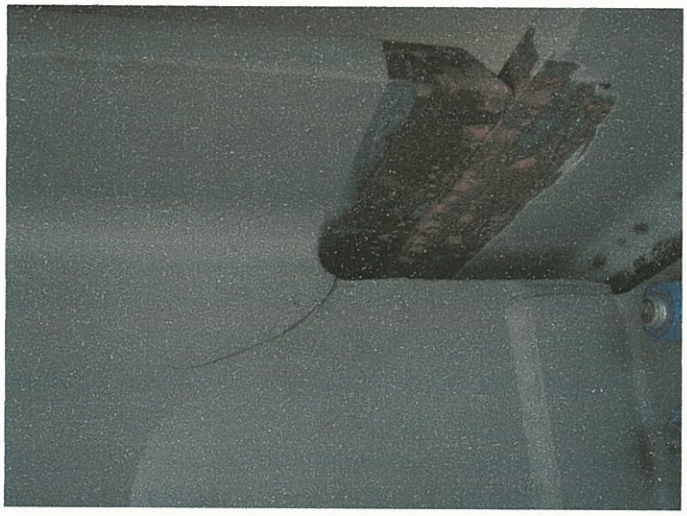

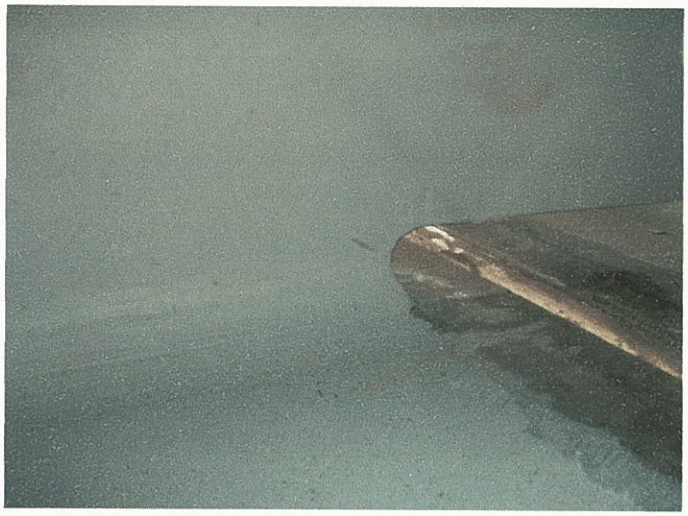

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OBSERVATION REPORT

Structural Steel

Date:	September 11, 2008
Time:	11:00 am
Temp:	60 F
Weather:	Sunny

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

Observation Location: "T" Frames at F/12 & G/12

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☐	☒	☐	☐	See Notes Below
Weld Condition	☐	☒	☐	☐	See Notes Below
Anchor Bolts, Nuts, & Washers	☐	☐	☐	☒	
Grout/Leveling Plates	☒	☐	☐	☐	
Fit Up/Plumbness	☐	☒	☐	☐	See Notes Below
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Review existing cracks in "T" Beams. They do not appear to be getting any larger.

Signed: Todd M. Neal, P.E.

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OBSERVATION REPORT
Structural Steel

Date:	September 15, 2008
Time:	9:00 am
Temp:	60 F
Weather:	Sunny

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1872

Observation Location: Piers at F/9 & 10 and G/10

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☐	☐	☐	☒	
Weld Condition	☐	☐	☐	☒	
Anchor Bolts, Nuts, & Washers	☐	☐	☐	☒	
Grout/Leveling Plates	☐	☒	☐	☐	See Notes Below
Fit Up/Plumbness	☐	☒	☐	☐	See Notes Below
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
At the requested of Bob Parsons of Ledgewood we visited the site to review spalling of existing piers. It appears that the leveling plates were not level and shims were installed to set the H frames at the correct elevation and plumbness. Washers were used as shims and placed at the edge of the base plates which resulted in high load concentrations outside of the reinforcement cage. We discussed using large shim stacks at these locations with Jeff and Wade (of American Aerial) and Bob Parsons. These shims should be located in the center of the columns to avoid the large concentrated loads at the perimeter. Any voids between the base plates and leveling plates will need to be epoxy injected.

Signed: Todd M. Neal, P.E.

75 York Street, Portland, ME 04101-4701 ▪ Tel 207-879-1838 ▪ Fax 207-879-1822

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

BECKER
structural engineers, inc.

05120

OBSERVATION REPORT
Structural Steel

Date:	October 28, 2008
Time:	9:30
Temp:	50
Weather:	Rainy

Project:	Jetport Garage Expansion PH II
Location:	Portland, ME
Becker Job No:	1829

Observation Location:
Observed newly erected southeast transitional canopy. Also took field measurements and photos of existing precast wall @ Grid lines 1/E and 1/E.1.

	Satisfactory	Un-Satisfactory	Not Completed	Not Applicable	Comments
Bolt Condition	☒	☐	☐	☐	
Weld Condition	☒	☐	☐	☐	
Anchor Bolts, Nuts, & Washers	☒	☐	☐	☐	
Grout/Leveling Plates	☒	☐	☐	☐	
Fit Up/Plumbness	☒	☐	☐	☐	
Metal Deck Welds	☐	☐	☐	☒	
Pour Stops	☐	☐	☐	☒	
Bracing	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	
Additional Items	☐	☐	☐	☒	

Notes:
Additional framing for southeast canopy was required because a column was removed from grid H.58/15. This framing had been erected. Also, splices were found to be correctly located for the C6x13 channels, 1'-0" west of grid 11.6. Attached below are the field measurements for the precast wall. These will be used to finalize the west canopy framing at the existing garage.

Signed: Christopher G. Williams, E.I.

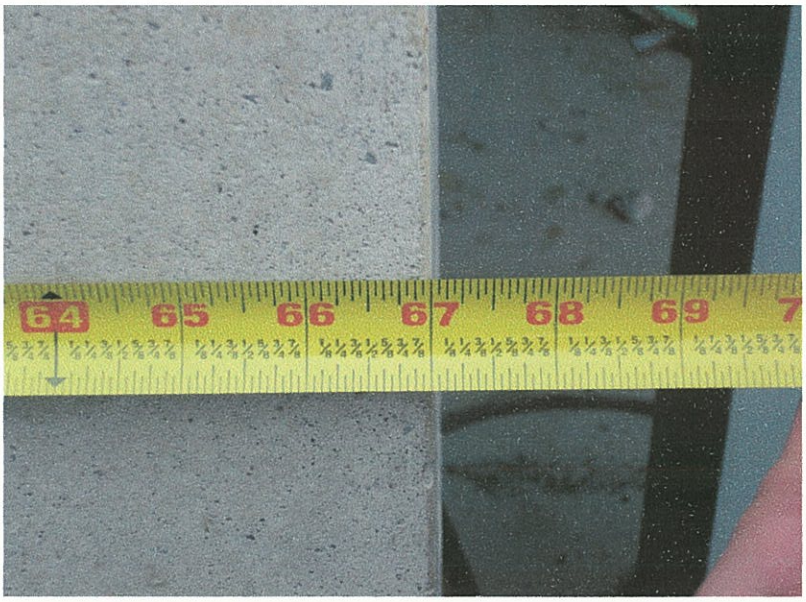
75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822

New horizontal tube beams required due to removal of column on grid H.58/13

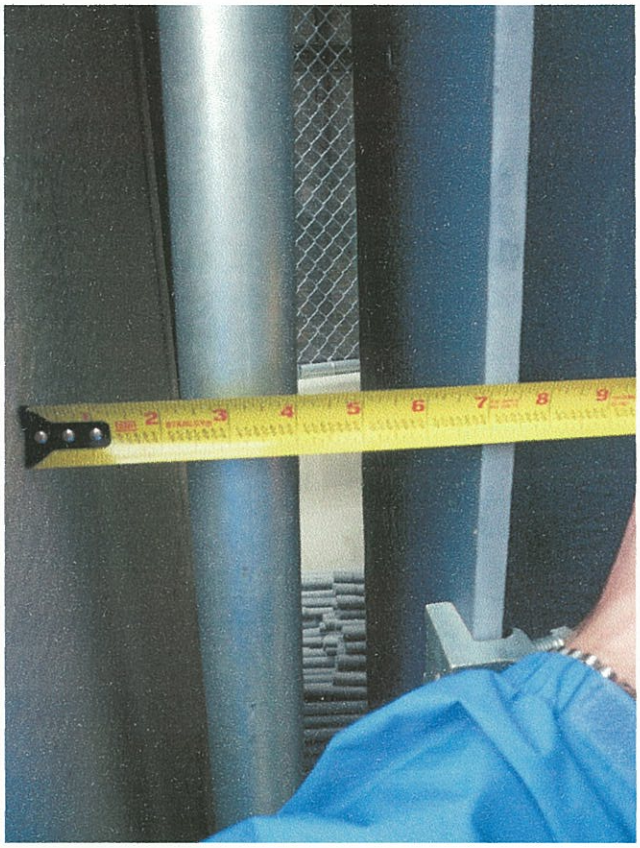
C6 channel splices 1'-0" west of grid 11.6

Southeast Transitional Canopy Framing – HSS Truss

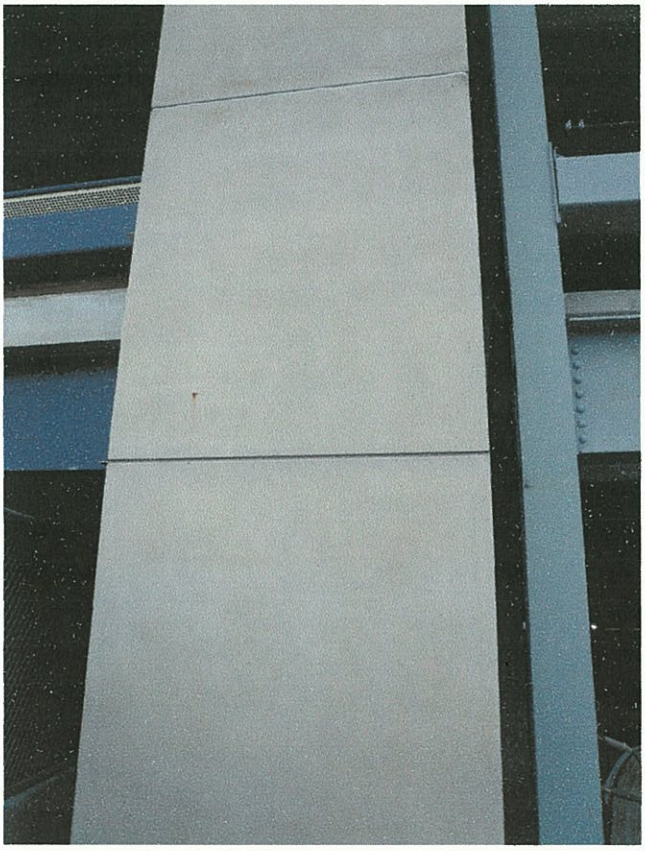
75 York Street, Portland, ME 04101-4701 ■ Tel 207-879-1838 ■ Fax 207-879-1822



Field measurement – precast wall total length



Field measurement – wall clearance between back of precast and face of steel



Precast wall @ grids E/1 and E.1/1

Field measurement – precast wall thickness

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INSPECTION REPORT

CUSTOMER: S. W. COLE ENG.			PAGE 1 OF 1
ADDRESS: GRAY, ME.			
ATTENTION: ROGER DOMINGO			
COPIES:			
PROJECT: PORTLAND JET-PORT PARKING GARAGE			
OWNER: PORTLAND			
CONTRACTOR: LEDGEWOOD CONSTRUCTION			
JOB No.: 07-1299	REPORT No.: QAL-08-1589	P. O. NUMBER:	DATES INSPECTED: 08 - 05 - 08

REMARKS

>>>> SITE VISIT TO PERFORM IN-PROCESS VISUAL INSPECTIONS OF STRUCTURAL STEEL FIELD CONNECTIONS : GRID LOCATIONS AT STAIR TOWER , 1 - 2 , G.8 - N.7 .

> VISUAL INSPECTION SHOWS HIGH STRENGTH BOLTED CONNECTIONS AND FIELD WELDS FOR HSS TO HSS CONNECTIONS AS WELL AS FULL-PEN COLUMN TO BEAM MOMENT CONNECTIONS IN-PROGRESS. IN-PROCESS WORK COMPLIES WITH SITE DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE . ADDITIONAL INSPECTION TO FOLLOW COMPLETION OF ALL CONNECTIONS.

NOTE : ALL FULL-PEN MAIN BEAM MOMENT CONNECTIONS WITH HOT DIP GALVANIZED COATINGS SHALL BE REMOVED BY ANY SUITABLE MEANS TO COMPLY WITH AWS D1.1 SECTION 5.30 FOR ALL AREAS TO BE FIELD WELDED . DUE TO SITE DRAWING DETAIL A - S3.1 FOR CHARPY V-NOTCH TEST REQUIREMENTS , ALL WELDING PROCESSES WITH F C A W MUST COMPLY WITH CURRENT FEMA 353 RECOMMENDED SPECIFICATIONS AND QUALITY ASSURANCE GUIDELINES FOR STEEL MOMENT FRAME SEISMIC APPLICATIONS . WELDING PROCESSES MUST DELIVER MINIMUM CVN PROPERTIES OF 20 ft/lbs AT -20 degrees F . SEVERAL WELD WIRE MANUFACTURES COMPLY WITH ABOVE REQUIREMENTS WITH AWS SPECIFICATIONS A5.20 FOR INNERSHIELD NR-305 . FEMA 353 TEST CERTIFICATES ARE AVAILABLE FROM SUPPLIERS UPON REQUEST . ALSO, WELD PROCEDURES MUST BE AVAILABLE AT THE JOB SITE AT ALL TIMES .

END ITEMS ////

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCH(ES) ☐ SUPPLEMENTARY SHEET(S) ☐ NDT REPORTS ☐ VIDEO

SIGNATURES		CERTIFICATION	LEVEL	DATE M D Y
INSPECTOR	MICHAEL DREW CWI # 99050211	ASNT	II	08 | 06 | 08
SUPERVISOR				| |

(FORM Q703 REV 0)

Quality Assurance Labs Inc.
NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES
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INSPECTION REPORT

CUSTOMER: S. W. COLE ENG. PAGE 1 OF 1

ADDRESS: GRAY, ME.

ATTENTION: ROGER DOMINGO

COPIES:

PROJECT: PORTLAND JET - PORT PARKING GARAGE EXPANSION

OWNER: CITY OF PORTLAND

CONTRACTOR: LEDGEWOOD CONSTRUCTION INC.

JOB No.: 07-1299	REPORT No.: QAL-08-1837	P. O. NUMBER:	DATES INSPECTED: 9-2-08,9-4-08,9-5-08

REMARKS

>>> REF. PREVIOUS FIELD REPORT DATED 08-05-08 FOR COMPLIANCE STATEMENT. IE: REQUIRED WELD PROCEDURES ARE STILL NOT AVAILABLE FOR F C A W PROCESS AS OF 09-05-08. REJECT RATES OF FULL-PEN MOMENT CONNECTIONS ARE EXCESSIVE. GALVANIZED COATINGS MUST BE COMPLETLY RE-MOVED PRIOR TO ANY WELDING. INTER-PASS TEMPERATURES MUST STAY BELOW 600 DEGRESS F.

> STAIR TOWER INSPECTIONS REVEAL THE FOLLOWING:

A) HSS TO HSS CONNECTIONS MUST COMPLY WITH DRAWING REQUIREMENTS FOR COMPLETE BLEND-ING OF ALL VISIBLE WELDMENTS TO ARCHITECTURAL ACCEPTANCE STANDARDS. VISUAL FIELD INSPECTION SHOWS NUMEROUS CONNECTIONS NOT TO DRAWING REQUIREMENTS. SOME WELDS ARE MARKED WITH BLUE FLAG TAPE FOR REPAIRS AS INDICATED.

B) UPPER LEVEL T/C BOLTED CONNECTIONS SHOW NUMEROUS BOLTS IN-PROGRESS FOR FINAL TORQUE.

C) STAIR INSTALATION SHOW UNACCEPTABLE FIELD WELD ATTACHMENTS FOR OVERALL POOR QUALITY MOST LIKELY CAUSED BY NOT REMOVING GALV. COATING PRIOR TO WELDING.

> ERECTION OF PARKING GARAGE TO INCLUDE COLUMN TO BEAM MOMENT CONNECTIONS, PLACEMENT OF DOUBLE TEE'S, AND PLANK TO PLANK VEXTOR CONNECTIONS IN-PROGRESS. ONGOING WELDING PROBLEMS CONTINUE. IE: SUB-SURFACE REJECTS IN THE ROOT/HOT-PASS REGION AS VERIFIED BY ULTRA-SONIC INSPECTIONS.

END ITEMS ////

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCH(ES) ☐ SUPPLEMENTARY SHEET(S) ☐ NDT REPORTS ☐ VIDEO

SIGNATURES		CERTIFICATION	LEVEL	DATE M D Y
INSPECTOR	MICHAEL DREW CWI # 99050211	ASNT	II	09 | 05 | 08
SUPERVISOR				

(FORM Q703 REV 0)

Quality Assurance Labs Inc.
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INSPECTION REPORT

CUSTOMER:	S. W. COLE ENG.
ADDRESS:	GRAY , ME.
ATTENTION:	ROGER DOMINGO
COPIES:	
PROJECT:	PORTLAND INT. JETPORT GARAGE EXPANSION PHASE II
OWNER:	PORTLAND
CONTRACTOR:	LEDGEWOOD CONSTRUCTION

PAGE 1 OF 1

JOB No.:	REPORT No.:	P. O. NUMBER:	DATES INSPECTED:
07-1299	QAL-08-1973		09-15-08 , 09-19-08

REMARKS

>>>>> SITE VISIT TO PERFORM IN-PROCESS VISUAL INSPECTION OF STRUCTURAL STEEL CONNECTIONS FOR VECTOR CONNECTIONS , DOUBLE - T PLANK EMBEDED CONNECTIONS AND MOMENT CONNECTIONS.

NOTE : AWS D1.1 SECTION 5.30 WELD CLEANING STATES : IN-PROCESS AND POST CLEANING OF WELDS SHALL REQUIRE REMOVING ALL SLAG AND THE WELD AND ADJACENT BASE METAL BE CLEANED BY BRUSHING OR OTHER SUITABLE MEANS . TIGHTLY ADHERENT SPATTER SHALL BE REMOVED FOR THE PURPOSE OF NDT (U/T) INSPECTIONS .

> VISUAL INSPECTION OF DOUBLE TEE PLANK CONNECTIONS REVEAL THE FOLLOWING : GRID LINES 7 - 13 , E - H , LEVELS 2 , 3 , 4 , AND 5 .

A) VECTOR S/S PLANK CONNECTIONS SHOW APPROX . 90 % COMPLETE .
B) PLANK EMBEDS TO COLUMN CONNECTIONS SHOW IN-PROGRESS FOR MANY LOCATIONS AT ALL LEVELS .
C) PLANK TO PLANK UNDERSIDE EMBED CONNECTIONS SHOW OUTSIDE LINES 13 & H IN-PROGRESS FOR ACCESS TO PERIMETERS . ALL LEVELS SHOW IN-PROGRESS AT ALL OTHER LOCATIONS .

> REMINDER TO ALL WELDERS FOR GROVE WELDS : WELD PROFILES MUST SHOW COMPLETE FILL OF THE WELD PREP AREA , ALL WELD STOPS AND END PLATE AREAS MUST BE FILLED TO STANDARD ACCEPTABLE PROFILES WITH WELD REINFORCEMENT NOT TO EXCEED 1/8"

COMPLETED ITEMS COMPLY WITH SITE DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE

END ITEMS ////

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCH(ES) ☐ SUPPLEMENTARY SHEET(S) ☐ NDT REPORTS ☐ VIDEO

SIGNATURES		CERTIFICATION	LEVEL	DATE M D Y
INSPECTOR	MICHAEL DREW CWI # 99050211	ASNT	II	09 | 19 | 08
SUPERVISOR				

(FORM Q703 REV 0)

Quality Assurance Labs Inc.
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September 22, 2008

S.W. Cole
286 Portland Rd.
Gray Maine 04039

Ref: Portland International Airport – Phase II - Project 07- 1299
QAL-08-1801

Attn: Roger Domingo

Dear Sir,

On 9/11/08, a site visit was made to the Portland Airport Project. The following items were inspected:

VECTOR CONNECTIONS

2nd Floor – Inspect connections at lines 10-15, E-H. Connections missing at line 12, G7-H. Remainder of connections acceptable.

3rd Floor – Inspect connections at lines 11-15, E-H. All connections found to be acceptable.

4th Floor – Inspect connections at lines 10.2-15, E-H. Connections missing at line 11.3, E-E.5. Remainder of connections found to be acceptable.

5th Floor – Inspect connections at lines 10.5-15, E-G. All connections were found to be acceptable.

All acceptable welds are IAW AWS D1.1 and applicable site DWGS.

Best Regards,
Arthur Gallant CWI# 90100091

Quality Assurance Labs Inc.
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October 6, 2008

S.W. Cole
286 Portland Rd.
Gray Maine 04039

Ref: Portland International Airport – Phase II - Project 07- 1299
QAL-08-2090

Attn: Roger Domingo

Dear Sir,

On 10/2/08 and 10/3/08, a site visit was made to the Portland Airport Project. The following items were inspected:

VECTOR CONNECTIONS

2nd Floor thru 5th Floor - Inspect connections at lines 5-8, E-H. All connections Are IAW AWS D1.1. There are connections in random areas where precast embed plates do not line up and connection could not be made. Structural engineer is aware of this condition.

SPLICE PLATE AND EMBED PLATE TO COLUMN CONNECTIONS.

2nd Floor thru 5th Floor, Lines 5-8, E-H – In progress.

WEST SIDE STAIR TOWER

Visual inspection was performed on all welding of West Side Stair Tower. All welding on staircase connections need to have slag removed prior inspection.

Best Regards,
Art Gallant CWI# 00100091

Quality Assurance Labs Inc.
NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES
80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

September 30, 2008

S.W. Cole
286 Portland Rd.
Gray Maine 04039

Ref: Portland International Airport – Phase II - Project 07- 1299
QAL-08-2052

Attn: Roger Domingo

Dear Sir,

On 9/23/08, a site visit was made to the Portland Airport Project. The following items were inspected:

VECTOR CONNECTIONS

2nd Floor thru 5th Floor - Inspect connections at lines 8-15, E-H. All connections are IAW AWS D1.1. There are connections in random areas where precast embed plates do not line up and connection could not be made. Structural engineer is aware of this condition.

SPLICE PLATE AND EMBED PLATE TO COLUMN CONNECTIONS.

2nd Floor thru 5th Floor – Inspection performed on splice plate connections on bottom of precast and precast plate to column connections. There are a total of twelve connections missing plates as marked on columns. Remainder of connections were found to be acceptable to AWS D1.1.

NOTE: All rat holes which were cut for accessibility for welding need to be ground smooth so there is no evidence of any type of stress riser.

WEST SIDE STAIR TOWER

Visual inspection was performed on all welding of West Side Stair Tower. All welding meets AWS D1.1 and AESS requirements.

Best Regards,
Art Gallant CWI# 00100091

Quality Assurance Labs Inc.
NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES
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October 13, 2008

S.W. Cole
286 Portland Rd.
Gray Maine 04039

Ref: Portland International Airport – Phase II - Project 07- 1299
QAL-08-2135

Attn: Roger Domingo

Dear Sir,

On 10/8/08, a site visit was made to the Portland Airport Project. The following items were inspected:

VECTOR CONNECTIONS

5th Floor - Inspect connections at lines 4-5, E-H. All connections are IAW AWS D1.1.

PERIMETER CLIP WELDS

Inspection performed on perimeter clip welds to TT embed plates at line 15. Connections on levels 2, 4, and 5 are complete. Connections on level 3 are incomplete.

WEST SIDE STAIR TOWER

Staircase welds need to have slag removed prior inspection. All welds that have slag removed are 90% rejected due to poor weld profile. It appears that galvanizing was not removed prior welding.

Best Regards,
Art Gallant CWI# 90100091

Quality Assurance Labs Inc.
NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES
80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

October 22, 2008

S.W. Cole
286 Portland Rd.
Gray Maine 04039

Ref: Portland International Airport – Phase II - Project 07- 1299
QAL-08-2243

Attn: Roger Domingo

Dear Sir,

On 10/20/08 and 10/21/08, a site visit was made to the Portland Airport Project. The following items were inspected:

VECTOR CONNECTIONS

2nd Floor and 5th floor - Inspect connections at lines 1-5, E-H. All connections are IAW AWS D1.1.

3rd and 4th floor – Inspect connections at lines 4-5, E-H. All connections are IAW AWS D1.1.

MOMENT CONNECTIONS

Inspection performed on moment connections on ground floor thru the 4th floor at lines E-H thru 7-13. There were 39 locations which had unacceptable welds due to either inadequate fill at edges of groove, undersize or no weld under backing bar, poor weld profile or ratholes that needed to be dressed. All areas were flagged with orange tape and information was written on column. Ryan Leavitt was also notified and did a walk through with myself to verify areas of concern. Remainder of connections were IAW AWS D1.1.

Best Regards,
Art Gallant CWI# 90100091

Quality Assurance Labs Inc.
NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES
80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

October 22, 2008

S.W. Cole
286 Portland Rd.
Gray Maine 04039

Ref: Portland International Airport – Phase II - Project 07- 1299
QAL-08-2243

Attn: Roger Domingo

Dear Sir,

On 10/20/08 and 10/21/08, a site visit was made to the Portland Airport Project. The following items were inspected:

VECTOR CONNECTIONS

2nd Floor and 5th floor - Inspect connections at lines 1-5, E-H. All connections are IAW AWS D1.1.

3rd and 4th floor – Inspect connections at lines 4-5, E-H. All connections are IAW AWS D1.1.

MOMENT CONNECTIONS

Inspection performed on moment connections on ground floor thru the 4th floor at lines E-H thru 7-13. There were 39 locations which had unacceptable welds due to either inadequate fill at edges of groove, undersize or no weld under backing bar, poor weld profile or ratholes that needed to be dressed. All areas were flagged with orange tape and information was written on column. Ryan Leavitt was also notified and did a walk through with myself to verify areas of concern. Remainder of connections were IAW AWS D1.1.

Best Regards,
Art Gallant CWI# 90100091

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299
Project: Portland Jet Port parking garage Report #: QAL-08-1633
Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
Ground, 11.9H	1T	1	54.5	52.3	0	A	2.5"	Root	6"	0"	RD
	1B	1	41.0	52.3	0	A	9"	Root	.25"	0"	RD
Ground, 12G S	1T	1	56.2	52.3	0	A	7"	Root	2"	0"	LFA
Ground, 11H E	1B	2	59.3	52.3	1	B	4"	.48"	3"	.125"	RD
Ground 11G SE	1B	1	52.0	53.2	0	A	.5"	Root	6"	0"	TWC
Ground, 11F SE	1T	1	60.2	53.2	0	C	4"	.325"	1"	.125"	KD
	2T	1	51.7	53.2	0	A	2"	Root	7"	0"	KD
	1B	2	47.9	53.2	1	A	2.5"	.25"	3.25"	.25"	KD
Basement 1E.1	1T	1	51.5	53.2	0	A	2"	Root	8"	0"	Nick
Basement 2E.1 E	1T	1	48.0	53.2	0	A	3.5"	Root	.5"	0"	Nick
Basement 5E.1 W	1T	1	43.2	53.2	0	A	2.75"	Root	2"	0"	TWC
Basement 11E.1 E	1T	1	32	53.2	0	A	8"	Root	0"	0"	TWC, .325" tall, planter at column face.
-	-	-	-	-	-	-	-	-	-	-	- No More Notes -

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
Basement	2E.1 W	3E.1 E & W	4E.1 E & W	5E.1 E	6E.1 E & W	7E.1 E&W	8E.1 E & W
Basement	9E.1 E & W	10 E.1 E & W	11 E.1 W	-	-	-	-
Ground	12F N & S	11F NE	11G NE	13G.7	11.9G.7	11E.1 E & W	-
2nd	12G N & S	12F N & S	11F NE	-	-	-	-
-	-	-	-	-	-	-	-

Test Date: 9/3/08
Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299

Project: Portland Jet Port parking garage Report #: QAL-08-1633

Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
Ground 10G SE	B1	2	41	39.2	6	A	2"	.067	5"	.125"	
Ground 12G S	BR1	-	-	-	-	-	-	-	-	-	Repair pass.
Ground 10G SE	BR1	-	-	-	-	-	-	-	-	-	Repair pass.
Ground 11H E	BR1	-	-	-	-	-	-	-	-	-	Repair pass.
Ground 11G SE	BR1	-	-	-	-	-	-	-	-	-	Repair pass.
Ground 10F NE	T1	1	45.1	39.2	0	B	2.75"	..325"	4"	.5"	
Ground 10F SE	T1	1	32.9	39.2	1	A	.25"	Root	6.5"	0"	Excavated, roll under present.
3rd 11F NE	T1	1	42.6	39.2	1	A	4.5"	Root	1.25"	0"	Excavated, Galvan pool on backing bar.
	B1	1	*	39.2	-	-	-	-	-	-	RD *Mult indications at column face over 100% @ Ref level. Excavated; looks like "Swiss cheese"
3rd 11F SE	T1	1	42.6	39.2	1	A	1.5"	.68"	6"	.25"	Bottom not complete
3rd 11F NW	T1	1	41.4	39.2	1	A	.75"	.325"	2"	.125"	Bottom not complete
3rd 11G SE	T1	1	44.2	39.2	1	A	2.5"	Root	3.5"	0"	Nick
3rd 11F SW	T1	3	44.3	39.2	9	A	4"	.080	4"	.325"	Bottom not complete
3rd 11G SW	T1	1	*	39.2	-	-	-	-	-	0"	*Mult indications at column face over 100% @ Ref level
3rd 11G SE	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
3rd 11F NE	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
	BR1	-	-	-	-	-	-	-	-	-	Repair pass.
3rd 11G SW	TR1	-	-	-	-	-	-	-	-	-	Repair pass
No More Notes	-	-	-	-	-	-	-	-	-	-	No More Notes.

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
Ground	10G NE	11H E (R1)	11G SE (R1)	12G S (R1)	-	-	-
Second	11.9G.7	-	-	-	-	-	-
3rd	11G SE (R1)	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Test Date: 9/4-5/08

Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299
Project: Portland Jet Port parking garage Report #: QAL-08-1633
Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
3rd 11G NE	T1	1	43	39.2	1	A	3"	Root	4"	0"	
3rd 11F SW	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
3rd 9F NW	T1	*	*	*	*	*	-	-	-	-	Top surface under fill and excessive porosity
3rd 9F SW	T1	2	31.5	39.2	3	A	*	*	*	*	Multiple indications over 100% @ ref level. Whole weld length failed.
3rd 9G NE	B1	2	42.6	39.2	4	A	2"	.119"	0"	.1"	
3rd 9G SW	B1	1	43	39.2	1	A	2.5"	.5"	4"	.25"	
Ground 13G N	T1	2	49	39.2	6	A	¾"	Root	2.5"	0"	Moose, Bad Access.
Ground 13F S	T1	2	48.2	39.2	6	A	1"	Root	2"	0"	Moose, Bad Access.
No More Notes	-	-	-	-	-	-	-	-	-	-	No more Notes

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
3rd	10F all joints	11G NW	9F NE&SE	9G NW&SE	-	-	-
Ground	13G S	13F N	13E.1	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Test Date:9/17/08
Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299
Project: Portland Jet Port parking garage Report #: QAL-08-1633
Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
Ground 11.9H	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
	BR1	-	-	-	-	-	-	-	-	-	Repair pass
Ground 10F NE	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
Ground 10F SE	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
3rd 8G SE	T1	2	48	39.2	3	B	1.5"	Root	4"	0"	
No more Notes	-	-	-	-	-	-	-	-	-	-	No more Notes

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
Ground	10H E	11H W	11.9H (R1)	10F NE (R1)	10F SE (R1)	-	-
2nd	11.9H	-	-	-	-	-	-
3rd	11H W	10H E&W	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Test Date: 9/18/08
Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299
Project: Portland Jet Port parking garage Report #: QAL-08-1633
Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
3rd 11.9H	T1	1	45	39.2	1	A	1.25"	.7"	3"	.18"	
2nt 9H E	B1	2	40	39.2	4	A	2"	Root	4"	0"	
4th 10H E	T1	1	36	39.2	1	A	1.25"	Root	3"	0"	
Basement 1E.1	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
Basement 2E.1 E	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
Basement 5E.1 W	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
Basement 11E.1 E	TR1	-	-	-	-	-	-	-	-	-	Repair pass.
No more notes	-	-	-	-	-	-	-	-	-	-	No More Notes

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
2	10H E&W	9H W	-	-	-	-	-
3rd	9H E&W	-	-	-	-	-	-
4th	11.9H	11H E&W	10H W	9H E&W	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Test Date:9/20/08
Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299
Project: Portland Jet Port parking garage Report #: QAL-08-1633
Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
2nd 11E.1 E	T1	1	27	39.2	-	A	-	-	-	-	Multiple ind over 100% @ Ref Gain, whole weld.
	B1	2	33	39.2	-	A	-	-	-	-	Multiple ind over 100% @ Ref Gain, whole weld.
2nd 11E.1 W	T1	1	42	39.2	-	A	2.7"	Root	4"	0"	LOF in root.
3rd 11E.1 E	B1	1	40	39.2	-	A	4"	Root	2"	0"	LOF in root
3rd 11E.1 W	T1	1	41	39.2	-	A	5"	Root	0"	0"	LOF in root
4th 11E.1 E	T1	1	34	39.2	-	A	-	-	-	-	Multiple ind over 100% @ Ref Gain, whole weld.
	B1	1	33	39.2	-	A	-	-	-	-	Multiple ind over 100% @ Ref Gain, whole weld.
4th 11E.1 W	T1	1	34	39.2	-	A	-	-	-	-	Multiple ind over 100% @ Ref Gain, whole weld.
	B1	1	37	39.2	-	A	-	-	-	-	Multiple ind over 100% @ Ref Gain, whole weld.
No more notes	-	-	-	-	-	-	-	-	-	-	No more notes

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:							
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

Test Date: 9/22/08
Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299
Project: Portland Jet Port parking garage Report #: QAL-08-1633
Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
3rd 8F NE	T1	1	40	39.2	-	A	1"	.5"	8"	.125"	
3rd 8F SW	T1	-	-	-	-	-	-	-	-	-	VT: Under filled weld.
3rd 8G NW	B1	1	43	39.2	-	A	2"	*	6"	.325"	Indication .125" from top surface of bottom flange.
3rd 8G SW	T1	1	37	39.2	-	A	2"	.375"	8"	0"	
3rd 9GSW	BR1	-	-	-	-	-	-	-	-	-	Repaired pass.
3rd 9G NE	BR2	-	-	-	-	-	-	-	-	-	BR1 Fail, repaired BR2 pass.
3rd 10G SE	B1	2	48	39.2	5	A	2.3"	.25"	6"	.125"	
4th 10H E	TR1	-	-	-	-	-	-	-	-	-	Repaired pass
2nd 9H E	BR1	-	-	-	-	-	-	-	-	-	Repaired pass
Ground 10G SE	BR1	-	-	-	-	-	-	-	-	-	Repaired pass.
Ground 11F SE	R1	-	-	-	-	-	-	-	-	-	Repaired pass. 3 locations
No More Notes.	-	-	-	-	-	-	-	-	-	-	No More Notes.

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
3rd	8F NW&SE	8G NE	9G SW (BR1)	9G NE (BR2)	10G NE &SW	-	-
4th	10H E (TR1)	-	-	-	-	-	-
2nd	11H E&W	9H E (BR1)	-	-	-	-	-
Ground	10G SE (BR1)	11F SE (R1)	-	-	-	-	-
-	-	-	-	-	-	-	-

Test Date: 9/24/08
Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299
Project: Portland Jet Port parking garage Report #: QAL-08-1633
Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
4th 11F SE	T1	1	39	39.2	2	A	2"	Root	4"	0"	Galvan roll under visible at bottom of top weld.
No More Notes	-	-	-	-	-	-	-	-	-	-	No More Notes

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
2nd	8E.1 E (stick)	9E.1 E&W (stick)	10E.1 W (stick)	-	-	-	-
3rd	9E.1 E&W (stick)	10E.1 E&W (stick)	-	-	-	-	-
4th	8E.1 E&W	11F NE&NW	11F SW	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Test Date: 9/29/08
Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299

Project: Portland Jet Port parking garage Report #: QAL-08-1633

Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
4th 11E.1 E&W	R1	-	-	-	-	-	-	-	-	-	All welds in both joints repaired and pass.
3rd 11E.1 E&W	R1	-	-	-	-	-	-	-	-	-	All welds in both joints acceptable after repairs.
No More Notes	-	-	-	-	-	-	-	-	-	-	No More Notes

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
4th	7E.1 E	9E.1 E&W	10E.1 E&W	12E.1 E&W	11E.1 E&W (R1)	-	-
3rd	7E.1 E	8E.1 E&W	12E.1 E&W	11E.1 E&W (R1)	-	-	-
2nd	7E.1 E	8E.1 W	10E.1E	12E.1 E&W	-	-	-
Ground	7H E	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Test Date: 10/1/08

Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299
Project: Portland Jet Port parking garage Report #: QAL-08-1633
Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
4th floor 8G NE	T1	2	44	39.2	4	A	1"	.725"	1.5"	.5"	LA
2nd floor 10F NE	T1	2	46	39.2	2	A	2"	.551"	2"	0"	LA
2nd floor 10F SE	T1	1	43	39.2	1	A	6"	.594"	3"	.375"	LA, Multiples linked by size.
2nd floor 9F SE	T1	1	38	39.2	1	A	4"	.683"	5.5"	0"	LA
2nd floor, 8F SE	B1	*	*	39.2	*	A	*	*	*	*	Poor base metal condition, indication partly masked.
2nd floor 11F SW	T!	1	45	39.2	1	A	*	Root	*	.125"	Mapped on the side of joint by prev UT inspt.
-	-	-	-	-	-	-	-	-	-	-	-
2nd floor 11E.1 E	TR1	-	-	-	-	-	-	-	-	-	Repair Pass.
	BR1	-	-	-	-	-	-	-	-	-	Repair Pass.
2nd floor 11E.1 W	TR1	-	-	-	-	-	-	-	-	-	Repair Pass.
No More Notes	-	-	-	-	-	-	-	-	-	-	No More Notes

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
2	13E.1	13F N&S	13G N&S	13G.7	11E.1 E&W	11F NW&SE	11G all Joints
2	10F NW&SW	10G all joints	9F NE&NW	9F SW	9G All joints	8F NW&NE	8F SW
2	8G all joints	8H E&W	7H E	-	-	-	-
3	13E.1	13F N&S	13G N&S	-	-	-	-
4	13E.1	13F N&S	8G NW&SW	8GSE	-	-	-

Test Date: 10/4/08
Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Report of UT of welds per AWS D1.1

Customer: S.W. Cole Job #: 07-1299
Project: Portland Jet Port parking garage Report #: QAL-08-1633
Material Thickness: Various Joint Type: T-Joints, Moments in I beams.

Local	Indication Identifier	Leg	Indication Level	Ref Level	Attenuation Factor	Ind. Rating	Length	Depth	From Y	From X	Notes
4th 10F SW	TI	2	42.3	36.3	8	A	.5"	.125"	8"	.125"	Nick
No More Notes	-	-	-	-	-	-	-	-	-	-	No More Notes

Note: N = North, E = East, W = West, S = South. Directions may be used in combination, ie: NE = North East. T denotes top flange, B denotes bottom flange. Due to geometric constraints and material variations, all measurements may vary + or – ½". Y is taken from north in a north south weld and from west in a west to east weld. X is taken from the welded face of the vertical member with + being in the direction of the weld and – into the base metal. Indication numbering is a combination of location and the indication identifier.

Accepted joint locations:

Level	Locations:						
3rd	13G.7	-	-	-	-	-	-
4th	11G SE	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Test Date: 10/7/08
Inspector: Edward J. Lesniak III, UT Lv2 Signature: _____

Quality Assurance Labs Inc.
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ULTRASONIC INSPECTION REPORT

CUSTOMER: SW. COLE	DATE OF INSPECTION: M 08 D 26 Y 08
ATTENTION: ROGER DOMINGO	REPORT No.: QAL-08-1760
PROJECT: PORTLAND JETPORT PARKING GARAGE PHASE II	PAGE 1 OF 3
COMPONENT INSPECTED: CRF BATH MENS ROOM	JOB No.: 07-1299
AREA OF INTEREST: MOMENT CONNECTION	P.O. No.: 07-1299
COMPONENT LOCATION: PORTLAND, ME	**INSTRUMENT**
CUSTOMER WORK ORDER No: N/A — PART No.: N/A	MAKE: PANAMETRICS
MATERIAL: CARBON STEEL — HEAT No.: N/A	MODEL: LTC
COMPONENT SURFACE CONDITION: AS WELDED	EQUIPMENT NO.: 35403
EXAMINATION DATA	MATERIAL THICKNESS: 22.225 mm (0.875 in.)
Project Code/Spec: AWS D1.1	SCREEN RANGE: 5"
U.T. Procedure No. — U.T. Technique No.	COUPLANT: SONO- CLEAR
RESULTS: ACCEPTABLE — INDICATIONS: NONE	**TRANSDUCERS**

REMARKS:

PERFORMED ULTRASONIC INSPECTION ON THE FOLLOWING MOMENT CONNECTIONS IAW AWS D1.1 .

GRID LINES
E.1-12 CRF BATH MENS ROOM TOP & BOTTOM

RESULTS OF INSPECTION:
ACCEPTED, NO CRACKS, CRACKLIKE, OR RELIVANT INDICATIONS NOTED AT TIME OF INSPECTION.

///LAST ITEM///

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCH(ES) ☐ SUPPLEMENTARY SHEET(S) ☐ VIDEO

SIGNATURES	CERTIFICATION LEVEL		DATE M D Y
INSPECTOR S. Dyer	ASNT	II	08 27 08
SUPERVISOR			
AUTHORIZED INSPECTOR			
CUSTOMER REPRESENTATIVE			

TRANSDUCERS	
MAKE: PANAMETRICS	
FREQ.: 2.25 MHz	ANGLE: 70°
SIZE: 12.7 mm (0.500 in.)	
STYLE: SINGLE	SHAPE: SQUARE
EQUIPMENT No.:	
MAKE: PANAMETRICS	
FREQ.: 2.25 MHz	ANGLE: 0°
SIZE: 25.4 mm (1.000 in.)	
STYLE: SINGLE	SHAPE: ROUND
EQUIPMENT No.:	
MAKE:	
FREQ.:	ANGLE:
SIZE:	
STYLE:	SHAPE:
EQUIPMENT No.:	
REFERENCE BLOCKS	
MAKE: PANAMETRICS	
TYPE: IIW BLOCK	
MATERIAL: CARBON STEEL	
EQUIPMENT No.:	
SENSITIVITY: 50 db	
TRANSFER VALUE:	

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ULTRASONIC INSPECTION REPORT

CUSTOMER: SW. COLE	DATE OF INSPECTION: M 08 D 26 Y 08
ATTENTION: ROGER DOMINGO	REPORT No.: QAL-08-1760
PROJECT: PORTLAND JETPORT PARKING GARAGE PHASE II	PAGE 2 OF 3
COMPONENT INSPECTED: WEST STAIR TOWER	JOB No.: 07-1299
AREA OF INTEREST: MOMENT CONNECTION	P.O. No.: 07-1299
COMPONENT LOCATION: PORTLAND, ME	
CUSTOMER WORK ORDER No: N/A / PART No.: N/A	
MATERIAL: CARBON STEEL / HEAT No.: N/A	
COMPONENT SURFACE CONDITION: AS WELDED	

EXAMINATION DATA

Project Code/Spec: AWS D1.1	
U.T. Procedure No.:	U.T. Technique No.:
RESULTS: ACCEPTABLE	INDICATIONS: NONE

REMARKS:

PERFORMED ULTRASONIC INSPECTION ON THE FOLLOWING 5TH FLOOR MOMENT CONNECTIONS IAW AWS D1.1 .

GRID LINES
H2.5-1' NORTH & SOUTH TOP & BOTTOM CONNECTION ACCEPTED.

RESULTS OF INSPECTION:
ACCEPTED, NO CRACKS, CRACKLIKE, OR RELIVANT INDICATIONS NOTED AT TIME OF INSPECTION.

///LAST ITEM///

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCHES ☐ SUPPLEMENTARY SHEET(S) ☐ VIDEO

SIGNATURES	CERTIFICATION	LEVEL	DATE M D Y
INSPECTOR S. Dyer	ASNT	II	08 27 08
SUPERVISOR			
AUTHORIZED INSPECTOR			
CUSTOMER REPRESENTATIVE			

INSTRUMENT

MAKE: PANAMETRICS
MODEL: LTC
EQUIPMENT NO.: 35403
MATERIAL THICKNESS: 9.525 mm (0.375 in.)
SCREEN RANGE: 5"
COUPLANT: SONO- CLEAR

TRANSDUCERS

MAKE: PANAMETRICS
FREQ.: 2.25 MHz | ANGLE: 70°
SIZE: 12.7 mm (0.500 in.)
STYLE: SINGLE | SHAPE: SQUARE
EQUIPMENT No.:

MAKE: PANAMETRICS
FREQ.: 2.25 MHz | ANGLE: 0°
SIZE: 25.4 mm (1.000 in.)
STYLE: SINGLE | SHAPE: ROUND
EQUIPMENT No.:

MAKE:
FREQ.: | ANGLE:
SIZE:
STYLE: | SHAPE:
EQUIPMENT No.:

REFERENCE BLOCKS

MAKE: PANAMETRICS
TYPE: IIW BLOCK
MATERIAL: CARBON STEEL
EQUIPMENT No.:

SENSITIVITY: 50 db

TRANSFER VALUE:

(FORM Q500 REV 2)

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ULTRASONIC INSPECTION REPORT

CUSTOMER: SW. COLE
ATTENTION: ROGER DOMINGO
PROJECT: PORTLAND JETPORT PARKING GARAGE PHASE II
COMPONENT INSPECTED: WEST STAIR TOWER
AREA OF INTEREST: MOMENT CONNECTION
COMPONENT LOCATION: PORTLAND, ME
CUSTOMER WORK ORDER No: N/A
PART No.: N/A
MATERIAL: CARBON STEEL
HEAT No.: N/A
COMPONENT SURFACE CONDITION: AS WELDED

DATE OF INSPECTION: M 08 | D 26 | Y 08
REPORT No. QAL-08-1760
PAGE 3 OF 3
JOB No. 07-1299
P.O. No. 07-1299

EXAMINATION DATA

Project Code/Spec: AWS D1.1
U.T. Procedure No.:
U.T. Technique No.:
RESULTS: ACCEPTABLE
INDICATIONS: NONE

REMARKS:

PERFORMED ULTRASONIC INSPECTION ON THE FOLLOWING 4TH FLOOR MOMENT CONNECTIONS IAW AWS D1.1 .

GRID LINES
G.9-1 EAST BOTTOM REPAIR ACCEPTED.
G.9-1' TOP REPAIR ACCEPTED
G.9-2' TOP REPAIR ACCEPTED

RESULTS OF INSPECTION:
ACCEPTED, NO CRACKS, CRACKLIKE, OR RELIVANT INDICATIONS NOTED AT TIME OF INSPECTION.

///LAST ITEM///

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCHES) ☐ SUPPLEMENTARY SHEET(S) ☐ VIDEO

SIGNATURES	CERTIFICATION	LEVEL	DATE M D Y
INSPECTOR S. Dyer	ASNT	II	08 | 27 | 08
SUPERVISOR			
AUTHORIZED INSPECTOR			
CUSTOMER REPRESENTATIVE			

INSTRUMENT

MAKE: PANAMETRICS
MODEL: LTC
EQUIPMENT NO.: 35403
MATERIAL THICKNESS: 9.525 mm (0.375 in.)
SCREEN RANGE: 5"
COUPLANT: SONO-CLEAR

TRANSDUCERS

MAKE: PANAMETRICS
FREQ.: 2.25 MHz | ANGLE: 70°
SIZE: 12.7 mm (0.500 in.)
STYLE: SINGLE | SHAPE: SQUARE
EQUIPMENT No.:

MAKE: PANAMETRICS
FREQ.: 2.25 MHz | ANGLE: 0°
SIZE: 25.4 mm (1.000 in.)
STYLE: SINGLE | SHAPE: ROUND
EQUIPMENT No.:

MAKE:
FREQ.: | ANGLE:
SIZE:
STYLE: | SHAPE:
EQUIPMENT No.:

REFERENCE BLOCKS

MAKE: PANAMETRICS
TYPE: IIW BLOCK
MATERIAL: CARBON STEEL
EQUIPMENT No.:
SENSITIVITY: 50 db

TRANSFER VALUE:

(FORM 0500 REV 2)

Quality Assurance Labs Inc.

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES

80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

ULTRASONIC INSPECTION REPORT

CUSTOMER: S.W. COLE Engineering

ATTENTION: Roger Domingo

PROJECT: Portland Jetport, Portland Maine

COMPONENT INSPECTED: Moment Connections

AREA OF INTEREST: Welded Area

COMPONENT LOCATION: Fourth Floor Parking Garage

CUSTOMER WORK ORDER No: | PART No.:

MATERIAL: CARBON STEEL | HEAT No.:

COMPONENT SURFACE CONDITION: AS WELDED

DATE OF INSPECTION: M 10 | D 07 | Y 08

REPORT No. QAL-08-1633

PAGE 1 OF 3

JOB No. 07-1299

P.O. No.

EXAMINATION DATA

Project Code/Spec AWS D1.1 2008

U.T. Procedure No. | U.T. Technique No.

RESULTS: AS NOTED | INDICATIONS: AS NOTED

REMARKS:

PERFORMED ULTRASONIC INSPECTION AT PORTLAND JETPORT PARKING GARAGE.

THE FOLLOWING MOMENT CONNECTIONS WERE FOUND ACCEPTABLE TO CODE AT TIME OF INSPECTION:

1) FOURTH FLOOR CONNECTIONS
   a) 8F , NE, NW, SE, SW.
   b) 9F , NE, NW, SE, SW.
   c) 10F , NE, NW, SE.
   d) 10G , NE, NW, SE, SW.
   e) 11G , NE, NW.
   g) 13G , N. S.

THE FOLLOWING ATTACHMENTS WERE FOUND UNACCEPTABLE AT TIME OF INSPECTION:

1) FOURTH FLOOR CONNECTIONS:
   a) 10F, SW Top.
   b) 11G, SW Top.

NOTE: SEE ATTACHED SUPPLEMENTS FOR FLAW SIZE CRITERIA (2 PAGES)

FAA REPAIR STATION NUMBER RX5R187N

METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCH(ES) ☑ SUPPLEMENTARY SHEET(S) ☐ VIDEO

SIGNATURES	CERTIFICATION	LEVEL	DATE M D Y
INSPECTOR Jody Baudanza	ASNT	II	10 07 08
SUPERVISOR			
AUTHORIZED INSPECTOR			
CUSTOMER REPRESENTATIVE			

INSTRUMENT

MAKE: OLYMPUS

MODEL: EPOCH LTC

EQUIPMENT NO.: 34403

MATERIAL THICKNESS: 22.225 mm (0.875 in.)

SCREEN RANGE: 5"

COUPLANT: ECHOGEL

TRANSDUCERS

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 70°

SIZE: 0.625 in. x 0.625 in.

STYLE: DUAL | SHAPE: SQUARE

EQUIPMENT No.:

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 0°

SIZE: 25.4 mm (1.000 in.)

STYLE: DUAL | SHAPE: ROUND

EQUIPMENT No.:

MAKE:

FREQ.: | ANGLE:

SIZE:

STYLE: | SHAPE:

EQUIPMENT No.:

REFERENCE BLOCKS

MAKE: KRAUTKRAMER

TYPE: IIW

MATERIAL: STEEL

EQUIPMENT No.:

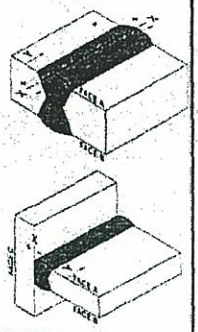
SENSITIVITY: 60% FSH

TRANSFER VALUE:

(FORM 0500 REV 2)

QAL

REPORT OF ULTRASONIC EXAMINATION OF WELDS
AS PER ANSI / AWS D1.1 2008
ULTRASONIC ACCEPTANCE-REJECTION CRITERIA FOR STATICALLY LOADED NONTUBULAR CONNECTIONS



JOB No.: 07-1299 REPORT No.: QAL-08-1633

PROJECT: Portland Jetport-Parking Garage

WELD IDENTIFICATION: 4th Floor, 11G, SW Top WELDING PROCESS: SMAW - FCAW

MATERIAL THICKNESS: 0.875 QUALITY REQUIREMENTS-SECTION No.:

WELD JOINT AWS: TEE REMARKS: Surface Porosity Noted

INSPECTOR: Jody Baudanza DATE: 10/07/2008

MINIMUM ACCEPTANCE LEVELS (DECIBELS)

DISCONTINUITY SEVERITY CLASS	WELD THICKNESS* IN INCHES AND MILLIMETERS AND SEARCH UNIT ANGLE											
	5/16" TO 3/4"	3/4" TO 1 1/2"	>1 1/2" TO 2 1/2"			>2 1/2" TO 4"			>4" TO 8"			
	8 TO 20	>20 TO 38	>38 TO 65			>65 TO 100			>100 TO 200			
	70°	70°	70°	60°	45°	70°	60°	45°	70°	60°	45°	
CLASS A	≤+5	≤+2	≤-2	≤+1	≤+3	≤-5	≤-2	≤0	≤-7	≤-4	≤-1	
CLASS B	+6	+3	-1 to 0	+2 to +3	+4 to +5	-4 to -3	-1 to 0	+1 to +2	-6 to -5	-3 to -2	0 to +1	
CLASS C	+7	+4	+1 to +2	+4 to +5	+6 to +7	-2 to +2	+1 to +2	+3 to +4	-4 to +2	-1 to +2	+2 to +3	
CLASS D	≥+8	≥+5	≥+3	≥+6	≥+8	≥+3	≥+3	≥+5	≥+3	≥+3	≥+4	

SCANNING LEVEL

SOUND PATH DISTANCE in. (mm)	≤ 2½" (65)	>2½" to 5" (65-125)	>5" to 10" (125-250)	>10" to 15" (250-380)
ABOVE ZERO REFERENCE (dB)	14	19	29	39

LINE NUMBER	INDICATION NUMBER	TRANSDUCER ANGLE	FROM FACE	LEG (HALF SKIP)	DECIBELS				DEFECT (mm)					DISCONTINUITY EVALUATION	REMARKS
					INDICATION LEVEL	REFERENCE LEVEL	ATTENUATION FACTOR	INDICATION RATING	LENGTH	ANGULAR DISTANCE (SOUND PATH)	DEPTH FROM "A" SURFACE	DISTANCE FROM X	DISTANCE FROM Y		
					a	b	c	d							
1	1	70	2.25	2	58	49	4.5	4.5	4	2.78	.062	.25	2.0	Class A	Surface Porosity Noted
2															
3															
4															
5															
6															
7															

Notes:

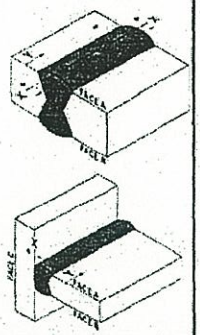
1. Class B and C discontinuities shall be separated by at least 2L, L being the length of the longer discontinuity, except that when two or more such discontinuities are not separated by at least 2L, but the combined length of discontinuities and their separation distance is equal to or less than the maximum allowable length under the provisions of Class B or C, the discontinuity shall be considered a single acceptable discontinuity.
2. Class B and C discontinuities shall not begin at a distance less than 2L from weld ends carrying a primary tensile stress, L being the discontinuity length.
3. Discontinuities detected at "scanning level" in the root face area of complete joint penetration double groove weld joints shall be evaluated using an indicating rating of 4 dB more sensitive than described by d=a-b-c when such welds are designed as "tension welds" on the drawing (subtract 4 dB from the indication rating "d").
4. Electroslag or electrogas welds: discontinuities detected at "scanning level" which exceed 2" (50 mm) in length shall be suspected as being piping porosity and shall be further evaluated with radiography.
5. Indications that remain on the display as the search unit is moved may be indicative of planar discontinuities with significant through-thickness dimension and shall be subjected to a more detailed evaluation by other means (e.g., alternate ultrasonic techniques, radiography, grinding or gouging for visual inspection, etc.).

* Weld Thickness shall be defined as the nominal thickness of the thinner of the two parts being joined.

CLASS A (Large Discontinuities) Any indication in this category shall be rejected, regardless of length.
CLASS B (Medium Discontinuities) Any indication in this category having a length greater than ¾" (20 mm) shall be rejected.
CLASS C (Small Discontinuities) Any indication in this category having a length greater than 2" (50mm) shall be rejected.
CLASS D (Minor Discontinuities) Any indication in this category shall be accepted, regardless of length or location in the weld.

(FORM 509 REV 2)

REPORT OF ULTRASONIC EXAMINATION OF WELDS
AS PER ANSI / AWS D1.1 2008
ULTRASONIC ACCEPTANCE-REJECTION CRITERIA FOR STATICALLY LOADED NONTUBULAR CONNECTIONS



JOB No.: 07-1299 REPORT No.: QAL-08-1633

PROJECT: Portland Jetport-Parking Garage

WELD IDENTIFICATION: 4th Floor, 10F, SW Top WELDING PROCESS: SMAW - FCAW

MATERIAL THICKNESS: 0.875 QUALITY REQUIREMENTS-SECTION No.:

WELD JOINT AWS: TEE REMARKS:

INSPECTOR: Jody Baudanza DATE: 10/07/2008

MINIMUM ACCEPTANCE LEVELS (DECIBELS)

DISCONTINUITY SEVERITY CLASS	WELD THICKNESS* IN INCHES AND MILLIMETERS AND SEARCH UNIT ANGLE										
	5/16" TO 3/4"	3/4" TO 1 1/2"	>1 1/2" TO 2 1/2"			>2 1/2" TO 4"			>4" TO 8"		
	8 TO 20	>20 TO 38	>38 TO 65			>65 TO 100			>100 TO 200		
	70°	70°	70°	60°	45°	70°	60°	45°	70°	60°	45°
CLASS A	≤+5	≤+2	≤-2	≤+1	≤+3	≤-5	≤-2	≤0	≤-7	≤-4	≤-1
CLASS B	+6	+3	-1 to 0	+2 to +3	+4 to +5	-4 to -3	-1 to 0	+1 to +2	-6 to -5	-3 to -2	0 to +1
CLASS C	+7	+4	+1 to +2	+4 to +5	+6 to +7	-2 to +2	+1 to +2	+3 to +4	-4 to +2	-1 to +2	+2 to +3
CLASS D	≥+8	≥+5	≥+3	≥+6	≥+8	≥+3	≥+3	≥+5	≥+3	≥+3	≥+4

SCANNING LEVEL

SOUND PATH DISTANCE in. (mm)	≤ 2½" (65)	>2½" to 5" (65-125)	>5" to 10" (125-250)	>10" to 15" (250-380)
ABOVE ZERO REFERENCE (dB)	14	19	20	39

LINE NUMBER	INDICATION NUMBER	TRANSDUCER ANGLE	FROM FACE	LEG (HALF SKIP)	DECIBELS				DEFECT (mm)					DISCONTINUITY EVALUATION	REMARKS
					INDICATION LEVEL	REFERENCE LEVEL	ATTENUATION FACTOR	INDICATION RATING	LENGTH	ANGULAR DISTANCE (SOUND PATH)	DEPTH FROM "A" SURFACE	DISTANCE FROM X	DISTANCE FROM Y		
					a	b	c	d							
1	1	70	2	2	53.1	49	4	0.1	2.5	2.48	.125	.5	2.0	Class A	
2															
3															
4															
5															
6															
7															

Notes:
1. Class B and C discontinuities shall be separated by at least 2L, L being the length of the longer discontinuity; except that when two or more such discontinuities are not separated by at least 2L, but the combined length of discontinuities and their separation distance is equal to or less than the maximum allowable length under the provisions of Class B or C, the discontinuity shall be considered a single acceptable discontinuity.
2. Class B and C discontinuities shall not begin at a distance less than 2L from weld ends carrying a primary tensile stress. L being the discontinuity length.
3. Discontinuities detected at "scanning level" in the root face area of complete joint penetration double groove weld joints shall be evaluated using an indicating rating of 4 dB more sensitive than described by d=a-b-c when such welds are designed as "tension welds" on the drawing (subtract 4 dB from the indication rating "d").
4. Electroslag or electrogas welds: discontinuities detected at "scanning level" which exceed 2" (50 mm) in length shall be suspected as being piping porosity and shall be further evaluated with radiography.
5. Indications that remain on the display as the search unit is moved may be indicative of planar discontinuities with significant through-throat dimension and shall be subjected to a more detailed evaluation by other means (e.g., alternate ultrasonic techniques, radiography, grinding or gouging for visual inspection, etc.).

* Weld Thickness shall be defined as the nominal thickness of the thinner of the two parts being joined.

CLASS A (Large Discontinuities) Any indication in this category shall be rejected, regardless of length.
CLASS B (Medium Discontinuities) Any indication in this category having a length greater than ¾" (20 mm) shall be rejected.
CLASS C (Small Discontinuities) Any indication in this category having a length greater than 2" (50mm) shall be rejected.
CLASS D (Minor Discontinuities) Any indication in this category shall be accepted, regardless of length or location in the weld.

(FORM 509 REV 2)

Quality Assurance Labs Inc.
NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES
80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

ULTRASONIC INSPECTION REPORT

CUSTOMER: S.W. COLE Engineering

ATTENTION: Roger Domingo

PROJECT: Portland Jetport, Portland Maine

COMPONENT INSPECTED: Moment Connections

AREA OF INTEREST: Welded Area

COMPONENT LOCATION: Third Floor Parking Garage

CUSTOMER WORK ORDER No: | PART No.:

MATERIAL: CARBON STEEL | HEAT No.:

COMPONENT SURFACE CONDITION: AS WELDED

EXAMINATION DATA

Project Code/Spec: AWS D1.1 2008

U.T. Procedure No. | U.T. Technique No.

RESULTS: AS NOTED | INDICATIONS: AS NOTED

REMARKS:

PERFORMED ULTRASONIC INSPECTION AT PORTLAND JETPORT PARKING GARAGE.

THE FOLLOWING MOMENT CONNECTIONS WERE FOUND ACCEPTABLE TO CODE AT TIME OF INSPECTION:

1) THIRD FLOOR CONNECTIONS
   a) 8F , SW(Repair), NE(Repair).
   b) 9F , NW(Repair), SW(Repair).
   c) 11F , NW,(Repair).

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCH(ES) ☑ SUPPLEMENTARY SHEET(S) ☐ VIDEO

SIGNATURES	CERTIFICATION	LEVEL	DATE M	D	Y
INSPECTOR Scott Dyer	ASNT	II	10	10	08
SUPERVISOR					
AUTHORIZED INSPECTOR					
CUSTOMER REPRESENTATIVE					

DATE OF INSPECTION: M 10 | D 10 | Y 08

REPORT No. QAL-08-1633

PAGE 1 OF 3

JOB No. 07-1299

P.O. No.

INSTRUMENT

MAKE: OLYMPUS

MODEL: EPOCH LTC

EQUIPMENT NO.: 34403

MATERIAL THICKNESS: 22.225 mm (0.875 in.)

SCREEN RANGE: 5"

COUPLANT: ECHOGEL

TRANSDUCERS

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 70°

SIZE: 0.625 in. x 0.625 in.

STYLE: DUAL | SHAPE: SQUARE

EQUIPMENT No.:

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 0°

SIZE: 25.4 mm (1.000 in.)

STYLE: DUAL | SHAPE: ROUND

EQUIPMENT No.:

MAKE:

FREQ.: | ANGLE:

SIZE:

STYLE: | SHAPE:

EQUIPMENT No.:

REFERENCE BLOCKS

MAKE: KRAUTKRAMER

TYPE: IIW

MATERIAL: STEEL

EQUIPMENT No.:

SENSITIVITY: 60% FSH

TRANSFER VALUE:

Quality Assurance Labs Inc.
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ULTRASONIC INSPECTION REPORT

CUSTOMER: S.W. COLE Engineering

ATTENTION: Roger Domingo

PROJECT: Portland Jetport, Portland Maine

COMPONENT INSPECTED: Moment Connections

AREA OF INTEREST: Welded Area

COMPONENT LOCATION: Second Floor Parking Garage

CUSTOMER WORK ORDER No: | PART No.:

MATERIAL: CARBON STEEL | HEAT No.:

COMPONENT SURFACE CONDITION: AS WELDED

EXAMINATION DATA

Project Code/Spec: AWS D1.1 2008

U.T. Procedure No. | U.T. Technique No.

RESULTS: AS NOTED | INDICATIONS: AS NOTED

REMARKS:

PERFORMED ULTRASONIC INSPECTION AT PORTLAND JETPORT PARKING GARAGE. THE FOLLOWING MOMENT CONNECTIONS WERE FOUND ACCEPTABLE TO CODE AT TIME OF INSPECTION:

1) Second FLOOR CONNECTIONS
   a) 7G , N, S.
   b) 7F , N, S.
   c) 8F , SE(Repair).
   d) 9F , SE(Repair).
   e) 10F , NE(Repair), SE(Repair).
   g) 11F , SW(Repair).

THE FOLLOWING ATTACHMENTS WERE FOUND UNACCEPTABLE AT TIME OF INSPECTION:
1)SECOND FLOOR CONNECTIONS:
   a) 7F, S Bottom.

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S)MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCH(ES) ☑ SUPPLEMENTARY SHEET(S) ☐ VIDEO

SIGNATURES	CERTIFICATION	(LEVEL)	DATE M	D	Y
INSPECTOR Scott Dyer	ASNT	II	10	10	08
SUPERVISOR					
AUTHORIZED INSPECTOR					
CUSTOMER REPRESENTATIVE					

DATE OF INSPECTION: M 10 | D 10 | Y 08

REPORT No. QAL-08-1633

PAGE 2 OF 3

JOB No. 07-1299

P.O. No.

INSTRUMENT

MAKE: OLYMPUS

MODEL: EPOCH LTC

EQUIPMENT NO.: 34403

MATERIAL THICKNESS: 22.225 mm (0.875 in.)

SCREEN RANGE: 5"

COUPLANT: ECHOGEL

TRANSDUCERS

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 70°

SIZE: 0.625 in. x 0.625 in.

STYLE: DUAL | SHAPE: SQUARE

EQUIPMENT No.:

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 0°

SIZE: 25.4 mm (1.000 in.)

STYLE: DUAL | SHAPE: ROUND

EQUIPMENT No.:

MAKE:

FREQ.: | ANGLE:

SIZE:

STYLE: | SHAPE:

EQUIPMENT No.:

REFERENCE BLOCKS

MAKE: KRAUTKRAMER

TYPE: IIW

MATERIAL: STEEL

EQUIPMENT No.:

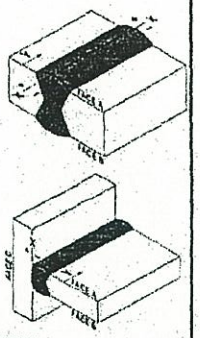
SENSITIVITY: 60% FSH

TRANSFER VALUE:

(FORM 0500 REV 2)

QAL

REPORT OF ULTRASONIC EXAMINATION OF WELDS
AS PER ANSI / AWS D1.1 2008
ULTRASONIC ACCEPTANCE-REJECTION CRITERIA FOR STATICALLY LOADED NONTUBULAR CONNECTIONS



JOB No.: 07-1299 REPORT No.: QAL-08-1633

PROJECT: Portland Jetport-Parking Garage

WELD IDENTIFICATION: 2nd Floor, F7, S Bottom WELDING PROCESS: SMAW - FCAW

MATERIAL THICKNESS: 1.000 QUALITY REQUIREMENTS-SECTION No.:

WELD JOINT AWS: TEE REMARKS:

INSPECTOR: Scott Dyer DATE: 10/10/2008

MINIMUM ACCEPTANCE LEVELS (DECIBELS)

DISCONTINUITY SEVERITY CLASS	WELD THICKNESS* IN INCHES AND MILLIMETERS AND SEARCH UNIT ANGLE											
	5/16" TO 3/4"	3/4" TO 1 1/2"	>1 1/2" TO 2 1/2"			>2 1/2" TO 4"			>4" TO 8"			
	8 TO 20	>20 TO 38	>38 TO 65			>65 TO 100			>100 TO 200			
	70°	70°	70°	60°	45°	70°	60°	45°	70°	60°	45°	
CLASS A	≤-5	≤+2	≤-2	≤-1	≤+3	≤-5	≤-2	≤0	≤-7	≤-4	≤-1	
CLASS B	+6	+3	-1 0	+2 +3	+4 +5	-4 -3	-1 0	+1 +2	-6 -5	-3 -2	0 +1	
CLASS C	+7	+4	+1 +2	+4 +5	+6 +7	-2 +2	+1 +2	+3 +4	-4 +2	-1 +2	+2 +3	
CLASS D	≥+8	≥+5	≥+3	≥+6	≥+8	≥+3	≥+3	≥+5	≥+3	≥+3	≥+4	

SCANNING LEVEL

SOUND PATH DISTANCE in. (mm)	≤ 2½" (65)	>2½" to 5" (65-125)	>5" to 10" (125-250)	>10" to 15" (250-380)
ABOVE ZERO REFERENCE (dB)	14	19	29	39

LINE NUMBER	INDICATION NUMBER	TRANSDUCER ANGLE	FROM FACE	LEG (HALF SKIP)	DECIBELS				DEFECT (mm)					DISCONTINUITY EVALUATION	REMARKS
					INDICATION LEVEL	REFERENCE LEVEL	ATTENUATION FACTOR	INDICATION RATING	LENGTH	ANGULAR DISTANCE (SOUND PATH)	DEPTH FROM "A" SURFACE	DISTANCE FROM X	DISTANCE FROM Y		
					a	b	c	d							
1	1	70	2.15	2	55	49	5.5	.576	3.0	2.20	.675	.125	4.5	Class B	
2															
3															
4															
5															
6															
7															

Notes:

1. Class B and C discontinuities shall be separated by at least 2L, L being the length of the longer discontinuity, except that when two or more such discontinuities are not separated by at least 2L, but the combined length of discontinuities and their separation distance is equal to or less than the maximum allowable length under the provisions of Class B or C, the discontinuity shall be considered a single acceptable discontinuity.
2. Class B and C discontinuities shall not begin at a distance less than 2L from weld ends carrying a primary tensile stress, L being the discontinuity length.
3. Discontinuities detected at "scanning level" in the root face area of complete joint penetration double groove weld joints shall be evaluated using an indicating rating of 4 dB more sensitive than described by dBa-b-c when such welds are designed as "tension welds" on the drawing (subtract 4 dB from the indication rating "d").
4. Electroslag or electrogas welds: discontinuities detected at "scanning level" which exceed 2" (50 mm) in length shall be suspected as being piping porosity and shall be further evaluated with radiography.
5. Indications that remain on the display as the search unit is moved may be indicative of planar discontinuities with significant through-thread dimension and shall be subjected to a more detailed evaluation by other means (e.g., alternate ultrasonic techniques, radiography, grinding or gouging for visual inspection, etc.).

* Weld Thickness shall be defined as the nominal thickness of the thinner of the two parts being joined.

CLASS A (Large Discontinuities) Any indication in this category shall be rejected, regardless of length.
CLASS B (Medium Discontinuities) Any indication in this category having a length greater than ¾" (20 mm) shall be rejected.
CLASS C (Small Discontinuities) Any indication in this category having a length greater than 2" (50mm) shall be rejected.
CLASS D (Minor Discontinuities) Any indication in this category shall be accepted, regardless of length or location in the weld.

(FORM 509 REV 2)

Quality Assurance Labs Inc.

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES

80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

ULTRASONIC INSPECTION REPORT

CUSTOMER: S.W. COLE Engineering

ATTENTION: Roger Domingo

PROJECT: Portland Jetport, Portland Maine

COMPONENT INSPECTED: Moment Connections

AREA OF INTEREST: Welded Area

COMPONENT LOCATION: Fourth Floor Parking Garage

CUSTOMER WORK ORDER No: | PART No.:

MATERIAL: CARBON STEEL | HEAT No.:

COMPONENT SURFACE CONDITION: AS WELDED

DATE OF INSPECTION: M 10 | D 15 | Y 08

REPORT No. QAL-08-1633

PAGE 1 OF 6

JOB No. 07-1299

P.O. No.

EXAMINATION DATA

Project Code/Spec AWS D1.1 2008

U.T. Procedure No. | U.T. Technique No.

RESULTS: AS NOTED | INDICATIONS: AS NOTED

REMARKS:

PERFORMED ULTRASONIC INSPECTION AT PORTLAND JETPORT PARKING GARAGE.
THE FOLLOWING MOMENT CONNECTIONS WERE FOUND ACCEPTABLE TO CODE AT TIME OF INSPECTION:

1) FOURTH FLOOR CONNECTIONS
   a) 4E.1 , E, W.
   b) 6E.1 .
   c) 4F ,NW, NE, SE, SW.
   d) 5F ,NW NE, SW, SE.
   e) 6F , N, S.
   g) 6G , N, S.

FAA REPAIR STATION NUMBER RX5R187N

METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCH(ES) ☑ SUPPLEMENTARY SHEET(S) ☐ VIDEO

SIGNATURES	CERTIFICATION	LEVEL	DATE M D Y
INSPECTOR Scott Dyer	ASNT	II	10 | 15 | 08
SUPERVISOR Sean Watson	ASNT	II	10 | 15 | 08
AUTHORIZED INSPECTOR			
CUSTOMER REPRESENTATIVE			

INSTRUMENT

MAKE: OLYMPUS

MODEL: EPOCH LTC

EQUIPMENT NO.: 34403

MATERIAL THICKNESS: 22.225 mm (0.875 in.)

SCREEN RANGE: 5"

COUPLANT: ECHOGEL

TRANSDUCERS

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 70°

SIZE: 0.625 in. x 0.625 in.

STYLE: DUAL | SHAPE: SQUARE

EQUIPMENT No.:

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 0°

SIZE: 25.4 mm (1.000 in.)

STYLE: DUAL | SHAPE: ROUND

EQUIPMENT No.:

MAKE:

FREQ.: | ANGLE:

SIZE:

STYLE: | SHAPE:

EQUIPMENT No.:

REFERENCE BLOCKS

MAKE: KRAUTKRAMER

TYPE: IIW

MATERIAL: STEEL

EQUIPMENT No.:

SENSITIVITY: 60% FSH

TRANSFER VALUE:

(FORM 0500 REV 2)

Quality Assurance Labs Inc.
NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES
80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

ULTRASONIC INSPECTION REPORT

CUSTOMER: S.W. COLE Engineering

ATTENTION: Roger Domingo

PROJECT: Portland Jetport, Portland Maine

COMPONENT INSPECTED: Moment Connections

AREA OF INTEREST: Welded Area

COMPONENT LOCATION: Third Floor Parking Garage

CUSTOMER WORK ORDER No: | PART No.:

MATERIAL: CARBON STEEL | HEAT No.:

COMPONENT SURFACE CONDITION: AS WELDED

EXAMINATION DATA

Project Code/Spec: AWS D1.1 2008

U.T. Procedure No.: | U.T. Technique No.:

RESULTS: AS NOTED | INDICATIONS: AS NOTED

REMARKS:

PERFORMED ULTRASONIC INSPECTION AT PORTLAND JETPORT PARKING GARAGE.
THE FOLLOWING MOMENT CONNECTIONS WERE FOUND ACCEPTABLE TO CODE AT TIME OF INSPECTION:

1) THIRD FLOOR CONNECTIONS
   a) 4E.1 , E, W.
   b) 5E.1 , E, W.
   c) 6E.1.
   d) 4F , NW, SW, SE.
   e) 5F , NE, NW, SW, SE.
   g) 6F , N, S.
   h) 4G , NE, SE.
   i) 5G , NE, NW, SW.
   J) 6G , N,S.

THE FOLLOWING ATTACHMENTS WERE FOUND UNACCEPTABLE AT TIME OF INSPECTION:
1) Third FLOOR CONNECTIONS:
   a) 4G, SW Bottom.
   b) 5G, SE Top.
   c) 6E.1, Top.
   d) 6E.1, Bottom.

NOTE: SEE ATTACHED SUPPLEMENTS FOR FLAW SIZE CRITERIA (2 PAGES)
NOTE: Reject the following due to slag and lack of fusion in the reinforcement weld.
   a) 4G, NW Top.
   b) 4F, NE Top.

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S)MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: ☐ SKETCH(ES) ☑ SUPPLEMENTARY SHEET(S) ☐ VIDEO

SIGNATURES	CERTIFICATION	LEVEL	DATE M	D	Y
INSPECTOR Scott Dyer	ASNT	II	10	15	08
SUPERVISOR Sean Watson	ASNT	II	10	15	08
AUTHORIZED INSPECTOR					
CUSTOMER REPRESENTATIVE					

DATE OF INSPECTION: M 10 | D 15 | Y 08

REPORT No.: QAL-08-1633

PAGE 2 OF 6

JOB No.: 07-1299

P.O. No.:

INSTRUMENT

MAKE: OLYMPUS

MODEL: EPOCH LTC

EQUIPMENT NO.: 34403

MATERIAL THICKNESS: 22.225 mm (0.875 in.)

SCREEN RANGE: 5"

COUPLANT: ECHOGEL

TRANSDUCERS

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 70°

SIZE: 0.625 in. x 0.625 in.

STYLE: DUAL | SHAPE: SQUARE

EQUIPMENT No.:

MAKE: PANAMETRICS

FREQ.: 2.25 MHz | ANGLE: 0°

SIZE: 25.4 mm (1.000 in.)

STYLE: DUAL | SHAPE: ROUND

EQUIPMENT No.:

MAKE:

FREQ.: | ANGLE:

SIZE:

STYLE: | SHAPE:

EQUIPMENT No.:

REFERENCE BLOCKS

MAKE: KRAUTKRAMER

TYPE: IIW

MATERIAL: STEEL

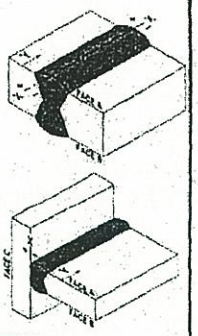
EQUIPMENT No.:

SENSITIVITY: 60% FSH

TRANSFER VALUE:

QAL

REPORT OF ULTRASONIC EXAMINATION OF WELDS
AS PER ANSI / AWS D1.1 2008
ULTRASONIC ACCEPTANCE-REJECTION CRITERIA FOR STATICALLY LOADED NONTUBULAR CONNECTIONS



JOB No.: 07-1299 REPORT No.: QAL-08-1633

PROJECT: Portland Jetport-Parking Garage

WELD IDENTIFICATION: 3rd Floor, E.1-6 Bottom WELDING PROCESS: SMAW - FCAW

MATERIAL THICKNESS: .625 QUALITY REQUIREMENTS-SECTION No.:

WELD JOINT AWS: TEE REMARKS:

INSPECTOR: Scott Dyer DATE: 10/15/2008

MINIMUM ACCEPTANCE LEVELS (DECIBELS)

DISCONTINUITY SEVERITY CLASS	WELD THICKNESS* IN INCHES AND MILLIMETERS AND SEARCH UNIT ANGLE										
	5/16" TO 3/4"	3/4" TO 1 1/2"	>1 1/2" TO 2 1/2"			>2 1/2" TO 4"			>4" TO 8"		
	8 TO 20	>20 TO 38	>38 TO 65			>65 TO 100			>100 TO 200		
	70°	70°	70°	60°	45°	70°	60°	45°	70°	60°	45°
CLASS A	≤+5	≤+2	≤-2	≤+1	≤+3	≤-5	≤-2	≤0	≤-7	≤-4	≤-1
CLASS B	+6	-3	-1 0	+2 +3	+4 +5	-4 -3	-1 0	+1 +2	-6 -5	-3 -2	0 +1
CLASS C	+7	+4	+1 +2	+4 +5	+6 +7	-2 +2	+1 +2	+3 +4	-4 +2	-1 +2	+2 +3
CLASS D	≥+8	≥+5	≥+3	≥+6	≥+8	≥+3	≥+3	≥+5	≥+3	≥+3	≥+4

SCANNING LEVEL

SOUND PATH DISTANCE in. (mm)	≤ 2½" (65)	>2½" to 5" (65-125)	>5" to 10" (125-250)	>10" to 15" (250-380)
ABOVE ZERO REFERENCE (dB)	14	19	29	39

LINE NUMBER	INDICATION NUMBER	TRANSDUCER ANGLE	FROM FACE	LEG (HALF SKIP)	DECIBELS				DEFECT (mm)					DISCONTINUITY EVALUATION	REMARKS
					INDICATION LEVEL	REFERENCE LEVEL	ATTENUATION FACTOR	INDICATION RATING	LENGTH	ANGULAR DISTANCE (SOUND PATH)	DEPTH FROM "A" SURFACE	DISTANCE FROM X	DISTANCE FROM Y		
					a	b	c	d							
1	1	70	1.7	1	68.9	64	1	3.9	1.5"	2.0	.55	0	5.5	Class A	
2															
3															
4															
5															
6															
7															

Notes:
1. Class B and C discontinuities shall be separated by at least 2L, L being the length of the longer discontinuity, except that when two or more such discontinuities are not separated by at least 2L, but the combined length of discontinuities and their separation distance is equal to or less than the maximum allowable length under the provisions of Class B or C, the discontinuity shall be considered a single acceptable discontinuity.
2. Class B and C discontinuities shall not begin at a distance less than 2L from weld ends carrying a primary tensile stress, L being the discontinuity length.
3. Discontinuities detected at "scanning level" in the root face area of complete joint penetration double groove weld joints shall be evaluated using an indicating rating of 4 dB more sensitive than described by d=a-b-c when such welds are designed as "tension welds" on the drawing (subtract 4 dB from the indication rating "d").
4. Electroslag or electrogas welds: discontinuities detected at "scanning level" which exceed 2" (50 mm) in length shall be suspected as being piping porosity and shall be further evaluated with radiography.
5. Indications that remain on the display as the search unit is moved may be indicative of planar discontinuities with significant through-thickness dimension and shall be subjected to a more detailed evaluation by other means (e.g., alternate ultrasonic techniques, radiography, grinding or gouging for visual inspection, etc.).

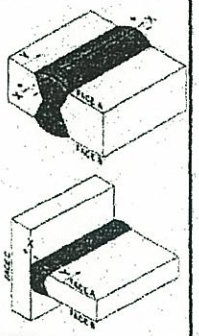
* Weld Thickness shall be defined as the nominal thickness of the thinner of the two parts being joined.

CLASS A (Large Discontinuities) Any indication in this category shall be rejected, regardless of length.
CLASS B (Medium Discontinuities) Any indication in this category having a length greater than ¾" (20 mm) shall be rejected.
CLASS C (Small Discontinuities) Any indication in this category having a length greater than 2" (50mm) shall be rejected.
CLASS D (Minor Discontinuities) Any indication in this category shall be accepted, regardless of length or location in the weld.

(FORM 509 REV 2)

QAL

REPORT OF ULTRASONIC EXAMINATION OF WELDS
AS PER ANSI / AWS D1.1 2008
ULTRASONIC ACCEPTANCE-REJECTION CRITERIA FOR STATICALLY LOADED NONTUBULAR CONNECTIONS



JOB No.: 07-1299 REPORT No.: QAL-08-1633

PROJECT: Portland Jetport-Parking Garage

WELD IDENTIFICATION: 3rd Floor, E.1-6 Top WELDING PROCESS: SMAW - FCAW

MATERIAL THICKNESS: .625 QUALITY REQUIREMENTS-SECTION No.:

WELD JOINT AWS: TEE REMARKS:

INSPECTOR: Scott Dyer DATE: 10/15/2008

MINIMUM ACCEPTANCE LEVELS (DECIBELS)

DISCONTINUITY SEVERITY CLASS	WELD THICKNESS* IN INCHES AND MILLIMETERS AND SEARCH UNIT ANGLE										
	5/16" TO 3/4"	3/4" TO 1 1/2"	>1 1/2" TO 2 1/2"			>2 1/2" TO 4"			>4" TO 8"		
	8 TO 20	>20 TO 38	>38 TO 65			>65 TO 100			>100 TO 200		
	70°	70°	70°	60°	45°	70°	60°	45°	70°	60°	45°
CLASS A	≤+5	≤+2	≤-2	≤+1	≤+3	≤-5	≤-2	≤0	≤-7	≤-4	≤-1
CLASS B	+6	+3	-1 to 0	+2 to +3	+4 to +5	-4 to -3	-1 to 0	+1 to +2	-6 to -5	-3 to -2	0 to +1
CLASS C	+7	+4	+1 to +2	+4 to +5	+6 to +7	-2 to +2	+1 to +2	+3 to +4	-4 to +2	-1 to +2	+2 to +3
CLASS D	≥+8	≥+5	≥+3	≥+6	≥+8	≥+3	≥+3	≥+5	≥+3	≥+3	≥+4

SCANNING LEVEL

SOUND PATH DISTANCE in. (mm)	≤ 2½" (65)	>2½" to 5" (65-125)	>5" to 10" (125-250)	>10" to 15" (250-380)
ABOVE ZERO REFERENCE (dB)	14	19	29	39

LINE NUMBER	INDICATION NUMBER	TRANSDUCER ANGLE	FROM FACE	LEG (HALF SKIP)	DECIBELS				DEFECT (mm)					DISCONTINUITY EVALUATION	REMARKS
					INDICATION LEVEL	REFERENCE LEVEL	ATTENUATION FACTOR	INDICATION RATING	LENGTH	ANGULAR DISTANCE (SOUND PATH)	DEPTH FROM "A" SURFACE	DISTANCE FROM X	DISTANCE FROM Y		
					a	b	c	d							
1	1	70	1.8	1	70	64.2	1.7	3.0	2"	1.7	.550	0	8.5	Class A	
2															
3															
4															
5															
6															
7															

Notes:
1. Class B and C discontinuities shall be separated by at least 2L, L being the length of the longer discontinuity, except that when two or more such discontinuities are not separated by at least 2L, but the combined length of discontinuities and their separation distance is equal to or less than the maximum allowable length under the provisions of Class B or C, the discontinuity shall be considered a single acceptable discontinuity.
2. Class B and C discontinuities shall not begin at a distance less than 2L from weld ends carrying a primary tensile stress, L being the discontinuity length.
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4. Electroslag or electrogas welds: discontinuities detected at "scanning level" which exceed 2" (50 mm) in length shall be suspected as being piping porosity and shall be further evaluated with radiography.
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(FORM 509 REV 2)

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REPORT OF ULTRASONIC EXAMINATION OF WELDS
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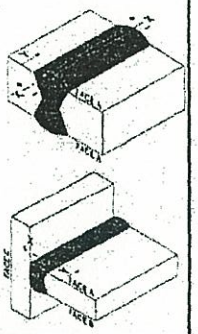

JOB No.: 07-1299 REPORT No.: QAL-08-1633

PROJECT: Portland Jetport-Parking Garage

WELD IDENTIFICATION: 3rd Floor, G5 SE Top WELDING PROCESS: SMAW - FCAW

MATERIAL THICKNESS: .625 QUALITY REQUIREMENTS-SECTION No.:

WELD JOINT AWS: TEE REMARKS:

INSPECTOR: Scott Dyer DATE: 10/15/2008

MINIMUM ACCEPTANCE LEVELS (DECIBELS)

DISCONTINUITY SEVERITY CLASS	WELD THICKNESS* IN INCHES AND MILLIMETERS AND SEARCH UNIT ANGLE										
	5/16" TO 3/4"	3/4" TO 1 1/2"	>1 1/2" TO 2 1/2"			>2 1/2" TO 4"			>4" TO 8"		
	8 TO 20	>20 TO 38	>38 TO 65			>65 TO 100			>100 TO 200		
	70°	70°	70°	60°	45°	70°	60°	45°	70°	60°	45°
CLASS A	≤+5	≤+2	≤-2	≤+1	≤+3	≤-5	≤-2	≤0	≤-7	≤-4	≤-1
CLASS B	+6	+3	+1 0	+2 -3	+4 +5	-4 -3	-1 0	+1 +2	-6 -5	-3 -2	0 +1
CLASS C	+7	+4	+1 +2	+4 +5	+6 +7	-2 +2	+1 +2	+3 +4	-4 +2	-1 +2	+2 +3
CLASS D	≥+8	≥+5	≥+3	≥+6	≥+8	≥+3	≥+3	≥+5	≥+3	≥+3	≥+4

SCANNING LEVEL

SOUND PATH DISTANCE in. (mm)	≤ 2½" (65)	>2½" to 5" (65-125)	>5" to 10" (125-250)	>10" to 15" (250-380)
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LINE NUMBER	INDICATION NUMBER	TRANSDUCER ANGLE	FROM FACE	LEG (HALF SKIP)	DECIBELS				DEFECT (mm)					DISCONTINUITY EVALUATION	REMARKS
					INDICATION LEVEL	REFERENCE LEVEL	ATTENUATION FACTOR	INDICATION RATING	LENGTH	ANGULAR DISTANCE (SOUND PATH)	DEPTH FROM "A" SURFACE	DISTANCE FROM X	DISTANCE FROM Y		
					a	b	c	d							
1	1	70	1.7	1	70.4	64	.85	5.55	1.5"	1.8	.59	0	3	Class B	
2															
3															
4															
5															
6															
7															

Notes:

1. Class B and C discontinuities shall be separated by at least 2L, L being the length of the longer discontinuity, except that when two or more such discontinuities are not separated by at least 2L, but the combined length of discontinuities and their separation distance is equal to or less than the maximum allowable length under the provisions of Class B or C, the discontinuity shall be considered a single acceptable discontinuity.
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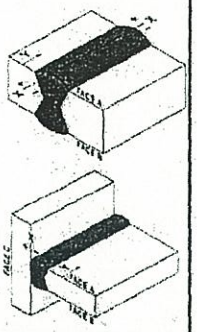
(FORM 509 REV 2)

QAL

REPORT OF ULTRASONIC EXAMINATION OF WELDS
AS PER ANSI / AWS D1.1 2008
ULTRASONIC ACCEPTANCE-REJECTION CRITERIA FOR STATICALLY LOADED NONTUBULAR CONNECTIONS



JOB No.: 07-1299 REPORT No.: QAL-08-1633

PROJECT: Portland Jetport-Parking Garage

WELD IDENTIFICATION: 3rd Floor, G4 SW Bottom WELDING PROCESS: SMAW - FCAW

MATERIAL THICKNESS: .625 QUALITY REQUIREMENTS-SECTION No.:

WELD JOINT AWS: TEE REMARKS:

INSPECTOR: Scott Dyer DATE: 10/15/2008

MINIMUM ACCEPTANCE LEVELS (DECIBELS)

DISCONTINUITY SEVERITY CLASS	WELD THICKNESS* IN INCHES AND MILLIMETERS AND SEARCH UNIT ANGLE										
	5/16" TO 3/4"	3/4" TO 1 1/2"	>1 1/2" TO 2 1/2"			>2 1/2" TO 4"			>4" TO 8"		
	8 TO 20	>20 TO 38	>38 TO 65			>65 TO 100			>100 TO 200		
	70°	70°	70°	60°	45°	70°	60°	45°	70°	60°	45°
CLASS A	≤+6	≤+2	≤-2	≤+1	≤+3	≤-5	≤-2	≤0	≤-7	≤-4	≤-1
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CLASS C	+7	+4	+1 +2	+4 +5	+6 +7	-2 +2	+1 +2	+3 +4	-4 +2	-1 +2	+2 +3
CLASS D	≥+8	≥+5	≥+3	≥+6	≥+8	≥+3	≥+3	≥+5	≥+3	≥+3	≥+4

SCANNING LEVEL

SOUND PATH DISTANCE in. (mm)	≤ 2½" (65)	>2½" to 5" (65-125)	>5" to 10" (125-250)	>10" to 15" (250-380)
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LINE NUMBER	INDICATION NUMBER	TRANSDUCER ANGLE	FROM FACE	LEG (HALF SKIP)	DECIBELS				DEFECT (mm)					DISCONTINUITY EVALUATION	REMARKS
					INDICATION LEVEL	REFERENCE LEVEL	ATTENUATION FACTOR	INDICATION RATING	LENGTH	ANGULAR DISTANCE (SOUND PATH)	DEPTH FROM "A" SURFACE	DISTANCE			
					a	b	c	d				FROM X	FROM Y		
1	1	70	2.7	2	56	50	1.5	4.5	4.5"	3.0	.234	-0.5	9	Class A	
2															
3															
4															
5															
6															
7															

Notes:
1. Class B and C discontinuities shall be separated by at least 2L, L being the length of the longer discontinuity, except that when two or more such discontinuities are not separated by at least 2L, but the combined length of discontinuities and their separation distance is equal to or less than the maximum allowable length under the provisions of Class B or C, the discontinuity shall be considered a single acceptable discontinuity.
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(FORM 509 REV 2)

American Institute of Steel Construction

is proud to recognize

Megquier & Jones, Inc.

South Portland, ME

for successfully meeting the quality certification requirements for

Standard for Steel Building Structures, Simple Steel Bridges and Major Steel Bridges

Sophisticated Paint Coating Endorsement-Covered

Roger E. Ferch

Certification valid through August 2009

American Aerial Services, Inc.
Steel Erection & Crane Rental

33 Allen Avenue Extension
Falmouth, Maine 04105
Telephone: (207) 797-8987 Fax: (207) 797-0479

Thursday, September 25, 2008

Clint Gendreau
Ledgewood Inc.
27 Main Street
South Portland, ME 04106

Subject: Jetport Garage Project - Welders' Certifications/Qualifications

Dear Clint:

Please consider this document as evidence and certification that the welders currently being employed on the Jetport project are qualified per AWS and they have continued to weld in their qualified process without a break exceeding six months.

This continuity of welding is supported by documentation such as payroll records and or invoices from the employed subcontractors. Therefore, AASI has met Section 4 of AWS D1.1 2006 Edition.

Respectfully,

James Read
President
American Aerial Services, Inc.

AMERICAN STEEL & PRECAST ERECTORS
WELDER QUALIFICATION RECORD

WELDER: Wayde Strickland **TEST PLATE:** 116 **TEST DATE:** 3-12-05

APPLICABLE SPEC.: AWS D1.6-99, Sect. 4, Part C **FIG:** 4.15

WELD TYPE: Groove **THICKNESS:** 3/8:" **POSITION:** 1G

MATERIAL: ASTM A304L **YIELD:** 36 ksi **PREHEAT:** None

PROCESS: SMAW **TYPE:** Manual

CURRENT: DCEP **JOINT PREP.:** Ground

ELECTRODE: E308L-16 **FLUX:** N/A

AWS SPEC.: A5.2 **# OF ELECTRODES:** 5

WIRE STICKOUT: N/A **TRAVEL SPEED:** 5-7 ipm **# OF PASSES:** 5

PASS # 1-5 ELECT. DIA.: 5/32" **CURRENT:** 140 **VOLTS:** 22

We certify that the statements in this record are correct and that the test weld was prepared and welded in accordance with the requirements.

Signature of Welder: Wayde Strickland

Social Security Number: [redacted]7040

Signature of Test Supervisor: David A Webb

Treatment of Weld Reinforcement: Ground

Method of Testing: Face & Root Bends

Defects: None

Pass / Fail: Pass

The above named welder is qualified to do welding for positions of welding in accordance with Table 4.3, & 4.4 of AWS D1.6-99, Structural Welding Code – Stainless Steel.

Signature of Tester: David A Webb

American Steel Erectors

AWS QC 1 DAVID A. WEBB 96050041 CWI

COPY

Green & White Mountains Section

American Welding Society

COPY

WELD QUALIFICATION TEST REPORT

REPORT OF WELDER QUALIFICATION

DATE: 8/27/83

CODE NO. AWS D1.1

TEST NO. AWS 5.19A

Operator: Wayde Strickland

Process: S.M.A.W.

Power Source: Hobart M300 M.G.

Nature of Current: DC

Type of Test: AWS 5.19A

Base Material: A.36

Edge Preparation: Sawed

Ambient Temperature: 75

Amps: 120

Electrode: Airco E-7018 MR

Flux:

Type of Specimen: AWS 5.10.1.3J

Welded: 8/27/83

Witnessed By: L. Perry

Results: Root accepted — Face accepted

Identification No.: 83112

Laboratory No.: 83112

Speed of Travel: 4 I.P.M.

Polarity: Reverse

Position: 3G vertical

Plate Thickness: 3/8"

Cleaning: Grinder & Brush

Preheat: none

Volts: 21

Diameter: 1/8"

Layers Required: 3

Interpass Temperature:

Tested: 9/16/83

Robert E. James, CWI #77111071

Robert E. James

Final Inspector

SEP 20 1983

WELDER, WELDING OPERATOR OR TACK WELDER QUALIFICATION TEST RECORD

Type of Welder Welder
Name Wayde Strickland
Welding Procedure Specification No. _____ Rev _____ Identification No. _____ Date _____

Variables	Record Actual Values Used in Qualification	Qualification Range
Process/Type (5.16.2)	Smaw	Smaw
Electrode (single or multiple)	Single	
Current/Polarity	DC Reversed	
Position (5.16.5)	Overhead	1G,4G
Weld Progression (5.16.7)	N/A	N/A
Backing (YES or NO) (5.16.18)	Yes	With
Material/Spec. (5.16.1) Base Metal	A-36 to A-36	
Thickness: (Plate) Groove	.375"	.750" Max
Fillet	N/A	Unlimited
Thickness: (Pipe/tube) Groove	N/A	.750" Max
Fillet	N/A	Unlimited
Diameter: (Pipe) Groove	N/A	Over 24" O.D
Fillet	N/A	Unlimited
Filler Metal (5.16.3) Spec. No.	SFA 5.1+5.5	
Class	E7018	
F-No.	4	
Gas/Flux Type (5.16.4)	N/A	4,3,2,1
Other	N/A	N/A

VISUAL INSPECTION (5.12.6 OR 5.12.7)
Acceptable YES or NO Yes

Guided Bend Test Results (5.28.1/5.29.1)

Type	Result	Type	Result

Fillet Test Results (5.28.2/5.28.3; 5.38.3/5.39.4)
Appearance _____
Fracture Test Root Penetration _____ Fillet Size _____
Macroetch _____
(Describe the location, nature, and size of any crack or tearing of the specimen.)

Inspected by _____
Organization _____ Test Number _____
Date _____

RADIOGRAPHIC TEST RESULTS (5.28.4/5.39.2)

Film Identification Number	Results	Remarks	Film Identification Number	Results	Remarks
W.S	Acceptable				

Interpreted by _____
Organization Conam/AGTL Test Number 80653
Date 12-13-93

We the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section 5, Part C or D of ANSI/AWS D1.1, (1992 year) Structural Welding Code - Steel

Manufacturer or Contractor American Steel Fabricators inc.
Authorized By _____
Date _____

AMERICAN STEEL RECEIVED
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WELD QUALITY CONSULTING
WELDER PERFORMANCE QUALIFICATION TEST RECORD

Name WAYDE STRICKLAND Social Security # [redacted]-7040

Welder X Operator

Qualified with WPS AM-ST-41

Test AWS D1.1-94 Unlimited Thickness Plate 3G Position

Process FCAW Manual Semi-Automatic X Automatic Machine

Test base metal specification A36 to A36

Shielding Gas NONE Flow Rate NA

AWS filler metal classification E71T11 A5.20 Size 5/64"

Backing X
Double Welded Single Welded X
Current DCSP

Consumable Insert
Back Purging
GMAW Spray Transfer

Test results
Visual test results Pass X Fail
Bend test results Pass X Fail NA
Radiographic test results Pass Fail NA X

Process Qualified for FCAW
Filler metals Qualified for:
All wires covered in AWS A5.20 and A5.29

COPY

Position (s) Qualified for:
Groove:
Plate 1G,2G, and 3G Unlimited Thickness
Pipe 1G,2G, and 3G over 24" dia. Unlimited Wall Thickness
Fillet:
Plate 1F,2F and 3F Unlimited Thickness
Pipe 1F,2F and 3F Unlimited Wall Thickness

The above named person is qualified for the welding process used in this test within the limits of essential variables shown above, including materials and filler metal variables of the AWS Standard for welder certification and the D1.1-94 Structural Welding Code or Standard. I hereby certify that I was not involved in the training of the above named individual as a welder:

Date Tested 6/17/95 Signed by Jack E Paige CWI
(Test Supervisor)

AWS QC 1 JACK E. PAIGE 83100251 CWI

AWS CWI # 83100251

Signed by Raymond McCulley
(Corp. Representative)

PRESIDENT
(Title)

Ryan T Merrill

#	Test Date	Sup	Code	Process	Gas	Filler Metal	Base Metal	Position	Thickness	Expires
1	11/25/03	G	D1.5	FCAW	75/25	E71T-1	P1	A	L	09/06/08
2	05/09/05	G	D1.1	SMAW	N/A	E7018	A36	ALL	UNLIMITED	09/06/08

[redacted]

Ryan T Merrill

Cert # **9911018W** SSN # **XXX-XX-5333**

[redacted]

AMERICAN WELDING SOCIETY

VALID ONLY IF ACCOMPANIED BY PHOTO ID

This Card is the property of AWS and shall be returned on demand.

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Ledgewood Construction
27 Main Street
South Portland, ME 04106
Ph : (207)767-1866
Fax: (207)767-1869

Submittal Cover Sheet

Job: 08574
PWM Phase 2 Parking Garage
Portland International Jetport
1001 Westbrook Street
Portland, ME 04102

Spec Section No: 05120
Submittal No: 14
Revision No: 0
Sent Date: 7/30/2008

Spec Section Title:

Submittal Title: STRUCTURAL STEEL - Welding Certifications

Contractor:
Ledgewood Construction
Clint Gendreau

Contractor's Stamp

Reviewed for general acceptance and compliance with contract documents. The subcontractor is responsible for all dimensions, correct fabrication and accurate fit with the work of other trades.

Ledgewood

By BSE Date 7/30/08

Submittal Number

Engineer:
Becker Structural Engineering
Todd Neal
08574

Architect's Stamp

Engineer's Stamp

American Aerial Services, Inc.
Steel Erection & Crane Rental

33 Allen Avenue Extension
Falmouth, Maine 04105
Telephone: (207) 797-8987 Fax: (207) 797-0479

FAX

To: **Ledgewood Inc.**
Clint Gendreau
Phone: **207-767-1866**
Fax: **207-767-1869**

From: Dave Sirois
Pages: 25
Date: 7/24/08

Subject: Welding Certs

Dear Clint:

Here ya go. Any word on the steel on E line?

Respectfully,

David Sirois

Ph: 207-797-8987 ext 2
Fx: 207-797-0479

AWS QC-3

PERFORMANCE QUALIFICATION TEST RECORD

Eye correction required Yes ☐ No ☐ Type of Eye Correction: Eye glasses ☐ Contact lenses ☐ Magnifiers ☐

Name BERRY, SCOTT A. Social Security # [redacted]

Welder ■ Operator ☐

Qualified with AWS WPS No. 1-QC-W1 Supplement No. G Test No. D1-SM-F4-P-A-U

Process(es) SMAW Manual ■ Semi-Automatic ☐ Automatic ☐ Machine ☐

Test base metal specification SA 36 To SA 36

Material number (M or P Number) P1 To P1

Shielding Gas NA Flow Rate NA

AWS Filler metal classification E7018 F no 4 Size 1/8" & 5/32"

Backing Yes ■ No ☐ Consumable Insert Yes ☐ No ■

Double Welded ☐ or Single Welded ■ Short Circuiting arc (GMAW) Yes ☐ No ■

Current AC ☐ DC ■ Back Purging Yes ☐ No ■

Test results

Visual test results Pass ■ Fail ☐ Radiographic test results NA ■ Pass ☐ Fail ☐

Bend test results NA ☐ Pass ■ Fail ☐

PROCESS(es) QUALIFIED FOR SMAW

POSITION(S) QUALIFIED FOR:

Groove:

Pipe 1G ■ 2G ■ 5G ■ 6G ■ 6GR ☐ (T)Min 1/8" Max * Diameter 24" Range 24" and greater

Plate 1G ■ 2G ■ 3G ■ 4G ■ (T)Min 1/8" Max Unlimited

Consumable Insert ☐ Backing type ■

* Unlimited

Fillet:

Pipe 1F ■ 2F ■ 4F ■ 5F ■ (T)Min 1/8" Max Unlimited

Plate 1F ■ 2F ■ 3F ■ 4F ■ (T)Min 1/8" Max Unlimited

Vertical Up ■ Down ☐ Weld Deposit Min 1/8" Max Unlimited

Single Side ■ Double Side ☐

The above named person qualified for the welding process(es) used in this test within the limits of essential variables shown above, including materials and filler metal variables of the AWS Standard for welder certification and ANSI/AWS D1.1 Code or Standard. I hereby certify that I was not involved in the training of the above named individual as a welder:

Date Tested 1/29/98 Signed by Thomas E. Giles
Test Supervisor

AWS CWI No. 88070281

Signed by Thomas E. Giles
Corporate Representative

Director - Welding Test Center, Eastern Maine Technical College
Title

Form QC-WF1– Performance Qualification Test Record

Welder Performance Qualification Record
AWS D1.1 Structural Welding Code - Steel

Welder's Name **Bill Britting** ID Number _____

Company **American Aerial**

TEST DESCRIPTION

WPS Number **AA - 001** Test Coupon **XXX** Production Weld _____

Material Specification, Type or Grade **A36 >3/4"** to Material Specification, Type or Grade **A36 > 3/4"**

Test Thickness **1" Groove**

Thickness Qualified Plate **Groove: 1/8" - Unlimited** **Fillets: Unlimited**

Thickness Qualified Pipe

Groove 1/8 - unlimited on pipe equal to or greater than 24" diameter

Fillets: Unlimited

TESTING CONDITIONS AND QUALIFICATION LIMITS

Welding Variables	Actual Values	Range Qualified
Welding Process(es)	SMAW	SMAW
Type (Manual, Semi, Auto)	Manual	Manual
Backing	A36 1/4" x 1-1/2"	Backing required
Material Group Number	Two	Group One and Group Two
Filler Metal AWS Specifications	A5.1	
Filler Metal Classification	E7018 MR	
Filler Metal F Numbers	F4	F1, F2, F3, F4
Position	3G and 4G	All Positions
Vertical Progression (up or down)	Up	Up Only
Inert Gas Backing		
Transfer Mode (GMAW)		
Current / Polarity	115 - 120 amps DC+	

RESULTS

Visual Examination of Completed Weld **Passed** Date **12/18/07**

Bend Test Results: Side Bend **Passed** Side Bend **Passed** Date **12/18/07**

Test conducted by:

Warren G. Swan, Jr. New England School of Metalwork

We certify that the statements in this record are correct and that the test welds were prepared and welded in conformance with the **2006 AWS D1.1** welding code and the above noted Welding Procedure Specification.

Name: **Warren G. Swan, Jr.**

Affiliation **New England School of Metalwork**

Address **7 Albiston Way Auburn, ME 04210**

WARREN SWAN
CWI 04050361
QC1 EXP. 5/01/10

Annex E/305

WELDER, WELDING OPERATOR OR TACK WELDER QUALIFICATION TEST RECORD

Type of Welder WELDER
Name BILL BRITTINGE Identification No.
Welding Procedure Specification No. AA-001 Rev Date 12/18/07

Variables	Record Actual Values Used In Qualification	Qualification Range
Process/Type [Table 4.10, Item (1)]	SMAW	SMAW ONLY
Electrode (single or multiple) [Table 4.10, Item (8)]	SINGLE	
Current/Polarity	DC+	
Position [Table 4.10, Item (4)]	3G + 4G	ALL POSITIONS
Weld Progression [Table 4.10, Item (6)]	VERTICAL UP	VERTICAL UP ONLY
Backing (YES or NO) [Table 4.10, Item (7)]	YES	
Material/Spec.	A36 to A36	
Base Metal		
Thickness: (Plate)	1" GROOVE	1/8" - UNLIMITED
Groove		
Fillet		
Thickness: (Pipe/tube)		
Groove		
Fillet		
Diameter: (Pipe)		
Groove		
Fillet		
Filler Metal [Table 4.10, Item (3)]		
Spec. No.	A5.1	
Class	E7018	
F-No. [Table 4.10, Item (2)]	F4	F1 - F4
Gas/Flux Type [Table 4.10, Item (3)]		
Other		

VISUAL INSPECTION (4.8.1)
Acceptable YES or NO YES 12/18/07

Guided Bend Test Results (4.30.5)

Type	Result	Type	Result
SIDE BEND 3G	ACCEPTABLE	SIDE BEND 4G	ACCEPTABLE
SIDE BEND 3G	ACCEPTABLE	SIDE BEND 4G	ACCEPTABLE

Fillet Test Results (4.30.2.3 and 4.30.4.1)
Appearance Fillet Size
Fracture Test Root Penetration Macroetch
(Describe the location, nature, and size of any crack or tearing of the specimen.)

Inspected by WARREN G. SWAN JR Test Number AA-1
Organization NEW ENGLAND SCHOOL OF METALWORK Date 12/18/07

RADIOGRAPHIC TEST RESULTS (4.30.3.1)

Film Identification Number	Results	Remarks	Film Identification Number	Results	Remarks

Interpreted by Test Number
Organization Date

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of section 4 of ANSI/AWS D1.1, (2006) (year) Structural Welding Code—Steel.

Manufacturer or Contractor Authorized By
Form E-4 Date

WARREN SWAN
CWI 04050361
QC1 EXP. 5/01/10

298/Annex E

WELDING PROCEDURE SPECIFICATION (WPS) Yes ☒
PREQUALIFIED YES **QUALIFIED BY TESTING** ____
or PROCEDURE QUALIFICATION RECORDS (PQR) Yes ☐

Identification # AA-001
Revision ____ Date 12/18/07 By W. SWAN
Authorized by ____ Date ____
Type—Manual ☒ Semi-Automatic ☐
Machine ☐ Automatic ☐

Company Name AMERICAN AEMAC
Welding Process(es) SMAW
Supporting PQR No.(s) PREQUALIFIED

JOINT DESIGN USED
Type: BUTT
Single ☒ Double Weld ☐
Backing: Yes ☒ No ☐
Backing Material: A36
Root Opening 1/4" Root Face Dimension ____
Groove Angle: 45° Radius (J-U) ____
Back Gouging: Yes ☐ No ☒ Method ____

POSITION
Position of Groove: 3G + 4G Fillet: ____
Vertical Progression: Up ☒ Down ☐

ELECTRICAL CHARACTERISTICS
Transfer Mode (GMAW) Short-Circuiting ☐ Globular ☐ Spray ☐
Current: AC ☐ DCEP ☒ DCEN ☐ Pulsed ☐
Other ____
Tungsten Electrode (GTAW)
Size: ____
Type: ____

BASE METALS
Material Spec. A36
Type or Grade > 3/4"
Thickness: Groove 1" Fillet ____
Diameter (Pipe) ____

TECHNIQUE
Stringer or Weave Bead: STRINGER
Multi-pass or Single Pass (per side) MULTI-PASS
Number of Electrodes SINGLE
Electrode Spacing Longitudinal ____ Lateral ____ Angle ____

FILLER METALS
AWS Specification A5.1
AWS Classification E7018

SHIELDING
Flux ____ Gas ____
Composition ____
Electrode-Flux (Class) ____ Flow Rate ____
Gas Cup Size ____

Contact Tube to Work Distance ____
Peening ____
Interpass Cleaning: CHIPPING GRINDING, BRUSHING

PREHEAT
Preheat Temp., Min AMBIENT
Interpass Temp., Min ____ Max ____

POSTWELD HEAT TREATMENT
Temp. ____
Time ____

WELDING PROCEDURE

Pass or Weld Layer(s)	Process	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class	Diam.	Type & Polarity	Amps or Wire Feed Speed			
12-14	SMAW	E7018	1/8"	DC+	115-120	21-22	6"/min	B-U2A AWS JOINT DESIGNATION

WARREN SWAN
CWI 04050361
QC1 EXP 6/01/10

Form E-1 (Front)

WELDER, WELDING OPRATOR, OR TACK WELDER QUALIFICATION TEST RECORD

Name of Welder: Jon Curit
Name: American Aerial — Identification No. [redacted]
Welding Procedure Specification No.: 1 — Rev.: N/A — Date: Dec. 12, 2007

Variables	Record Actual Values Used in Qualification	Qualification Range
Process/Type [Table 4.10, Item (1)]	SMAW	
Electrode (single or multiple) [Table 4.10, Item (5)]	1/8 E7018	ALL
Current Polarity	115 A DC+	
Position [Table 4.10, Item (6)]	4G	1G, 4G
Weld Progression [Table 4.10, Item (6)]	N/A	N/A
Backing (YES or NO) [Table 4.10 Item (7)]	YES	YES
Material/Spec.	Group 1 to Group 1	
Base Metal		
Thickness: (Plate)		
Groove	3/8 "	1/8 to 3/4 "
Fillet	N/A	UNLIMITED
Thickness: (Pipe/Tube)		
Groove	N/A	1/8 " to 3/4 "
Fillet	N/A	UNLIMITED
Diameter :(Pipe)PJP		
Groove	N/A	1/8" to 3/4 OVER 24" DIA.
Fillet	N/A	OVER 24" DIA.
Filler Metal [Table 4.10, Item (3)]		
Spec. No.	A5.1	
Class	E7018	
F-No. [Table 4.10, Item (2)]	F 4	F4, F3, F2, F1
Gas/Flux Type [Table 4.10item (3)]	N/A	
Other	N/A	N/A

VISUAL INSPECTION (4.8.1)

Acceptable YES or NO: YES

Guided Bend Test Results (4.30.5)

Type	Result	Type	Result

Fillet Test Results (4.30.2.3 and 4.30.4.1)

Appearance	N/A	Fillet Size	N/A
Fracture Test Root Penetration	N/A	Macroetch	N/A

(Describe the location, nature, and size of any crack or tearing of the specimen.)

Inspected by: Brad Wells CWI # 00050221 — Test Number: N/A
Organization: Maine Oxy — Date: Dec. 12, 2007

RADIOGRAPHIC TEST RESULTS (4.30.3.1)

Film Identification Number	Results	Remarks	Film Identification Number	Results	Remarks
	PASS				

Interpreted by: [signature] — Test Number: QAL-07-0347
Organization: QAL — Date: 12/12/07

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of section 4 of AWS D1.1, (_____) Structural Welding Code --- Steel.

Manufacturer or Contractor _____ Authorized By _____
Date _____

Welder Performance Qualification Record
AWS D1.1 Structural Welding Code - Steel

Welder's Name **Carl Cooper** ID Number **6686**

Company **American Aerial**

TEST DESCRIPTION

WPS Number **AA - 001** Test Coupon **XXX** Production Weld

Material Specification, Type or Grade **A36 >3/4"** to Material Specification, Type or Grade **A36 > 3/4"**

Test Thickness **1" Groove**

Thickness Qualified Plate **Groove: 1/8" - Unlimited** **Fillets: Unlimited**

Thickness Qualified Pipe

Groove 1/8 - unlimited on structural pipe equal to or greater than 24" diameter

Fillets: Unlimited

TESTING CONDITIONS AND QUALIFICATION LIMITS

Welding Variables	Actual Values	Range Qualified
Welding Process(es)	SMAW	SMAW
Type (Manual, Semi, Auto)	Manual	Manual
Backing	A36 1/4" x 1-1/2"	Backing required
Material Group Number	Two	Group One and Group Two
Filler Metal AWS Specifications	A5.1	
Filler Metal Classification	E7018 MR	
Filler Metal F Numbers	F4	F1, F2, F3, F4
Position	4G	Flat, Overhead groove welds Flat, Overhead, Horizontal fillets
Vertical Progression (up or down)		
Inert Gas Backing		
Transfer Mode (GMAW)		
Current / Polarity	115 - 120 amps DC+	

RESULTS

Visual Examination of Completed Weld **Passed** Date **2/7/08**

Bend Test Results: Side Bend **Passed** Side Bend **Passed** Date **2/7/08**

Test conducted by:

Warren G. Swan, Jr. New England School of Metalwork

We certify that the statements in this record are correct and that the test welds were prepared and welded in conformance with the **2006 AWS D1.1** welding code and the above noted Welding Procedure Specification.

Name: **Warren G. Swan, Jr.**

Affiliation **New England School of Metalwork**

Address **7 Alfiston Way Auburn, ME 04210**

WARREN SWAN
CWI 04050361
OCI EXP. 5/01/10

WELDER, WELDING OPRATOR, OR TACK WELDER QUALIFICATION TEST RECORD

Name of Welder: Brian Furrow
Name: American Aerial — Identification No. [redacted]5315
Welding Procedure Specification No. 1 Rev. N/A Date Dec. 12, 2007

Variables	Record Actual Values Used in Qualification	Qualification Range
Process/Type [Table 4.10, Item (1)]	SMAW	
Electrode (single or multiple) [Table 4.10, Item (2)]	1/8 E7018	ALL
Current Polarity	115 A DC+	
Position [Table 4.10, Item (6)]	4G	1G, 4G
Weld Progression [Table 4.10, Item (6)]	N/A	N/A
Backing (YES or NO) [Table 4.10 Item (7)]	YES	YES
Material/Spec.	Group 1 to Group 1	
Base Metal		
Thickness: (Plate)		
Groove	3/8 "	1/8 to 3/4 "
Fillet	N/A	UNLIMITED
Thickness: (Pipe/Tube)		
Groove	N/A	1/8 " to 3/4 "
Fillet	N/A	UNLIMITED
Diameter :(Pipe)PJP		
Groove	N/A	1/8" to 3/4 OVER 24" DIA.
Fillet	N/A	OVER 24" DIA.
Filler Metal [Table 4.10, Item (3)]		
Spec. No.	A5.1	
Class	E7018	
F-No. [Table 4.10, Item (2)]	F 4	F4, F3, F2, F1
Gas/Flux Type [Table 4.10Item (3)]	N/A	
Other	N/A	N/A

VISUAL INSPECTION (4.8.1)

Acceptable YES or NO: YES

Guided Bend Test Results (4.30.5)

Type	Result	Type	Result

Fillet Test Results (4.30.2.3 and 4.30.4.1)

Appearance	N/A	Fillet Size	N/A
Fracture Test Root Penetration	N/A	Macroetch	N/A

(Describe the location, nature, and size of any crack or tearing of the specimen.)

Inspected by Brad Wells CWI # 00050221 Test Number N/A
Organization Maine Oxy Date Dec. 12, 2007

RADIOGRAPHIC TEST RESULTS (4.30.3.1)

Film Identification Number	Results	Remarks	Film Identification Number	Results	Remarks
	Pass				

Interpreted by [signature] Test Number QAL-07-2347
Organization QAL Date 12/13/07

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of section 4 of AWS D1.1, (_____) Structural Welding Code –– Steel.

Manufacturer or Contractor _____ Authorized By _____
Date _____

WELDING PROCEDURE SPECIFICATIONS (WPS)
AWS D1.1 Structural Welding Code - Steel (Prequalfied)

Company Name **American Aerial** Date **12/18/08**

WPS Number **AA - 001** Supporting PQR Number(s) **Prequalified**

Revision Number _____ Date of Revision _____

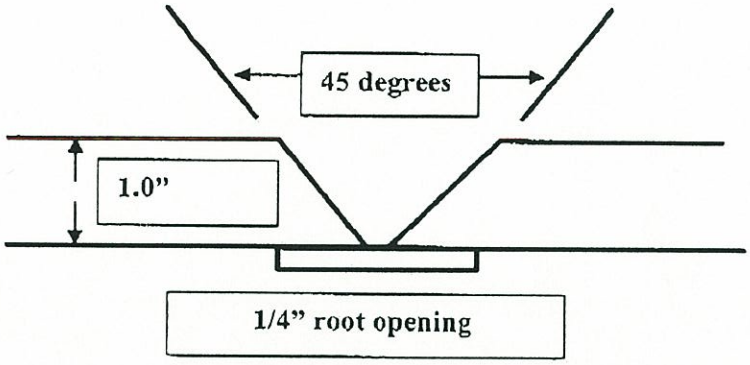
Welding Processes(es) **SMAW** Types (Manual, Auto, Semi-Auto) **Manual**

JOINTS

Joint Design **Butt Single V Groove Plate**

Backing Yes **XX** No ___ Backing Material **A36 - 1/4" x 1-1/2"**

Back Gouging Yes ___ No **XX** Method _____



BASE METALS

Material Group: **Two** Thickness Groove **1"** Fillet _____ Pipe(Dia) _____

Material Specification, Type or Grade **A36 >3/4"** to Material Specification, Type or Grade **A36 >3/4"**

Other _____

FILLER METALS

Specification Number	**AWS A 5.1**	
AWS Classification Number	**E7018 MR**	
F Number	**F4**	
Size of Filler Metal	**1/8" diameter**	**Qualified: 3/32 - 5/32 diameter**

POSITIONS

Position of Groove **3G (Vertical) and 4G (Overhead)** Qualified: **All positions groove and fillet welds**

Welding Progression : Up **XXX** Down _____

GAS	Gas(es)	%Mixture	Flow Rate
Shielding			
Trailing			
Backing			

WELDING PROCEDURE SPECIFICATIONS (WPS)
AWS D1.1 Structural Welding Code - Steel (Prequalfied)

WPS Number **AA - 001**

PREHEAT

Preheat Temperature **Ambient** Interpass Temperature _____

Other _____

POSTWELD HEAT TREATMENT

Temperature Range _____ Time Range _____

ELECTRICAL CHARACTERISTICS

Current **DC** Polarity **Positive** Amps **115 - 120** Volts **21 - 22**

Tungsten Size and Type _____

Metal transfer for GMAW _____

Electrode Wire Speed Range _____

TECHNIQUE

Stringer or Weave **Stringer**

Gas Nozzle Size _____

Initial Cleaning **Grinding/Brushing** Interpass Cleaning **Chipping/Grinding/Brushing**

Method of Back Gouging _____

Oscillation _____

Contact Tip or Nozzle to Work distance (FMAW) _____

Multiple or Single Pass per Side: Weld Side **Multi-Pass** Other Side _____

Multiple or Single Electrodes **Single**

Travel Speed **6 - 8" per minute**

Peening _____

Other _____

Weld Layers	Process	Filler Metal Class	Filler Metal Diameter	Current and Polarity	Amp Range	Volt Range	Travel Speed Range	Other
1 - 16	**SMAW**	**E7018MR**	**1/8"**	**DC +**	**115 - 120**	**21 - 22**	**6 - 8" min**	

PREPARED BY

Name: **Warren G. Swan, Jr.**

Affiliation **New England School of Metalwork**

Address **7 Albiston Way Auburn, ME 04210**

WARREN SWAN
CWI 04050361
QC1 EXP. 5/01/10

American Aerial Representative _____

Welder Performance Qualification Record
AWS D1.1 Structural Welding Code - Steel

Welder's Name **John Gallagher** ID Number **2593**

Company **American Aerial**

TEST DESCRIPTION

WPS Number **AA - 001** Test Coupon **XXX** Production Weld

Material Specification, Type or Grade **A36 >3/4"** to Material Specification, Type or Grade **A36 > 3/4"**

Test Thickness **1" Groove**

Thickness Qualified Plate **Groove: 1/8" - Unlimited** **Fillets: Unlimited**

Thickness Qualified Pipe

Groove 1/8 - unlimited on pipe equal to or greater than 24" diameter

Fillets: Unlimited

TESTING CONDITIONS AND QUALIFICATION LIMITS

Welding Variables	Actual Values	Range Qualified
Welding Process(es)	SMAW	SMAW
Type (Manual, Semi, Auto)	Manual	Manual
Backing	A36 1/4" x 1-1/2"	Backing required
Material Group Number	Two	Group One and Group Two
Filler Metal AWS Specifications	A5.1	
Filler Metal Classification	E7018 MR	
Filler Metal F Numbers	F4	F1, F2, F3, F4
Position	3G and 4G	All Positions
Vertical Progression (up or down)	Up	Up Only
Inert Gas Backing		
Transfer Mode (GMAW)		
Current / Polarity	115 - 120 amps DC+	

RESULTS

Visual Examination of Completed Weld **Passed** Date **1/30/08**

Bend Test Results: Side Bend **Passed** Side Bend **Passed** Date **1/30/08**

Test conducted by:

Warren G. Swan, Jr. New England School of Metalwork

We certify that the statements in this record are correct and that the test welds were prepared and welded in conformance with the **2006 AWS D1.1** welding code and the above noted Welding Procedure Specification.

Name: **Warren G. Swan, Jr.**

Affiliation **New England School of Metalwork**

Address **7 Albiston Way Auburn, ME 04210**

WARREN SWAN
CWI 04050361
QC1 EXP. 5/01/10

BHATE
Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers
5217 Fifth Avenue South
Birmingham v Alabama v 35212-3515
(205) 591-7062
(205) 591-7184 (FAX)

ANSI/AWS D1.3-89 WELDER AND WELDING OPERATOR QUALIFICATION TEST RECORD

Welder or Welding Operator's Name: Glen Henderson
Identification Number:
Qualification Date: 9-20-99
Welder's Social Security Number: [redacted]3424
In Accordance with WPS Number: AWS D1.3-89
Revision Number:
Welding Process(es): SMAW
Type: Manual (Automatic, Manual, etc.)
Mode of Transfer for GMAW: N/A (Short Circuiting, Spray, Globular)

VARIABLE	ACTUAL VARIABLE USED IN QUALIFICATION	QUALIFICATION RANGE
JOINT:		
Joint Type	Arc spot weld	Lap
Backing Material Type	----	----
Groove Welded From: one side or both sides	----	----
BASE METAL:		
Material Specification	ASTM A606 To A611	ASTM A606 to A611
Sheet Steel	ASTM A36 to A570	ASTM A36 to A570
Supporting Steel		
Sheet Thickness	22 GA	0.5+ through 2t
Groove		
Fillet	5/8" diameter	1/2" to 11/16"
Arc Spot		
Arc Beam		
COATING(S):		
Type	N/A	---
Thickness	----	---
POSITION:		
Groove	---	---
Fillet	----	----
Arc Spot	Flat	Flat
Arc Beam	----	----
Progression	----	----
GAS	N/A	----
ELECTRODE		
Size	1/8" to 5/32"	1/8" to 5/32"
Group Designation	F1 E6022	F1 E6022

VISUAL EXAMINATION RESULTS

Specimen 1: Acceptable 2 layer twist test
Specimen 2: Acceptable 2 layer twist test
Appearance: Uniform
Cracks: None
Undercut: None excessive
Reinforcement: 1/32" min
Diameter of Arc Spot Nugget: 11/16" diameter
Test Conducted By: Jim R. Wall, CAWI-NDT Level II
Per: Bhate Engineering Corporation
Laboratory Test Number: 92099A
Date of Test: 09-20-99

The undersigned certify that the statements in this record are correct and that the welds were prepared and tested in accordance with the requirements of 6.7 of ANSI/AWS D1.3-89 STRUCTURAL WELDING CODE- SHEET STEEL.

Company: Bhate Engineering Corporation
Authorized By:

Welder Performance Qualification Record
AWS D1.1 Structural Welding Code - Steel

Welder's Name **Zach Johndro** ID Number **4984**

Company **American Aerial**

TEST DESCRIPTION

WPS Number **AA - 001** Test Coupon **XXX** Production Weld

Material Specification, Type or Grade **A36 >3/4"** to Material Specification, Type or Grade **A36 > 3/4"**

Test Thickness **1" Groove**

Thickness Qualified Plate **Groove: 1/8" - Unlimited** **Fillets: Unlimited**

Thickness Qualified Pipe

Groove 1/8 - unlimited on structural pipe equal to or greater than 24" diameter

Fillets: Unlimited

TESTING CONDITIONS AND QUALIFICATION LIMITS

Welding Variables	Actual Values	Range Qualified
Welding Process(es)	SMAW	SMAW
Type (Manual, Semi, Auto)	Manual	Manual
Backing	A36 1/4" x 1-1/2"	Backing required
Material Group Number	Two	Group One and Group Two
Filler Metal AWS Specifications	A5.1	
Filler Metal Classification	E7018 MR	
Filler Metal F Numbers	F4	F1, F2, F3, F4
Position	3G and 4G	All Positions
Vertical Progression (up or down)	Up	Up Only
Inert Gas Backing		
Transfer Mode (GMAW)		
Current / Polarity	115 - 120 amps DC+	

RESULTS

Visual Examination of Completed Weld **Passed** Date **2/7/08**

Bend Test Results: Side Bend **Passed** Side Bend **Passed** Date **2/7/08**

Test conducted by:

Warren G. Swan, Jr. New England School of Metalwork

We certify that the statements in this record are correct and that the test welds were prepared and welded in conformance with the **2006 AWS D1.1** welding code and the above noted Welding Procedure Specification.

Name: **Warren G. Swan, Jr.**

Affiliation **New England School of Metalwork**

Address **7 Albiston Way Auburn, ME 04210**

WARREN SWAN
CWI 04050361
QC1 EXP. 6/01/10

Warren G Swan

Welder Performance Qualification Record
AWS D1.1 Structural Welding Code - Steel

Welder's Name **Ray Lagueux** ID Number **0179**

Company **American Aerial**

TEST DESCRIPTION

WPS Number **AA - 001** Test Coupon **XXX** Production Weld _____

Material Specification, Type or Grade **A36 >3/4"** to Material Specification, Type or Grade **A36 > 3/4"**

Test Thickness **1" Groove**

Thickness Qualified Plate **Groove: 1/8" - Unlimited** **Fillets: Unlimited**

Thickness Qualified Pipe

Groove 1/8 - unlimited on pipe equal to or greater than 24" diameter

Fillets: Unlimited

TESTING CONDITIONS AND QUALIFICATION LIMITS

Welding Variables	Actual Values	Range Qualified
Welding Process(es)	SMAW	SMAW
Type (Manual, Semi, Auto)	Manual	Manual
Backing	A36 1/4" x 1-1/2"	Backing required
Material Group Number	Two	Group One and Group Two
Filler Metal AWS Specifications	A5.1	
Filler Metal Classification	E7018 MR	
Filler Metal F Numbers	F4	F1, F2, F3, F4
Position	3G and 4G	All Positions
Vertical Progression (up or down)	Up	Up Only
Inert Gas Backing		
Transfer Mode (GMAW)		
Current / Polarity	115 - 120 amps DC+	

RESULTS

Visual Examination of Completed Weld **Passed** Date **1/30/08**

Bend Test Results: Side Bend **Passed** Side Bend **Passed** Date **1/30/08**

Test conducted by:

Warren G. Swan, Jr. New England School of Metalwork

We certify that the statements in this record are correct and that the test welds were prepared and welded in conformance with the **2006 AWS D1.1** welding code and the above noted Welding Procedure Specification.

Name: **Warren G. Swan, Jr.**

Affiliation **New England School of Metalwork**

Address **7 Albiston Way Auburn, ME 04210**

WARREN SWAN
CWI 04050361
QC1 EXP. 5/01/10

Welder Performance Qualification Record
AWS D1.1 Structural Welding Code - Steel

Welder's Name **Barry Morrison** ID Number **7073**

Company **American Aerial**

TEST DESCRIPTION

WPS Number **AA - 001** Test Coupon **XXX** Production Weld

Material Specification, Type or Grade **A36 >3/4"** to Material Specification, Type or Grade **A36 > 3/4"**

Test Thickness **1" Groove**

Thickness Qualified Plate **Groove: 1/8" - Unlimited** **Fillets: Unlimited**

Thickness Qualified Pipe

Groove 1/8 - unlimited on pipe equal to or greater than 24" diameter

Fillets: Unlimited

TESTING CONDITIONS AND QUALIFICATION LIMITS

Welding Variables	Actual Values	Range Qualified
Welding Process(es)	SMAW	SMAW
Type (Manual, Semi, Auto)	Manual	Manual
Backing	A36 1/4" x 1-1/2"	Backing required
Material Group Number	Two	Group One and Group Two
Filler Metal AWS Specifications	A5.1	
Filler Metal Classification	E7018 MR	
Filler Metal F Numbers	F4	F1, F2, F3, F4
Position	3G and 4G	All Positions
Vertical Progression (up or down)	Up	Up Only
Inert Gas Backing		
Transfer Mode (GMAW)		
Current / Polarity	115 - 120 amps DC+	

RESULTS

Visual Examination of Completed Weld **Passed** Date **1/30/08**

Bend Test Results: Side Bend **Passed** Side Bend **Passed** Date **1/30/08**

Test conducted by:

Warren G. Swan, Jr. New England School of Metalwork

We certify that the statements in this record are correct and that the test welds were prepared and welded in conformance with the **2006 AWS D1.1** welding code and the above noted Welding Procedure Specification.

Name: **Warren G. Swan, Jr.**

Affiliation **New England School of Metalwork**

Address **7 Albiston Way Auburn, ME 04210**

WARREN SWAN
CWI 04050361
QC1 EXP. 5/01/10

WELDER, WELDING OPRATOR, OR TACK WELDER QUALIFICATION TEST RECORD

Name of Welder: Nicholas Perro
Name: American Aerial Services — Identification No. [redacted]5042
Welding Procedure Specification No. 1 Rev. N/A Date Feb 26,2004

Variables	Record Actual Values Used In Qualification	Qualification Range
Process/Type [Table 4.10, Item (1)]	SMAW	
Electrode (single or multiple) [Table 4.10, Item (5)]	1/8 E7018	ALL
Current Polarity	105 A DC+	
Position [Table 4.10, Item (6)]	1G, 2G, 3G	1G, 2G, 3G
Weld Progression [Table 4.10, Item (8)]	UP	UP
Backing (YES or NO) [Table 4.10 Item (7)]	YES	YES
Material/Spec.	Group 1 to Group 1	
Base Metal		
Thickness: (Plate)		
Groove	3/8 inch	1/8 " to 3/4 "
Fillet	N/A	UNLIMITED
Thickness: (Pipe/Tube)		
Groove	N/A	1/8 " to 3/4 "
Fillet	N/A	UNLIMITED
Diameter :(Pipe)PJP		
Groove	N/A	1/8" to 3/4 OVER 24" DIA.
Fillet	N/A	OVER 24" DIA.
Filler Metal [Table 4.10, Item (3)]		
Spec. No.	A5.1	
Class	E7018	
F-No. [Table 4.10, Item (2)]	F 4	F4, F3, F2, F1
Gas/Flux Type [Table 4.10item (3)]	N/A	
Other	N/A	N/A

AWS QC 1 BRADLEY F. WELLS 00050221 CWI

VISUAL INSPECTION (4.8.1)

Acceptable YES or NO YES

Guided Bend Test Results (4.30.5)

Type	Result	Type	Result
3G FACE BEND	ACCEPTABLE	3G ROOT BEND	ACCEPTABLE

Fillet Test Results (4.30.2.3 and 4.30.4.1)

Appearance	N/A	Fillet Size	N/A
Fracture Test Root Penetration	N/A	Macroetch	N/A

(Describe the location, nature, and size of any crack or tearing of the specimen.)

Inspected by Brad Wells CWI # 00050221 Test Number N/A
Organization Maine Oxy Date Feb 27, 2004

RADIOGRAPHIC TEST RESULTS (4.30.3.1)

Film Identification Number	Results	Remarks	Film Identification Number	Results	Remarks
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Interpreted by N/A Test Number N/A
Organization N/A Date N/A

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of section 4 of AWS D1.1, (_____) Structural Welding Code ---- Steel.

Manufacturer or Contractor _____ Authorized By _____
Date _____

WELDER, WELDING OPRATOR, OR TACK WELDER QUALIFICATION TEST RECORD

Name of Welder: Nick Perro
Name: American Aerial — Identification No. [redacted]-5042
Welding Procedure Specification No.: 1 — Rev.: N/A — Date: June 22, 2004

Variables	Record Actual Values Used in Qualification	Qualification Range
Process/Type [Table 4.10, Item (1)]	FCAW	
Electrode (single or multiple) [Table 4.10, Item ((	045 E71T-11	ALL
Current Polarity	140 A DC+	
Position [Table 4.10, Item (6)]	3G	1G, 2G, 3G
Weld Progression [Table 4.10, Item (6)]	N/A	N/A
Backing (YES or NO) [Table 4.10 Item (7)]	YES	YES
Material/Spec.	Group 1 to Group 1	
Base Metal		
Thickness: (Plate)		
Groove	1"	UNLIMITED
Fillet	N/A	UNLIMITED
Thickness: (Pipe/Tube)		
Groove	N/A	UNLIMITED
Fillet	N/A	UNLIMITED
Diameter :(Pipe)		
Groove	N/A	OVER 24" DIA.
Fillet	N/A	OVER 24" DIA.
Filler Metal [Table 4.10, Item (3)]		
Spec. No.	A5.20	
Class	E71T-11	
F-No. [Table 4.10, Item (2)]	F6	F6
Gas/Flux Type [Table 4.10item (3)]	N/A	
Other	N/A	N/A

VISUAL INSPECTION (4.8.1)

Acceptable YES or NO: YES

Guided Bend Test Results (4.30.5)

Type	Result	Type	Result
1G SIDE BEND	N/A	1G SIDE BEND	N/A
	N/A		N/A

Fillet Test Results (4.30.2.3 and 4.30.4.1)

Appearance	N/A	Fillet Size	N/A
Fracture Test Root Penetration	N/A	Macroetch	N/A

(Describe the location, nature, and size of any crack or tearing of the specimen.)

Inspected by: Brad Wells CWI # 00050221 — Test Number: N/A
Organization: Maine Oxy — Date: June 23, 2004

RADIOGRAPHIC TEST RESULTS (4.30.3.1)

Film Identification Number	Results	Remarks	Film Identification Number	Results	Remarks
N/A Nick Perro	~~N/A~~ Accept	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

Interpreted by: ~~N/A~~ Ryan Russell CWI — Test Number: ~~N/A~~ 04-414
Organization: ~~N/A~~ QAL — Date: ~~N/A~~ June 23, 2004

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of section 4 of AWS D1.1, (2000) Structural Welding Code --- Steel.

Manufacturer or Contractor: American Aerial Serv. — Authorized By: [signature]
Date: 6/22/07

WELDING PROCEDURE SPECIFICATION (WPS) Yes ☑
PREQUALIFIED ✓ **QUALIFIED BY TESTING** ____
or PROCEDURE QUALIFICATION RECORDS (PQR) Yes ☐

Company Name AMERICAN AERIAL
Welding Process(es) FCAW
Supporting PQR No.(s) B-U2a-6F PREVIOUS

Identification # AA PC 001
Revision 001 Date 2/25/04 By BWelb
Authorized by ____ Date ____
Type—Manual ☐ Semi-Automatic ☒
Machine ☐ Automatic ☐

JOINT DESIGN USED GROOVE
Type:
Single ☒ Double Weld ☐
Backing: Yes ☒ No ☐
Backing Material: ASTM A36
Root Opening 1/4" Root Face Dimension ____
Groove Angle: 45° Radius (J–U) ____
Back Gouging: Yes ☐ No ☒ Method ____

POSITION
Position of Groove: 3G, 4G Fillet: —
Vertical Progression: Up ☒ Down ☐

ELECTRICAL CHARACTERISTICS
Transfer Mode (GMAW) Short-Circuiting ☐
Globular ☐ Spray ☐
Current: AC ☐ DCEP ☐ DCEN ☒ Pulsed ☐
Other ____
Tungsten Electrode (GTAW)
Size: —
Type: —

BASE METALS
Material Spec. ASTM A36
Type or Grade ____
Thickness: Groove 3/8 Fillet —
Diameter (Pipe) —

FILLER METALS
AWS Specification AWS 5.20
AWS Classification E71T-8

TECHNIQUE
Stringer or Weave Bead: STRINGER
Multi-pass or Single Pass (per side) MULTIPASS
Number of Electrodes ONE
Electrode Spacing Longitudinal —
Lateral —
Angle —

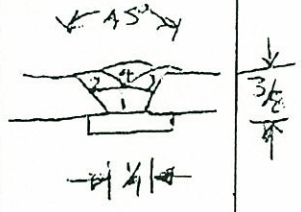
SHIELDING
Flux —
Electrode-Flux (Class) —
Gas —
Composition —
Flow Rate —
Gas Cup Size —

Contact Tube to Work Distance 3/4"
Peening NONE
Interpass Cleaning: hand wire brush, pick per pass tools

PREHEAT
Preheat Temp., Min AS REQ BY AWS D1.1
Interpass Temp., Min SAME Max —

POSTWELD HEAT TREATMENT
Temp. —
Time —

WELDING PROCEDURE

Pass or Weld Layer(s)	Process	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class	Diam.	Type & Polarity	Amps or Wire Feed Speed			
1-4	FCAW	E71T-8	.068	DC-	110"/MIN	20V	4 IPM	

Form E-1 (Front)

18

INNERSHIELD® NR®-232

Self-shielded, flux-cored wire with fast freezing slag system, which supports weld metal deposited at high rates on out-of-position welding.
For single or multiple pass all position welding of 3/16" (4.8mm) and thicker mild steel.
Excellent impact properties.
Superior arc characteristics and excellent slag removal (on many applications, it's self-peeling) gives NR-232 high operator appeal.

CONFORMANCE

AWS A5.20: E71T-8
ABS: 3SA-3YSAH
Lloyd's: 3S-3YSH
DNV: III YMS
G.L.: 3YSH
N.K.: ISSW5(3N)H10
MIL Spec: MIL-71T-8AS

WELDING POSITIONS

Smaller diameter wires are generally used for out-of-position.
Larger diameter wires are generally used for flat and horizontal welding.

TYPICAL APPLICATIONS

Excellent choice for poor fit-up applications. Recommended for open gap root pass welding.
General plate fabrication, including bridge construction, hull plate and stiffener welding on ships and barges.
Machinery parts, tanks, hoppers, racks, scaffolding, etc.

DEPOSIT COMPOSITION

	%C	%Mn	%P	%S	%Si	%Al
Requirements AWS E71T-8 per A5.20	Report only	1.75 max.	0.04. max.	0.03 max.	0.90 max.	1.8 max.
Test Results	.17	.72	.007	.003	.31	.71

MECHANICAL PROPERTIES

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft-lbs (Joules) @ -20°F (-29°C)	Hardness Rockwell B
Requirements AWS E71T-8 per A5.20	60,000 (414) min.	72,000 (496) min.	22 min.	20 (27)	--
Test Results *	60,000 - 74,000 (414 - 510)	72,000 - 87,000 (496 - 600)	22 - 30	20 - 69 (27 - 94)	89

* Tensile specimen aged at 220°F (104°C) for 48 hours.

DIAMETERS / PACKAGING

Diameter Inches (mm)	13.5 Lb. Coil	22 Lb. Readi-Reel®	50 Lb. Coil
.068" (1.7)	✓		✓
.072" (1.8)	✓	✓	✓
5/64" (2.0)	✓	✓	✓

RECOMMENDED PROCEDURES

Wire, Polarity ESO Inches (mm) Wire Weight	Wire Feed Speed In/min (m/min)	Arc Voltage (volts)	Approx. Current (amps)	Melt-Off Rate lbs/hr (kg/hr)	Deposition Rate lbs/hr (kg/hr)	Efficiency (%)
.068" NR-232 DC- 1/2-1 (12-25) .755 lbs/1000"	110 (2.7)	18 - 20	195	5.0 (2.3)	3.9 (1.8)	78
	130 (3.3)	19 - 21	225	6.2 (2.8)	4.6 (2.0)	74
	150 (3.8)	19 - 21	250	7.1 (3.2)	5.3 (2.4)	75
	170 (4.3)	20 - 22	270	7.8 (3.5)	6.1 (2.8)	78
	195 (5.0)	23 - 24	300	9.4 (4.3)	7.0 (3.2)	74
	250 (6.4)	23 - 24	350	11.8 (5.4)	9.0 (4.0)	76
	320 (7.4)	25 - 27	400	15.2 (6.9)	11.4 (5.2)	75
.072" NR-232 DC- 1/2-1 (12-25) .778 lbs/1000"	80 (2.0)	16 - 18	130	4.0 (1.8)	3.3 (1.5)	83
	140 (3.6)	18 - 21	225	6.8 (3.1)	5.5 (2.5)	81
	155 (3.9)	19 - 22	240	7.2 (3.3)	6.0 (2.7)	83
	170 (4.3)	20 - 23	255	8.0 (3.6)	6.5 (2.9)	81
	260 (6.4)	22 - 24	315	11.7 (5.3)	9.6 (4.3)	82
	290 (7.4)	23 - 25	350	13.6 (6.2)	11.0 (5.0)	81
5/64" NR-232 DC- 1/2-1 (12-25) 1.00lbs/1000"	60 (1.5)	16 - 17	145	3.7 (1.7)	2.7 (1.2)	73
	115 (2.9)	19 - 20	260	7.0 (3.2)	5.5 (2.5)	78
	120 (3.0)	19 - 20	270	7.3 (3.3)	5.7 (2.6)	78
	130 (3.3)	20 - 21	285	7.8 (3.5)	6.2 (2.8)	79
	180 (4.6)	22 - 23	365	10.9 (5.0)	8.7 (3.9)	80

APPLICATION GUIDELINES

For All Diameters

On epoxy coated primer plates with extremely tight fit-up, some root porosity may occur. A 1/32" (0.8 mm) minimum gap between plates will reduce or eliminate this porosity. If a gap cannot be provided, use the low end of the voltage range.

For .068 and 5/64" (1.7 and 2.0 mm)

Recommended for fillet and butt welding where it is necessary to produce wide passes using a weave technique. For plate contamination such as oil, rust, or paint, use these diameters rather than .072" (1.8 mm).

For .072" (1.8 mm)

To obtain fastest travel speeds and flattest bead on single pass fillet welds in all positions.

Flattest bead shape and best slag removal on applications such as column butt splices made in the 3 o'clock position and 1/4" (6.3 mm) vertical up fillet welds.

Best slag removal on multiple pass applications where interpass temperatures are in excess of 500°F (260°C).

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C3.2110 3/94

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"The Construction Testing People"

WELDER QUALIFICATION TEST RECORD

Welder or welding operator's name JAMES E READ Identification no. [redacted]-0534
Welding process SMAW Manual XXXX Semiautomatic _____ Machine _____
Position 3G (vertical upwards) & 4G
(Flat, horizontal, overhead or vertical - if vertical, state whether upward or downward)
In accordance with procedure specification no _____
Material specification ASTM A 36
Diameter and wall thickness (if pipe) - otherwise, joint thickness 3/8" PLATE
Thickness range this qualifies LIMITED THICKNESS

FILLER METAL

Specification no. AWS A5.1 Classification E7018 F no. F4
Describe filler metal (if not covered by AWS specification) _____
Is backing strip used? YES
Filler metal diameter and trade name MUREX 1/8" DIA. Flux for submerged arc or gas for gas metal arc or flux cored arc welding _____

VISUAL INSPECTION

Appearance ACCEPTABLE Undercut NONE Piping porosity NONE

Guided Bend Test Results

Type	Result	Type	Result
3G RB	ACCEPTABLE	4G RB	ACCEPTABLE
3G FB	ACCEPTABLE	4G FB	ACCEPTABLE

Test conducted by MICHAEL A SCULLY Laboratory test no. 990513
per CWI # 88070121 Test date MAY 13,1999

Fillet Test Results

Appearance _____ Fillet size _____
Fracture test root penetration _____ Macroetch _____
(Describe the location, nature, and size of any crack or tearing of the specimen.)
Test conducted by _____ Laboratory test no. _____
per _____ Test date _____

RADIOGRAPHIC TEST RESULTS

Film Identification	Results	Remarks	Film Identification	Results	Remarks

Test witnessed by _____ Test no. _____

We, the undersigned, certify that the statements in this record are correct and that the welds were prepared and tested in accordance with the requirements of AWS D1.1 - 98 Structural Welding Code - Steel.

Contractor AMERICAN AERIAL
Authorized by JAMES E READ
Date MAY 13,1999

5 Richardson Lane, Stoneham, Massachusetts 02180 (781) 438-7755 Fax (781) 438-6216

BHATE
Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers

5217 5th Avenue South
Birmingham ■ Alabama ■ 35212-3515
(205) 591-7062
(205) 591-0229 (FAX)

LETTER OF TRANSMITTAL

Date	Job No.
August 23, 1999	170000
Attention: Mr. James Read	
RE: Welder Qualifcations	

TO American Aerial Services
33 Allen Avenue Extension
Falmouth, ME 04105

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of Letter ☐ Change Order ☐ _____

COPIES	DATE	NO	DESCRIPTION
1	08-16-99	081699WQ-1	Welder Qualifcation for Donald Violette
1	08-16-99	081699WQ-2	Welder Qualfication for James Read
1	08-16-99	081699WQ-3	Welder Qualification for Eric Buckheit
1	08-16-99	081699WQ-4	Welder Qualification for Stacy Lupo

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

COPY TO: _____ SIGNED: Jennifer Hanna

If enclosures are not as noted, kindly notify us at once

BHATE
Bhate Engineering Corporation
Geotechnical, Materials, Environmental Engineers
5217 Fifth Avenue South
Birmingham v Alabama v 35212-3515
(205) 591-7062
(205) 591-7184 (FAX)

ANSI/AWS D1.3-89 WELDER AND WELDING OPERATOR QUALIFICATION TEST RECORD

Welder or Welding Operator's Name: James Read
Identification Number: [redacted]-0536 Qualification Date: 08-16-99
Welder's Social Security Number: [redacted]-0536
In Accordance with WPS Number: AWS D1.3-89 Revision Number:
Welding Process(es): SMAW Type: Manual (Automatic, Manual, etc.)
Mode of Transfer for GMAW: N/A (Short Circuiting, Spray, Globular)

VARIABLE	ACTUAL VARIABLE USED IN QUALIFICATION	QUALIFICATION RANGE
JOINT:		
Joint Type	Arc Spot Weld	Lap
Backing Material Type		
Groove Welded From: one side or both sides		
BASE METAL:		
Material Specification		
Sheet Steel	ASTM A606 to A611	ASTM A606 to A611
Supporting Steel	ASTM A36	ASTM A36
Sheet Thickness		
Groove	22 Ga	0.5t through 2t
Fillet		
Arc Spot	5/8" diameter	½" to 11/16"
Arc Beam		
COATING(S):		
Type	N/A	
Thickness		
POSITION:		
Groove		
Fillet		
Arc Spot	F	F
Arc Beam		
Progression		
GAS	N/A	
ELECTRODE		
Size	1/8" to 5/32"	1/8" to 5/32"
Group Designation	F1 (E6022)	F1 (E6022)

VISUAL EXAMINATION RESULTS

Specimen 1: Acceptable 2 layer twist test Specimen 2: Acceptable 2 layer twist test
Appearance: Uniform Cracks: None Undercut: None excessive
Reinforcement: 1/32 min Diameter of Arc Spot Nugget: 11/16 diameter
Test Conducted By: Jim R. Wall Per: ANSI/AWS D1.3-89
Laboratory Test Number: 081699WQ-2 Date of Test: 08-16-99

The undersigned certify that the statements in this record are correct and that the welds were prepared and tested in accordance with the requirements of 6.7 of ANSI/AWS D1.3-89 STRUCTURAL WELDING CODE- SHEET STEEL.

Company: Bhate Engineering Corporation Authorized By: [signature] Ted E. Walker, CWI

93

[redacted]

Steven L Sanders
Cert # 0710063W SSN # XXX-XX-3727

[redacted]

AMERICAN WELDING SOCIETY

VALID ONLY IF ACCOMPANIED BY PHOTO ID

This Card is the property of AWS and shall be returned on demand.

Steven L Sanders

#	Test Date	Sup	Code	Process	Gas	Filler Metal	Base Metal	Position	Thickness	Expires
1	02/21/94	1	D1	SMAW	N/A	F4	P	A	U	09/30/08

24

TOTAL P.01

BECKER
structural engineers, inc.

Field Report No. 1829-01

Project:	Phase 2 – Parking Garage Portland International Jetport, Portland, Maine
Project #:	WO 1829
Date/Time:	October 22 & 23, 2008, Revised October 28, 2008, **Revised November 17, 2008**
Observers	Todd Neal, P.E. (BSE)

Level 1 Through Level 5 Punch List – Gridline 7 to 13

The following is a list of items that were noted during our last site visit. We have noted the items in **bold** that will need to be completed prior to opening this portion of the garage to the public.

LEVEL 5

1. ~~**Holes in decks at E.1, F, G/12 need to be filled with CIP**~~. **Completed**
2. ~~**Fill drain blockout at F/10**~~. **Completed**
3. It was raining during our review on 10/22 and there multiple leaks in the joints. Most leaks were around or near columns. The following is a partial list of the areas noted:
    a. Drain to east of F/10 (as noted above this needs be completed)
    b. At conduit at penetrating deck at F/10 (See Photo 1)
    c. Columns at G/10
    d. South of F/9
    e. Joint on 9 line between G & H
    f. First DT joint west of line 9 between F & G
    g. At both columns at F/8
    h. At drain west of line F/8

Most leaks have been repaired. There are couple locations that still need to be addressed. These are not structural items.

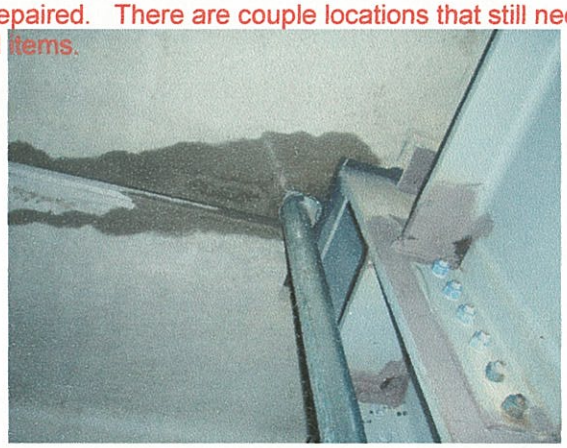

Photo 1

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Photo 2

Photo 3

4. Concrete repair required at underside of DT at Column H/11.9 (See Photo4). Provide repair detail for review. Connections are made concrete repair required around connx.

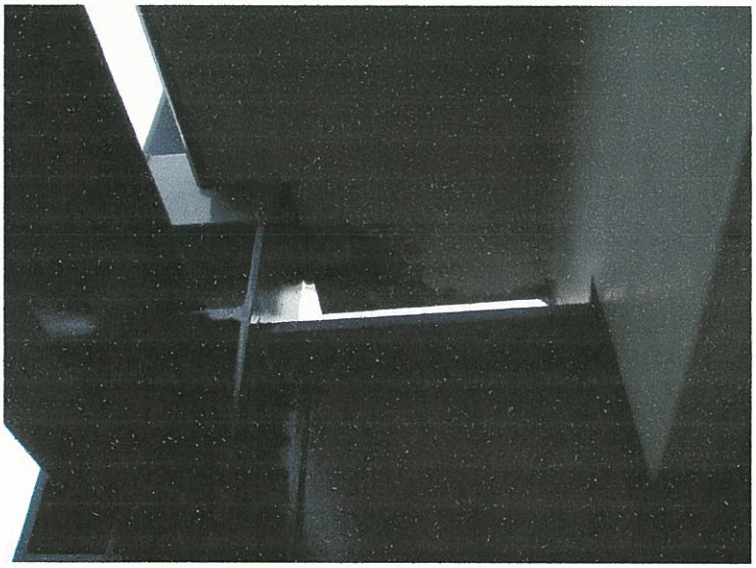

Photo 4

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5. ~~Exposed prestressing strand in DT stem. Third stem west of line 10 on north side of gridline G. (See Photo 5).~~ **Completed, provide repair detail for record.**

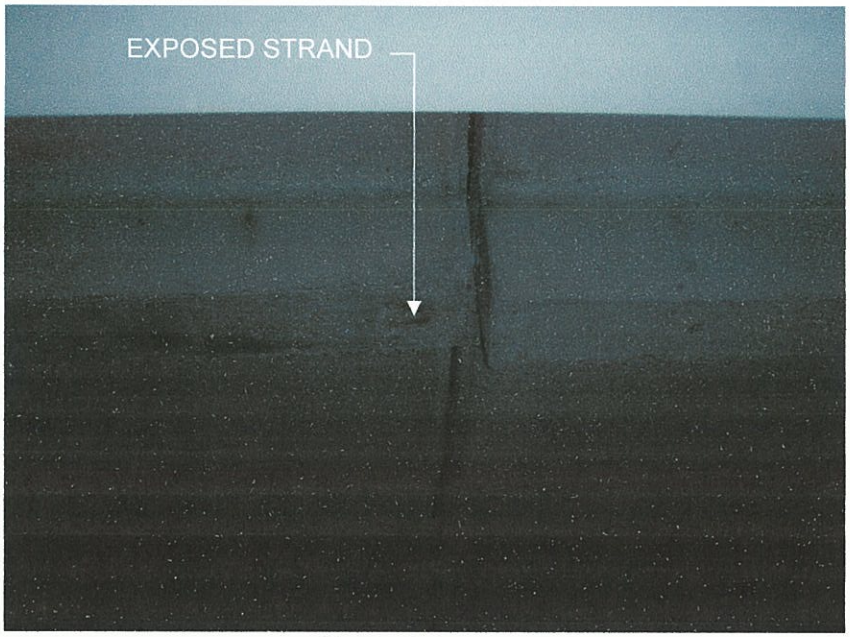

Photo 5

6. ~~**Install all steel side plates and cap plates at E.1.**~~ **Completed**
7. Drain Block outs:
    a. Remove ridges created by tool used on edges. In progress
    b. ~~Install sealant in tooled joints~~. Completed
8. Ensure that all connection plates used to connect precast to precast and precast to steel are coated.
9. ~~Remove bumper tubes from E line on Phase 1.~~
10. **Expansion Joints ~~(Waiting for Final Detail)~~ Joint details have been finalized and systems have been ordered. Temporary covers will be installed until systems arrive.**

LEVEL 4

1. ~~Fill connection pockets at G.7/13, G/13, F/13, and E.1/13 (See Photo 6).~~ Completed

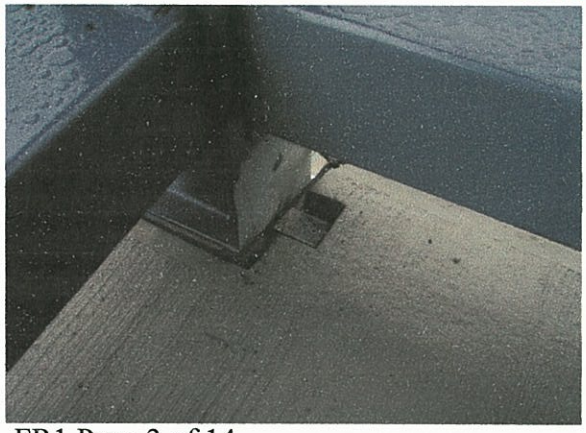

Photo 6

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2. **Repair cracked "T" beam at F/12 per SK-S-0019. Plates have been installed. Holes need to be drilled at locations marked on beams.**
3. Clean sealant off decks (See Photo 7).

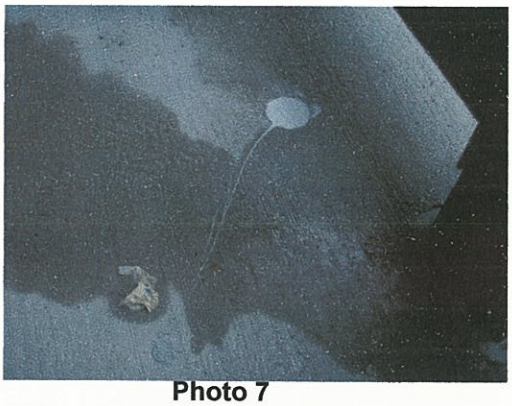

Photo 7

4. ~~Install CIP infill at E.1, F, & G/12 (similar to level 5).~~ Completed
5. ~~**First DT joint west of line 13 between G and G.7 is not complete. Miss-aligned vector connectors and no sealant. (See Photo 8)**~~ **Completed**

Photo 8

6. Drain at H/11.9 appears high and no water getting to drain.
7. ~~Complete sealant around columns.~~ Completed
8. ~~Line 11 between lines F & G, there is a high spot on the DT that should be ground smooth (See Photo 9).~~ Completed

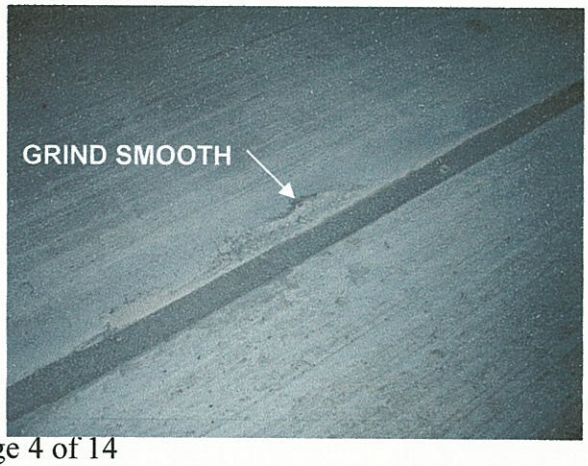

Photo 10

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9. ~~At the first and second DT west of line 11 there are cracks in flanges at E.1 line. These cracks should be sealed as per Dailey's repair details. (See Photo 10).~~ Completed

Photo 10

10. Grind ridges in tooled joints at CIP Drain infill (See Photo 11). Typical on most completed to date. This work is in progress.

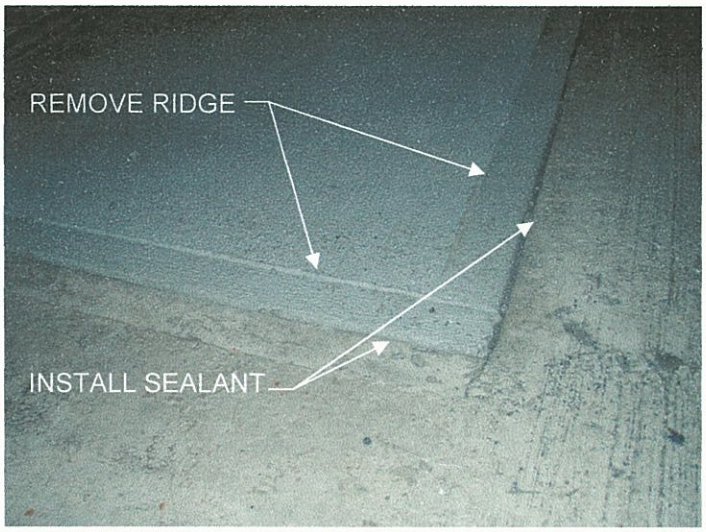

Photo 11

11. **~~Missing vector connector at first joint east of line 9 closest to line E.1. Install repair and complete sealant.~~** **Completed**

12. **~~Missing vector connector at DT joint west of line 9 @ G line. Install repair and complete sealant.~~** **Completed**

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13. ~~Drain line sleeve at H/8 does not cover complete opening (See Photo 12). Splice plate and set in sealant bed and screw to existing plate.~~ **Sealant added to close void.**

Photo 12

14. ~~Install CIP infill at drain west of line 8~~. Completed
15. **Install expansion joint cover at line E.1. Joint details have been finalized and systems have been ordered. Temporary covers will be installed until systems arrive.**
16. ~~Remove bumper tubes from phase 1 on E line~~. Completed
17. ~~**Missing chord connection plate at F line between 9 and 10, both sides. (see photo 13)**~~ **Completed**

Photo 13

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18. **DT connection to column cracked at G/7 south (see photo 14). Concrete repair not completed at this time. Connection is functioning.**

Photo 14

19. Level 2, 3, 4, & 5, drill 5/8" diameter hole in top flange of steel beam and install ½" diameter lag into plastic shims to hold in place (see photo 15)

Photo 15

20. Leak around stand pipe at F/10.
21. Leak in joint at first joint west of 10 line between lines G & H.
22. Leak at column F/9.
23. Leak at line 9 at E.1. Leaks are being repaired not critical to the structure of the garage.

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Level 3

1. ~~Several lift pockets have not been filled.~~ Completed
2. ~~**Fill complete connections and fill pocket at E.1/13, E.1/12 (see photo 16)**~~ **Completed**

Photo 16

3. ~~**Coat connection plate and fill connection pockets at F/13 and G/13.**~~ **Completed**
4. **Concrete repair at connection G.7/13 (see photo 17). Provide repair detail.** **Connection has been installed waiting for concrete repair.**

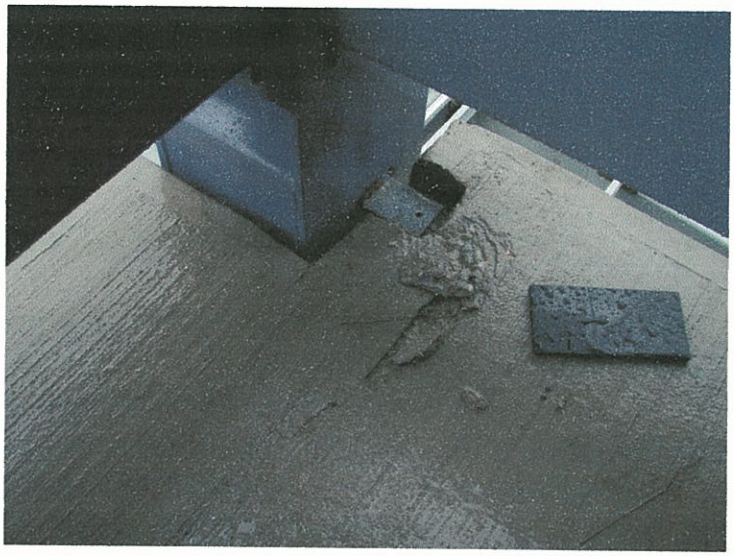

Photo 17

5. ~~**Fill drain bondouts.**~~ **Completed**

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6. ~~Fill in deck bondouts at E.1, F, & G/12 (see photo 18).~~ Completed

Photo 18

7. ~~Infill post holes on line E west of 12 line and east of 11 line BSE to provide SKS.~~ Holes have been filled in per BSE sketch.

8. ~~Missing vector connector within 16 inches of chord connection, first joint west of 9 line at G line. No connection required at this location. See photo 19.~~ Sealant has been installed. No additional work required this vector is not required.

Photo 19

9. ~~Missing sealant around pipe sleeve and column at F/8~~ Completed

10. ~~Missing sealant at G/8 South.~~ Completed

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11. **Crack at DT/Column connection H/10 west side(see photo 20)** **Concrete repair not completed at this time. Connection is functioning.**

Photo 20

12. **Spall at G/11 south DT/Column connection (see photo 21). Grind edges smooth only. Do not fill this shallow void.** **Concrete repair not completed at this time. Connection is functioning.**

Photo 21

13. ~~**Missing chord connection plate at DT joint west of line 10 on F line end. Reference photo 13.**~~ **Completed**

14. **Crack at DT/Column connection at F/10, south column, east side. Reference photo 20, similar.** **Concrete repair not completed at this time. Connection is functioning.**

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15. ~~Missing chord connection plate at DT joint west of E.1/13. Reference photo 13.~~ Completed

16. ~~What is the chord connection for E.1/12 through blockout. This detail is typical all levels. Confirm detail with Dailey. See photo 22.~~ Concrete complete and connection installed as per detail fro W. E. Dailey.

Photo 22

Level 2

1. ~~Chord to column connection and fill pocket at E.1/12, east side (see photo 23). Reference item 16 on level 3 regarding connection on west side.~~ Completed

Photo 23

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2. ~~Fill connection pockets at E.1/12.~~ Completed
3. ~~Sealant in lifting pockets not complete.~~ Completed
4. ~~Sealant missing in 3ft of DT joint west o 13 line at E.1 end.~~ Completed
5. ~~CIP deck infill at E.1, F, & G/12. Reference photo 18.~~ Completed
6. ~~Sealant missing around connections and columns at F/13 and G/13.~~ Completed
7. ~~DT/Column connection at G.7/13 (see photo 24)~~ Completed

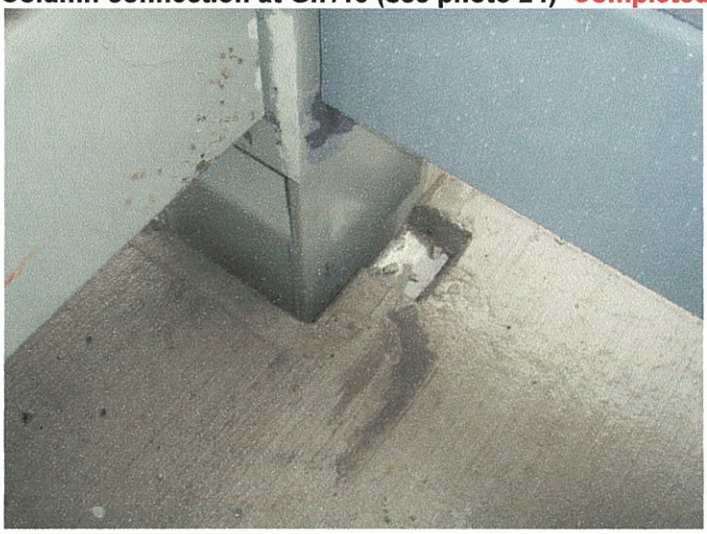

Photo 24

8. ~~Joint at 11.9 line between G.7 & G. Misaligned vector connectors repaired using longer bars. There is one crack at one of the vectors that will need to be repaired similar to rest of garage. Sealant needs to be installed.~~ Completed
9. ~~Line 10 between lines F & G, Ridge on DT Flange to be ground smooth, misaligned vector connectors repair to be installed and sealant to be installed (see photo 25).~~ Completed

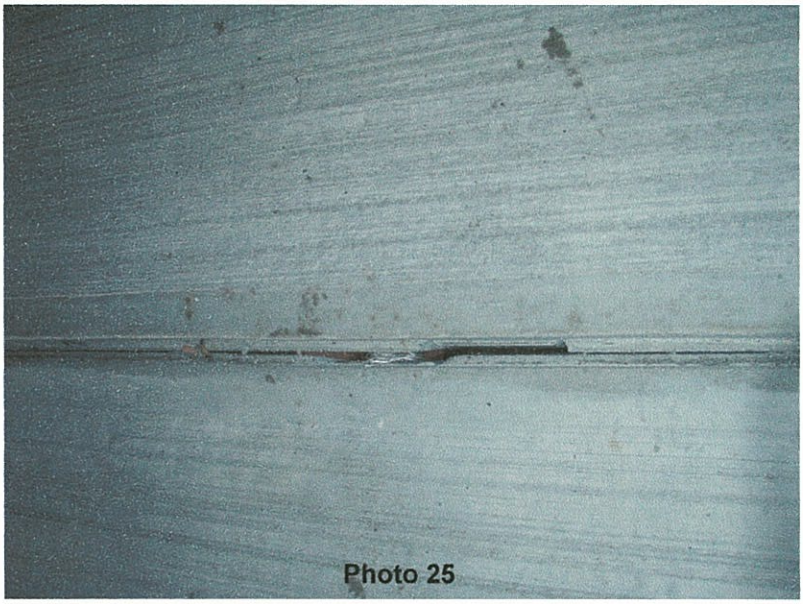

Photo 25

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10. Sealant missing at E.1/9.
11. Sealant missing at pipe sleeve at H/8.
12. **DT/Column connections cracks at H/7 and H6 (see photo 26)** **Concrete repair not completed at this time. Connection is functioning**

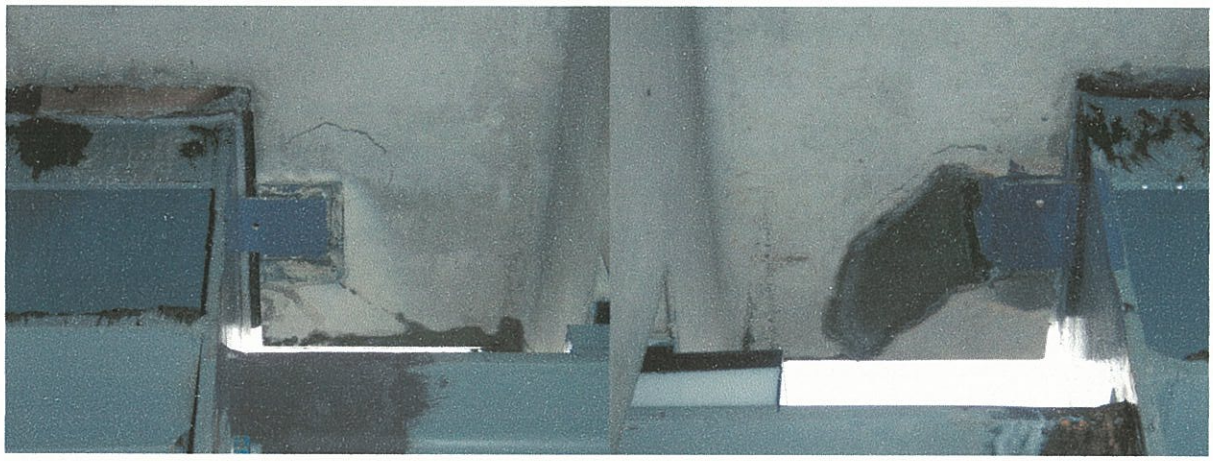

Photo 26

13. **Line H/10 DT flange spall (see photo 27). Provide repair detail.** **Loose concrete has been removed repair detail to follow.**

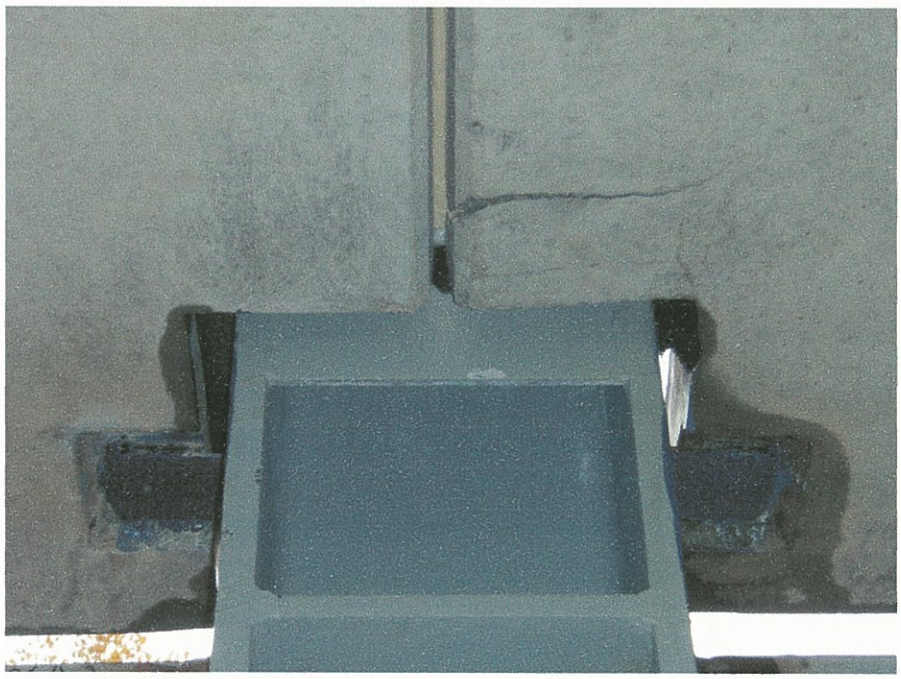

Photo 27

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14. DT/Column connection spall at H/11.9 (see photo 28). Concrete repair not completed at this time. Connection is functioning

Photo 28

15. ~~Small spall at DT/Column connection at G/10 south column, east side. Remove spall likely no repair required.~~ Loose concrete removed no further repair required
16. DT/Column connection spall at G/9 south column (Concrete repair not completed at this time. Connection is functioning), ~~west side missing~~. Plate installed on west side.
17. ~~Line G between lines 8 and 9 missing DT chord connection plate. Reference photo 13.~~ Completed
18. ~~DT/Column connection plate missing at G/8 south column, east side.~~ Completed
19. ~~Line G between lines 7 & 8 missing chord connection plate on north and south sides.~~ Completed
20. ~~DT/Column connection plates each side of column at G/7.~~ Completed
21. ~~Line E.1 between 12 & 13 missing chord connection plate. Reference photo 13.~~ Completed

Level 1

1. ~~Slab infill at crossover.~~ Completed
2. ~~Pier repairs~~ Completed
3. ~~Epoxy inject all voids between base plates and leveling plates.~~ Completed
4. Joint sealants in slab on grade. Work is in progress

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Appendix A: Structural Steel Certification Backup Data

HAYDON BOLTS
PO 11708 J-60

Nicholas Galvanizing
120 Duffield Avenue
Jersey City, NJ 07306

Quality-Service-Commitment

CERTIFICATION OF CONFORMANCE

HAYDON BOLTS, INC
PO# 1672
August 4, 2008

All materials listed herein have been galvanized and inspected in accordance to ASTM A153/F2329 and meet or exceed all applicable specifications.

12 PCS 2 ½" (4) X 70" ROD F1554-GR55
16 PCS 2 ½"(4) X 70" ROD F1554-GR55
330 PCS 1 ¼"(7) X 14" HVY HDS A325-1
10 PCS ½(13) F1554 GR55 ROUND
10 PCS ½(13) F1554 GR55 ROUND BEND
4 PCS 7/8(9) X 16 ½" A325 HVY HEX BOLT
32 PCS 1 (8) X 25" A325-1 HVY HX HEAD
11 PCS 1 ¼"(7) X 28 7/8" ROD F1554-GR55
11 PCS 1 ¼"(7) X 28 7/8" ROD F1554-GR55
36 PCS ¾(10) X 24" X 4" F1554-55 ANC
1 PC 1 (8) X 224 7/16" F1554 GR55 ROD
1 PC 1 (8) X 162 ½" F1554 GR55 ROD

Angel Torres

ANGEL TORRES/GENERAL MANAGER

Eaton Ho 3926

CERTIFIED MILL TEST REPORT

Alton Steel Test Lab
#5 Cut Street
Alton, IL. 62002-9011
(618) 463-4490 EXT 2486
(618) 463-4491 (Fax)

BILL TO
Eaton Steel Corporation
10221Capital Avenue
Oak Park, MI 48237

SHIP TO
Eaton Steel Corporation %
CWC-To Be Delivered To Customer Truck
Alton, IL 62002

Date	01/03/2005	Customer PO	81348	**Specifications**
ASI Ord No.	4201	Customer PT.	7796	SAE 1035
ASI Ord Line Item	1			ASTM A 576-90b, ASTM A 29-04

Item Description
Steel Bar, Hot Rolled, 1.7500, 18/20' 0"

Heat Number	Yield PSI	Tensile PSI	% Elongation	% ROA	Bend Test

CHEMICAL ANALYSIS TEST METHODS ASTM E-415 & E-1019

Heat Number	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	Cb	V	B	N
401171	0.36	0.68	0.011	0.028	0.26	0.21	0.075	0.105	0.018	0.015	0.006	0.024	0.003	0.0002	0.0024

JOMINY HARDENABILITY USING ASTM A-255 CALCULATED FROM CHEMICAL DI

Heat Number	GS	DI
401171	7	1.09

SPECIAL TEST RESULTS

Heat Number	TA	TB	TC	TD	HA	HB	HC	HD	S	O	S	O	S	R	C	A	B	RC	RB	BHN
401171											3	2	1	1	1					

ADDITIONAL COMMENTS

RR=20.37:1

No mercury, lead, radium, or alpha containing material or equipment is used or deliberately added in the production of this steel. No weld or weld repairs were performed on this material. This Steel is 100% Electric Arc Furnace Melted and Rolled in the U.S.A.

Alteration or reproduction of this report, except in full, is not allowed without written approval by a representative of Alton Steel Incorporated.

I hereby certify that the above tests are correct as contained in the records of ALTON STEEL INCORPORATED

(Approved) Rubert Cauley

R Cauley

Subscribed and sworn to before me, a Notary Public, in and for the county of Madison, State of Illinois

this _____ Day of _____

My commission expires _____

(Notary Public)

CUSTOMER WECALL INC.
ADDRESS ORWELL, OH
P. O. NO. 11183
PART NO. 3 1/2 CLEVIS
LV JOB NO. DIE#1576, SO#6353
PCS. SHIPPED 655 PCS.
DATE SHIPPED 3/15/07

THE L MARK OF QUALITY CLEVISES AND CUSTOM FORGINGS

LAKEVIEW FORGE COMPANY

1725 Pittsburgh Avenue · Erie, Pennsylvania 16505 · 814.454.4518 · FAX: 814.455.5875
www.lakeviewforge.com · e-mail: mail@lakeviewforge.com

LAKEVIEW FORGE COMPANY

Certificate of Compliance

This COC is to certify that Lakeview Forge Company has manufactured/ inspected/ packed and shipped 655 PCS. items of Part Number #3-1/2 CLEVIS, Lakeview Die Number 1576, Shop Number 6353, in accordance with the requirements of WECALL INC. Purchase Order 11183 and its Attachment/Specifications, where applicable, have been shipped. to Orwell, OH.

Evidence if Inspection and Test Results and/or Certifications (if not supplied) is on file for customer review.

Parts were manufactured to Spec. ASTM A668, Class A

Submitted this 14th **day of** March, 2007

Cindy Niland
Customer Service

HAYDON BOLTS, INC.

MEGQUIER & JONES INC

Customer PO 11708

Invoice No. B8080379

Invoice Date 08/08/08

Sales Order K33277

Cert No	Inv Line No	Item No	Quanttity	Lot No	Heat	Assembly No	Haydon PO
32518	140000	CLVG350	22		401171		A48608

KREHER STEEL COMPANY, LLC.

KEN FORGING INC.

HOT ROLLED ROUNDS 1035
1.6250 X 18'/24'
PART NO.

PO/Rel CD080606KS

I hereby certify that this data is correct as contained in the records of this company.

Attn:

Certificate of Mill Test Results

SO 1 -153336-001 8Aug06
Pg 1/1

MacSteel
ONE JACKSON SQUARE
SUITE 500
JACKSON, MICHIGAN 49201

CERTIFIED MATERIAL TEST REPORT

CUSTOMER ORDER NUMBER	CUSTOMER PART NUMBER	HEAT NUMBER	WORK ORDER NUMBER	DATE
97300		M18854	35129 101	1/25/06

REPORT TO
LISA
KREHER STEEL

1550 N. 25TH AVE

MELROSE PARK , IL 60160

SHIP TO
KREHER STEEL

1550 N. 25TH AVE.

MELROSE PARK , IL 60160

ORDERED

GRADE	SIZE	LENGTH
1030/1035 ✓	1 5/8" RND	20'

CUSTOMER SPECIFICATIONS
ASTM A29/A29M-05; ASTM A576-90B

CHEMICAL ANALYSIS - (BAR AVERAGE)

C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Sn	Al
0.34	0.85	0.014	0.026	0.24	0.05	0.16	0.04	0.14	0.007	0.004

V	Nb
0.028	0.001

GRAIN SIZE SPECIFICATION ASTM E112 FINE GRAIN 5-8

REDUCTION RATIO

RATIO= 17.4 TO 1.0

Q. A. APPROVED
DATE: 6-22-07
SIGNED: R. Heeman

144 x 6 TBKL
HC - G5

MADE AND MANUFACTURED IN USA ✓

** MATERIAL 100% MELTED AND MANUFACTURED IN THE U.S.A. BY THE ELECTRIC ARC FURNACE AND CONTINUOUS CASTING METHOD. THE PRODUCT HAS NOT BEEN REPAIRED BY WELDING AND THIS MATERIAL HAS NOT BEEN EXPOSED TO MERCURY OR TO ANY OTHER METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURES DURING PROCESSING OR WHILE IN OUR POSSESSION. **

PAGE 1 OF 1

We certify that these data are correct and in compliance with specified requirements.

MacSteel-Arkansas ☐ FAX #: 708-345-1736
MacSteel-Michigan ☐ MacSteel-Monroe X

SIGNED: Patricia Doyle
Quality Assurance Representative

Doc No. 61930 Indexed 26Jan06 by erin

Title: STANDARD CMTR

Author: R.H. Approved By: E. A.

Cleveland City Forge

46950 St. Route 18 West * Wellington, Ohio 44090

To: Haydon Bolt
1181 Unity Street
Philadelphia, Pa. 19124

Date: 11/21/07
Cust. PO #: A49808
CCF Job #: 106049
Spec.: A668 CL.A
Galv.

Certified Material Test Report

Item	Description	Mat'l	Mill	Heat No.	Heat Code	QTY	C	MN	P	S	Si	Tensile	Yield	Elong.	Red.	BH
TB29310-0001	1-1/4 X 6 Tbkls	C1035	MacSteel	M18854	G5	12	.34	.85	.014	.026						
TB09300-0001	5/8 X 6 Tbkls	C1035	ASI	401188	G3	20	.32	.67	.009	.027						

MATERIALS AND CERTIFICATIONS ARE IN ACCORDANCE WITH CCF'S QUALITY PROGRAM REV: D DATED APRIL, 2006.

WE CERTIFY THAT THE FIGURES ARE CORRECT AS CONTAINED IN THE RECORDS OF THE CORPORATION.

SIGNED Rita Helman QUALITY CONTROL

Form Control Number: 0019A

HAYDON BOLTS, INC.

MEGQUIER & JONES INC

Customer PO 11708

Invoice No. B8080379

Invoice Date 08/08/08

Sales Order K33277

Cert No	Inv Line No	Item No	Quanttity	Lot No	Heat	Assembly No	Haydon PO
34468	130000	TBAG12506	11		M18854		A49808

CERTIFIED TEST REPORT

53 pcs.= 4862
HEAT# E1043
DATE SHIPPED 1/22/2008
SHIPMENT# 0308928
SIZE: RD 1 1/4 22' 0"
ORDER ITEM# 196922/ 12
SOLD TO: HAYDON BOLTS INC
FAX#/EMAIL: CERTS@HAYDONBOLTS.COM

NUCOR
BAR MILL-AUBURN
NUCOR STEEL AUBURN, INC.
P.O. BOX 2008
QUARRY ROAD
AUBURN, NY 13021

CUST. P.O. Z00050
PART #:
GRADE : F1554-04 GR55 SECTIONS
SPEC 8, 9.1 AND S1.5.2.1 ONLY
SUPP. REQ:
SHIP TO: HAYDON BOLTS

CHEMICAL ANALYSIS %

C	MN	SI	P	S	CU	NI	CR	MO	SN	V	CB	TI	B	N2	O2
.230	1.100	.230	.010	.040	.320	.1000	.130	.028	.014	.030	.0040	.0010	.0004	XXX	XXX

MECHANICAL RESULTS

YIELD	TENSILE	GAUGE	%	BEND	%
K.S.I.	K.S.I.	LENGTH	ELONG	PIN. DIA	R.A.
64.40	87.00	8	23.8	.0	43.4
64.60	86.10	8	22.5	.0	46.0
MPa	MPa	GAUGE	%	BEND	
		LENGTH	ELONG	PIN. DIA	R.A.

CHARPY IMPACT TEST

TEMP. F	FT./LB.	SUBSIZE SPECIMEN SAMPLE

Grain Size	Reduction Ratio	As Rolled Hardness	D.I.	C.E.	C.I.
XXX	XXX	XXX	XXX	.435	XXX

JOMINY END-QUENCH HARDENABILITY RESULTS (HRC)

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12

J13	J14	J15	J16	J18	J20	J22	J24	J26	J28	J30	J32

I CERTIFY THESE RESULTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

JIM BIERNAT, METALLURGIST
STATE OF NEW YORK SS.
COUNTY OF CAYUGA

Jim Biernat
(print)

AFTER BEING DULY SWORN BY ME, DECLARES THAT: THESE RESULTS ARE CORRECT AS CONTAINED IN THE RECORDS OF NUCOR STEEL AUBURN, INC

(sign)

SUBSCRIBED AND SHOWN BEFORE ME

THIS 22 DAY OF January
L.S. Cathy Ann Peluso

THIS CERTIFICATE IS NOTARIZED ONLY WHEN REQUESTED

CATHY ANN PELUSO
Notary Public, State of New York
No. 01PE6101856
Qualified in Cayuga County
My Commission Expires Nov. 17, 2011

ALL MANUFACTURING PROCESSES FOR THIS STEEL, INCLUDING MELTING FROM SCRAP AND HOT ROLLING HAVE BEEN PERFORMED IN THE U.S.A. NO WELD REPAIR PERFORMED, STEEL NOT EXPOSED TO MERCURY OR ANY LIQUID ALLOY WHICH IS LIQUID AT AMBIENT TEMPERATURES.

NOTARIZED CERTIFICATION

CUSTOMER SPECIAL INSTRUCTIONS:

ASTM F1554-04 GR. 55 IS DUAL CERTIFIED TO AASHTO M314-90 GR.55.

C. E. REQUIRED ON BW & BV CHEM. CODES ONLY

BV/05180
128600

HAYDON BOLTS, INC.

MEGQUIER & JONES INC

Customer PO 11708

Invoice No. B8080379

Invoice Date 08/08/08

Sales Order K33277

Cert No	Inv Line No	Item No	Quanttity	Lot No	Heat	Assembly No	Haydon PO
35028	100000	ROD2	11		E1043		Z00050

53 pcs.= 4862

HEAT# E1043
DATE SHIPPED 1/22/2008
SHIPMENT# 0308928
SIZE: RD 1 1/4 22' 0"
ORDER ITEM# 196922/ 12
SOLD TO: HAYDON BOLTS INC

FAX#/EMAIL: CERTS@HAYDONBOLTS.COM

CERTIFIED TEST REPORT

NUCOR

BAR MILL-AUBURN
NUCOR STEEL AUBURN, INC.

P.O. BOX 2008
QUARRY ROAD
AUBURN, NY 13021

CUST. P.O. Z00050
PART #:
GRADE : F1554-04 GR55 SECTIONS
SPEC 8, 9.1 AND S1.5.2.1 ONLY
SUPP. REQ:
SHIP TO: HAYDON BOLTS

CHEMICAL ANALYSIS %

C	MN	SI	P	S	CU	NI	CR	MO	SN	V	CB	TI	B	N2	O2
.230	1.100	.230	.010	.040	.320	.1000	.130	.028	.014	.030	.0040	.0010	.0004	XXX	XXX

MECHANICAL RESULTS

YIELD	TENSILE	GAUGE	%	BEND	%
K.S.I.	K.S.I.	LENGTH	ELONG	PIN. DIA	R.A.
64.40	87.00	8	23.8	.0	43.4
64.60	86.10	8	22.5	.0	46.0
MPa	MPa	GAUGE	%	BEND	
		LENGTH	ELONG	PIN. DIA	R.A.

CHARPY IMPACT TEST

TEMP. F	FT./LB.	SUBSIZE SPECIMEN SAMPLE

Grain Size	Reduction Ratio	As Rolled Hardness	D.I.	C.E.	C.I.
XXX	XXX	XXX	XXX	.435	XXX

JOMINY END-QUENCH HARDENABILITY RESULTS (HRC)

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12

J13	J14	J15	J16	J18	J20	J22	J24	J26	J28	J30	J32

I CERTIFY THESE RESULTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

JIM BIERNAT, METALLURGIST
STATE OF NEW YORK SS.
COUNTY OF CAYUGA

Jim Biernat
(print)

AFTER BEING DULY SWORN BY ME, DECLARES THAT: THESE RESULTS ARE CORRECT AS CONTAINED IN THE RECORDS OF NUCOR STEEL AUBURN, INC

(sign)

SUBSCRIBED AND SHOWN BEFORE ME

THIS 22 DAY OF January
L.S. Cathy Ann Peluso

THIS CERTIFICATE IS NOTARIZED ONLY WHEN REQUESTED

CATHY ANN PELUSO
Notary Public, State of New York
No. 01PE6101856
Qualified in Cayuga County
My Commission Expires Nov. 17, 2011

ALL MANUFACTURING PROCESSES FOR THIS STEEL, INCLUDING MELTING FROM SCRAP AND HOT ROLLING HAVE BEEN PERFORMED IN THE U.S.A. NO WELD REPAIR PERFORMED, STEEL NOT EXPOSED TO MERCURY OR ANY LIQUID ALLOY WHICH IS LIQUID AT AMBIENT TEMPERATURES.

NOTARIZED CERTIFICATION

CUSTOMER SPECIAL INSTRUCTIONS:

ASTM F1554-04 GR. 55 IS DUAL CERTIFIED TO AASHTO M314-90 GR.55.

C. E. REQUIRED ON BW & BV CHEM. CODES ONLY

BV/05180
128600

HAYDON BOLTS, INC.

MEGQUIER & JONES INC

Customer PO 11708

Invoice No. B8080379

Invoice Date 08/08/08

Sales Order K33277

Cert No	Inv Line No	Item No	Quanttity	Lot No	Heat	Assembly No	Haydon PO
35028	70000	ROD2	11		E1043		Z00050

J-60

J-60

SGS

Cert Summary Page HAYDON BOLTS, INC.

MEGQUIER & JONES INC **Customer PO** 11708

Invoice No. B8080379 ***Invoice Date*** 08/08/08 ***Sales Order*** K33277

Cert No	Inv Line No	Item No	Quanttity	Lot No	Heat	Assembly No	Haydon PO
35028	70000	ROD2	11		E1043		Z00050
	Description:	1-1/4"(7) X 28-7/8" ROD F1554-GR55 HD GALV			Manufacturer:	NUCOR STEEL AUBURN, INC	
35028	100000	ROD2	11		E1043		Z00050
	Description:	1-1/4"(7) X 28-7/8" ROD F1554-GR55 HD GALV			Manufacturer:	NUCOR STEEL AUBURN, INC	
34468	130000	TBAG12506	11		M18854		A49808
	Description:	1-1/4(7)X 6 TURNBUCKLE HDG OS			Manufacturer:	CLEVELAND CITY FORGE	
32518	140000	CLVG350	22		401171		A48608
	Description:	#3-1/2 DROP FORGED CLEVIS A668-A HDG			Manufacturer:	WECALL INC.	

RECEIVED

AUG 12 2008

MEGQUIER & JONES, INC

PO#11798
J-66
SGS

Sherwin-Williams
Certificate of Analysis

Wichita, Kansas (WIC)
630 East 13th Street
Andover, KS 67002-9314

Phone: (316) 733-1361
Fax: (316) 733-4420
Date: 06/16/2008

Product

Number: B67H00005
Description: Recoatable Epoxy Primer (Part G)
Color: Tan / Buff
Batch #: 0X1648D
Lot # / Batch Slip #: 87984
Order #: 3X82101300
Date of Manufacture: 06/12/2008
Expiration Date: 06/12/2011
Shelf Life: 36 Months

Test	Method	Unit	Minimum	Maximum	Value
MASSTONE	P100.00	DELTAE	-	2.0	1.26
GRIND FINENESS	T410.00	HEGMAN	3	-	3
CLEANLINESS OF GRIND	T411.00	HEGMAN	1	-	1
DRY HARD	P331.00	HOURS	-	30	30
DRY TACK FREE	P332.00	HOURS	-	1	1
KU VISCOSITY - TANK AGITATED	T301.00	KU	85	100	85
WT PER GALLON	T210.00	LBS/GAL	14.01	14.31	14.30
SAG TEST	P400.00	MILS	15	-	18

This product meets all product quality and customer packaging requirements. Guaranteed shelf life is from the date of manufacturing, provided proper storage is maintained and proper agitation and application are performed. Records, Material Safety Data Sheets and a retained sample are on file at our facility and are available for review upon request.
This material has not come in direct contact with mercury or any of it's compounds, nor with any mercury containing device employing a single boundary or containment during the manufacturing process, examination or testing.

Approved By: Laura T. Davis Date: 06/12/2008

Laura T. Davis
Q.C. / Q.A. APPROVAL

PO# 11798
J-66
SGS

Sherwin-Williams
Certificate of Analysis

Wichita, Kansas (WIC)
630 East 13th Street
Andover, KS 67002-9314

Phone: (316) 733-1361
Fax: (316) 733-4420
Date: 06/21/2008

Product

Number: B67V00005
Description: Recoatable Epoxy Primer (Part H)
Color: Hardener
Batch #: 0X1728Q
Lot # / Batch Slip #: 88140
Order #: 3X82204100
Date of Manufacture: 06/20/2008
Expiration Date: 06/20/2011
Shelf Life: 36 Months

Test	Method	Unit	Minimum	Maximum	Value
CLEANLINESS OF GRIND	T411.00	HEGMAN	2.0	-	2
GRIND FINENESS	T410.00	HEGMAN*	4.0	-	4
DRY HARD	P331.00	HOURS	-	30	30
DRY TACK FREE	P332.00	HOURS	-	1	1
KU VISCOSITY - TANK AGITATED	T301.00	KU	90	100	90
WT PER GALLON	T210.00	LBS/GAL	12.52	12.82	12.53
SAG TEST	P400.00	MILS	15	-	18

This product meets all product quality and customer packaging requirements. Guaranteed shelf life is from the date of manufacturing, provided proper storage is maintained and proper agitation and application are performed. Records, Material Safety Data Sheets and a retained sample are on file at our facility and are available for review upon request.
This material has not come in direct contact with mercury or any of it's compounds, nor with any mercury containing device employing a single boundary or containment during the manufacturing process, examination or testing.

Approved By: Laura T. Davis Date: 06/20/2008

Laura T. Davis
Q.C. / Q.A. APPROVAL

SA 3 x 3 x 1/4 x 40'

R4464
J-60
SG S

50 pcs. = 9798

HEAT# E3861
DATE SHIPPED 5/08/2008
SHIPMENT# 0315170
SIZE: AN 3 X 3 X 1/4 40' 0"
ORDER ITEM# 202119/ 01
SOLD TO: STEEL SERVICE CENTER INC
FAX#/EMAIL: 2077838533

CERTIFIED TEST REPORT

NUCOR

BAR MILL-AUBURN
NUCOR STEEL AUBURN, INC.

P.O. BOX 2008
QUARRY ROAD
AUBURN, NY 13021

CUST. P.O. 10526
PART #:
GRADE : ASTM A36-05/A709 GR36
SPEC CSA G40.21-98 GR44W
SUPP. REQ:
SHIP TO: STEEL SERVICE CENTER

CHEMICAL ANALYSIS %

C	MN	SI	P	S	CU	NI	CR	MO	SN	V	CB	TI	B	N2	O2
.170	.750	.220	.015	.035	.260	.0900	.140	.029	.017	.000	.0020	.0010	.0003	XXX	XXX

MECHANICAL RESULTS

YIELD	TENSILE	GAUGE	%	BEND	%
K.S.I.	K.S.I.	LENGTH	ELONG	PIN. DIA	R.A.
48.50	72.00	8	30.0	.0	.0
49.50	72.20	8	28.8	.0	.0
MPa	MPa	GAUGE	%	BEND	
		LENGTH	ELONG	PIN. DIA	R.A.

CHARPY IMPACT TEST

TEMP. F	FT./LB.	SUBSIZE SPECIMEN SAMPLE

Grain Size	Reduction Ratio	As Rolled Hardness	D.I.	C.E.	C.I.
XXX	XXX	XXX	XXX	.388	XXX

JOMINY END-QUENCH HARDENABILITY RESULTS (HRC)

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12

J13	J14	J15	J16	J18	J20	J22	J24	J26	J28	J30	J32

ALL MANUFACTURING PROCESSES FOR THIS STEEL, INCLUDING MELTING FROM SCRAP AND HOT ROLLING HAVE BEEN PERFORMED IN THE U.S.A. NO WELD REPAIR PERFORMED, STEEL NOT EXPOSED TO MERCURY OR ANY LIQUID ALLOY WHICH IS LIQUID AT AMBIENT TEMPERATURES.

DUAL CERTIFICATION

CUSTOMER SPECIAL INSTRUCTIONS:

RECEIVED
AUG 14 2008
MEGQUIER & JONES, INC

CF/02566
159400

I CERTIFY THESE RESULTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

JIM BIERNAT, METALLURGIST
STATE OF NEW YORK SS.
COUNTY OF CAYUGA

Jim Biernat
(print)

AFTER BEING DULY SWORN BY ME, DECLARES THAT: THESE RESULTS ARE CORRECT AS CONTAINED IN THE RECORDS OF NUCOR STEEL AUBURN, INC

(sign)

SUBSCRIBED AND SHOWN BEFORE ME

THIS _____ DAY OF _____

L.S _____

THIS CERTIFICATE IS NOTARIZED ONLY WHEN REQUESTED

Bill To:
INFRA-METALS CORPORATION-CT,R
DIV PREUSSAG INTERNATIONAL CO
8 PENT HWY
WALLINGFORD CT
06492 US

Ship To: 1
INFRA-METALS CORPORATION-CT
8 PENT HIGHWAY
TRACK# 953
WALLINGFORD CT
06492 US

Order Date:07/18/2008
PO No:C1272A
Mill Order No:3515646
Load No:1209994
Manifest No:1916757

CERTIFIED MATERIAL TEST REPORT

GERDAU AMERISTEEL
Petersburg Mill
25801 Hofheimer Way
Petersburg, VA 23803
(804) 524-2855

SPECIFICATIONS	SIZE	GRADE	LENGTH	PRODUCT
ASTM A6-05a, A992-06a, A572-06	W 10 X 49# / W250 X 73	992/572-50	65 FT / 19.812 M	WF BEAMS

→ HEAT NO: 30418770

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	V	Al	Nb	CE
.08	1.07	.013	.032	.24	.34	.10	.07	.020	.014	.003	.003	.020	.31

PHYSICAL PROPERTIES

Yield Strength		Tensile Strength		Specimen Area		Elongation			Bend Test	ROA
KSI	MPa	KSI	MPa	Sq In	Sq cm	%	Gage Length		Dia. Result	%
54.4	375.1	71.5	493.0	0.809	5.22	25.1	8 In	200 mm		
54.1	373.0	71.0	489.5	0.806	5.20	24.9	8 In	200 mm		

STORE THIS
IN THE
J-60 FILE

R4465
50#659
SGS

RECEIVED
SEP 15 2008
MEISNER & JONES, INC.

All manufacturing processes of this product, including electric arc melting and continuous casting, occurred in the U.S.A.
CMTR complies with DIN EN 10204 3.1.B

"I hereby certify that the contents of this report are correct and accurate. All tests and operations performed by this material manufacturer or its sub-contractors, when applicable, are in compliance with the requirements of the material specifications and applicable purchaser designated requirements."

Signed: _____ Date: Jul. 27, 2008
Tom L. Harrington: Quality Assurance Manager

Signed: _____ Date: _____
Notary Public (if applicable)

R4463
J-60
SGS

199 pcs.= 10146

HEAT# E4409
DATE SHIPPED 6/02/2008
SHIPMENT# 0316356
SIZE: FL 2 X 3/8 20' 0"
ORDER ITEM# 201805/ 07
SOLD TO: AMERICAN STEEL and ALUM -
FAX#/EMAIL: 2077720359

CERTIFIED TEST REPORT

NUCOR
BAR MILL-AUBURN
NUCOR STEEL AUBURN, INC.

P.O. BOX 2008
QUARRY ROAD
AUBURN, NY 13021

CUST. P.O. M0525342
PART #: 08113
GRADE : ASTM A36-05/CSA 44W
SPEC A709-06A GR36
SUPP. REQ:
SHIP TO: AMERICAN STEEL - P

CHEMICAL ANALYSIS %

C	MN	SI	P	S	CU	NI	CR	MO	SN	V	CB	TI	B	N2	O2
.160	.780	.180	.023	.046	.360	.0900	.150	.027	.017	.000	.0020	.0000	.0003	XXX	XXX

MECHANICAL RESULTS

YIELD	TENSILE	GAUGE	%	BEND	%
K.S.I.	K.S.I.	LENGTH	ELONG	PIN. DIA	R.A.
50.60	73.10	8	28.8	.0	.0
50.00	72.80	8	27.5	.0	.0
MPa	MPa	GAUGE	%	BEND	
		LENGTH	ELONG	PIN. DIA	R.A.

CHARPY IMPACT TEST

TEMP. F	FT./LB.	SUBSIZE SPECIMEN SAMPLE

Grain Size	Reduction Ratio	As Rolled Hardness	D.I.	C.E.	C.I.
XXX	XXX	XXX	XXX	.385	XXX

JOMINY END-QUENCH HARDENABILITY RESULTS (HRC)

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12

J13	J14	J15	J16	J18	J20	J22	J24	J26	J28	J30	J32

I CERTIFY THESE RESULTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

JIM BIERNAT, METALLURGIST
STATE OF NEW YORK SS.
COUNTY OF CAYUGA

Jim Biernat
(print)

AFTER BEING DULY SWORN BY ME, DECLARES THAT: THESE RESULTS ARE CORRECT AS CONTAINED IN THE RECORDS OF NUCOR STEEL AUBURN, INC

(sign)

SUBSCRIBED AND SHOWN BEFORE ME

THIS _____ DAY OF _____

L.S. _____

THIS CERTIFICATE IS NOTARIZED ONLY WHEN REQUESTED

ALL MANUFACTURING PROCESSES FOR THIS STEEL, INCLUDING MELTING FROM SCRAP AND HOT ROLLING HAVE BEEN PERFORMED IN THE U.S.A. NO WELD REPAIR PERFORMED, STEEL NOT EXPOSED TO MERCURY OR ANY LIQUID ALLOY WHICH IS LIQUID AT AMBIENT TEMPERATURES.

CUSTOMER SPECIAL INSTRUCTIONS:

RECEIVED
AUG 13 2008
MEGQUIER & JONES, INC

BB/02630
105000

DATE	3/13/08
INVOICE NO.	214118
BILL OF LADING	898438
CUSTOMER NO.	7717
CUSTOMER P.O.	B 1123 J

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SOLD TO
INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4397
J-60
SGS

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES					C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
				YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG %	CHARPY IMPACT TEMP °F / °C, IMPACT ENERGY FT-LBS / JOULES									Sn	Pcm		CI
1	W30 - 99.0	1	314313	.76	55000	72000	27		.07	1.22	.021	.021	.22	.30	.09	.11	.03	.00	.017	.33
	35'			.75	55000	73000	26										.01	.17		
	W760 x147.0				379	496	27													
	10.668 M				379	503	26													
2	W30 - 99.0	3	314315	.75	55000	73000	25		.07	1.24	.021	.022	.22	.28	.10	.11	.03	.00	.015	.34
	35'			.76	55000	72000	25										.01	.16		
	W760 x147.0				379	503	25													
	10.668 M				379	496	25													
3	W30 - 99.0	2	314317	.73	54000	74000	24		.08	1.26	.018	.026	.24	.32	.11	.10	.03	.00	.015	.35
	35'			.74	54000	73000	24										.01	.18		
	W760 x147.0				372	510	24													
	10.668 M				372	503	24													
4	W30 - 99.0	3	314320	.76	56000	74000	24		.07	1.22	.017	.026	.22	.37	.10	.08	.03	.00	.016	.32
	35'			.78	57000	73000	24										.01	.16		
	W760 x147.0				386	510	24													
	10.668 M				393	503	24													
5	W30 - 99.0	3	314324	.74	54000	73000	24		.07	1.22	.024	.024	.20	.31	.10	.13	.03	.00	.017	.33
	35'			.73	53000	73000	24										.01	.17		
	W760 x147.0				372	503	24													
	10.668 M				365	503	24													
6	W30 - 99.0	2	314326	.76	57000	75000	24		.08	1.23	.021	.019	.23	.27	.10	.12	.03	.00	.016	.34
	35'			.76	57000	75000	24										.01	.17		
	W760 x147.0				393	517	24													
	10.668 M				393	517	24													
7	W30 - 99.0	3	314334	.77	57000	74000	26		.07	1.24	.022	.028	.25	.28	.11	.14	.03	.00	.015	.34
	35'			.78	58000	74000	26										.01	.16		
	W760 x147.0				393	510	26													
	10.668 M				400	510	26													
8	W30 - 99.0	1	314339	.77	58000	75000	26		.08	1.23	.018	.025	.22	.28	.11	.11	.03	.00	.015	.35
	35'			.75	56000	75000	27										.01	.17		
	W760 x147.0				400	517	26													
	10.668 M				386	517	27													
9	W30 - 99.0	1	314347	.76	57000	75000	26		.07	1.24	.019	.023	.23	.28	.10	.10	.03	.00	.017	.34
	35'			.76	57000	75000	26										.01	.16		
	W760 x147.0				393	517	26													
	10.668 M				393	517	26													

RECEIVED
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BY

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5 B B=Approx..0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15

Corrosion Index: CI = 26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lemell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
13 Day of 03/08
Charlene Wallis NOTARY PUBLIC
MY COMMISSION EXPIRES 10/21/2018

CHARLENE WALLIS NOTARY PUBLIC MISSISSIPPI CO. ARKANSAS MY Comm. Exp. 10-21-2018

DATE	3/13/08
INVOICE NO.	214119
BILL OF LADING	898438
CUSTOMER NO.	7717
CUSTOMER P.O.	B 1123 J

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 • BLYTHEVILLE, AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4397
J-60
SGS

SOLD TO
INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES					CHEMICAL PROPERTIES												
				YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG % / %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT IMPACT ENERGY FT-LBS / JOULES	C	Mn	P	S	Si	Cu	Ni	Cr	Mo / Sn	V / Pcm	Cb	CE / CI
1	W30 - 99.0	1	314355	.78	59000	76000	26			.07	1.23	.022	.019	.24	.27	.11	.14	.03	.00	.016	.34
	35'			.76	56000	74000	26											.01	.16		
	W760 x147.0				407	524	26														
	10.668 M				386	510	26														
2	W30 - 99.0	2	314363	.72	55000	76000	20			.07	1.24	.020	.022	.21	.30	.09	.12	.03	.00	.016	.34
	35'			.70	53000	76000	23											.01	.17		
	W760 x147.0				379	524	20														
	10.668 M				365	524	23														
3	W30 - 99.0	3	314383	.76	57000	75000	25			.08	1.24	.016	.022	.22	.26	.12	.11	.03	.01	.016	.35
	35'			.76	56000	74000	25											.01	.17		
	W760 x147.0				393	517	25														
	10.668 M				386	510	25														
4	W30 - 99.0	1	314384	.75	56000	75000	25			.08	1.23	.021	.025	.22	.31	.10	.10	.03	.00	.016	.35
	35'			.75	56000	75000	25											.01	.18		
	W760 x147.0				386	517	25														
	10.668 M				386	517	25														
5	W30 -108.0	7	314536	.77	56000	73000	26			.08	1.21	.019	.026	.25	.34	.12	.11	.03	.00	.016	.34
	35'			.76	56000	74000	25											.01	.18		
	W760 x161.0				386	503	26														
	10.668 M				386	510	25														

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5B Approx. .0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

Corrosion Index: CI = 26.01(%Cu) + 3.88(%Ni) + 1.20(%Cr) + 1.49(%Si) + 17.28(%P) - 7.29(%Cu)(%Ni) - 9.10(%Ni)(%P) - 33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lennell
QUALITY ASSURANCE

CUSTOMER COPY

RECEIVED
MAR 26 2008
By

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
13 Day of 03/08

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS NOTARY PUBLIC MISSISSIPPI CO. ARKANSAS MY Comm. Exp. 10-21-2013

CERTIFIED MILL TEST REPORT

DATE	3/13/08
INVOICE NO.	214118
BILL OF LADING	898438
CUSTOMER NO.	7717
CUSTOMER P.O.	B 1123 J

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SOLD TO
INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4397
J·60
SGS

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES: YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT ENERGY FT-LBS / JOULES	C	Mn	P	S	Si	Cu	Ni	Cr	Mo / Sn	V / Pcm	Cb	CE / CI
1	W30 - 99.0 35' W760 x147.0 10.668 M	4	314351	.76 .75	58000 56000 400 386	76000 75000 524 517	25 25 25 25			.08	1.22	.019	.024	.22	.30	.10	.10	.03 .01	.00 .18	.015	.34
2	W30 - 99.0 35' W760 x147.0 10.668 M	3	314353	.76 .72	57000 53000 393 365	75000 74000 517 510	26 26 26 26			.07	1.22	.023	.020	.25	.26	.10	.14	.03 .01	.00 .16	.016	.32

RECEIVED
MAR 26 2008
By

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5B B=Approx..0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lemell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
13 Day of 03/08

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS
MY Comm. Exp.
NOTARY PUBLIC
10-21-2013
MISSISSIPPI CO. ARKANSAS

DATE	4/09/08
INVOICE NO.	220199
BILL OF LADING	902691
CUSTOMER NO.	7717
CUSTOMER P.O.	B 1131 J

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
INFRA-METALS CORP.
8 PENT HIGHWAY
TRACK# 953
WALLINGFORD, CT 06492

SOLD TO
INFRA-METALS CORP.

8 PENT HIGHWAY
WALLINGFORD, CT 06492

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4398
J-60
SGS

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES: YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT ENERGY FT-LBS / JOULES	CHEMICAL PROPERTIES: C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
																		Sn	Pcm		CI
1	W24 - 68.0	6	316417	.83	62000	75000	26			.08	1.22	.018	.022	.25	.30	.10	.10	.03	.00	.015	.34
	51' 4"			.77	58000	75000	25											.01	.18		
	W610 x101.0				427	517	26														
	15.646 M				400	517	25														
2	W24 - 68.0	6	316418	.77	56000	73000	26			.07	1.22	.018	.020	.24	.33	.10	.09	.03	.00	.017	.32
	53' 8"			.78	57000	73000	26											.01	.16		
	W610 x101.0				386	503	26														
	16.358 M				393	503	26														

Rec'd 4/23/08

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5 B B=Approx..0003

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lemell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
9 Day of 04/08

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS NOTARY PUBLIC MISSISSIPPI CO. ARKANSAS MY Comm. Exp. 10-21-2013

SGS

PURCHASE ORDER

ME IER & JONES, INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106
PHONE: 207-799-8555
FAX: 207-767-2117

PURCHASE ORDER NUMBER: R4400
PURCHASE ORDER DATE: 01/29/08
PAGE: 1

VENDOR NUMBER: INF5

VENDOR
INFRA METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

SHIP TO
MEGQUIER & JONES INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SALESMAN	ORDERED BY	Ship DATE	JOB NO	
Oak Williams	SAMUEL G. STONE	05/01/08	J-60	
SHIP VIA	**FOB**	**TERMS**		
TRUCK	DELIVERED			

ITM	QTY	DESCRIPTION	SPEC	WEIGHT	COST UNIT/UM	COST
001	✓ 2	TS 4 x 4 x 3/8 x 40- 0	A500/GRB	1,381.6	50.9500/cwt	703.93
002	✓ 1	TS 6 x 6 x 3/8 x 20- 0	A500/GRB	549.6	50.9500/cwt	280.02
003	~~1~~	TS 7 x 3 x 1/4 x ~~40- 0~~ 5@50' ✓ 2@45' ✓ 4@30' ✓	A500/GRB	624.8	50.9500/cwt	318.34
00-	~~7~~	TS 7 x 3 x 1/4 x ~~60- 0~~	A500/GRB	6,560.4	50.9500/cwt	3,342.52
005	✓ 2	TS 8 x 4 x 1/4 x 40- 0	A500/GRB	1,521.6	50.9500/cwt	775.26
006	✓ 1	TS 8 x 4 x 1/4 x 45- 0	A500/GRB	855.9	50.9500/cwt	436.08
007	✓ 1	TS 8 x 4 x 3/8 x 24- 0	A500/GRB	659.5	50.9500/cwt	336.02
008	✓ 5	TS 8 x 4 x 3/8 x 30- 0	A500/GRB	4,122.0	50.9500/cwt	2,100.16
009	✓ 2	TS 8 x 4 x 3/8 x 48- 0	A500/GRB	2,638.1	50.9500/cwt	1,344.11
010	✓ 2	TS 8 x 4 x 3/8 x 50- 0	A500/GRB	2,748.0	50.9500/cwt	1,400.11
011	✓ 1	TS 8 x 8 x 5/16 x 20- 0	A500/GRB	636.8	50.9500/cwt	324.45
012	✓ 2	TS 8 x 8 x 1/2 x 57- 6	A500/GRB	5,585.2	51.9500/cwt	2,901.51
013	✓ 4	TS 8 x 8 x 1/2 x 65- 6	A500/GRB	12,734.0	51.9500/cwt	6,615.31
014	✓ 2	TS 8 x 8 x 1/2 x 66- 0	A500/GRB	6,448.2	51.9500/cwt	3,349.84
015	✓ 1	TS 8 x 8 x 5/8 x 65- 2	A500/GRB	3,885.2	54.9500/cwt	2,134.92
01-	✓ 1	TS 10 x 10 x 5/8 x ~~57- 2~~ 64'-0	A500/GRB	4,363.5	54.9500/cwt	2,397.74
017	✓ 1	TS 10 x 10 x 5/8 x 64- 0	A500/GRB	4,885.1	54.9500/cwt	2,684.36
018	✓ 1	TS 12 x 4 x 1/4 x 20- 0	A500/GRB	516.4	50.9500/cwt	263.11

(Continued on page 2)

PURCHASE ORDER

ME IER & JONES, INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106
PHONE: 207-799-8555
FAX: 207-767-2117

PURCHASE ORDER NUMBER: R4400
PURCHASE ORDER DATE: 01/29/08
PAGE: 2

VENDOR NUMBER: INF5

==========VENDOR==========
INFRA METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

==========SHIP TO==========
MEGQUIER & JONES INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

====SALESMAN====	===ORDERED BY===	===Ship DATE====	=====JOB NO=====	==========
Oak Williams	SAMUEL G. STONE	05/01/08	J-60	
====SHIP VIA====	======FOB=======	=====TERMS======	==========	==========
TRUCK	DELIVERED			

ITM	QTY	==========DESCRIPTION==========	==SPEC==	=WEIGHT=	COST UNIT/UM	==COST==
019	✓ 5	TS 12 x 4 x 1/4 x 35- 0	A500/GRB	4,518.5	50.9500/cwt	2,302.18
020	✓ 1	TS 12 x 6 x 5/16 x 30- 0	A500/GRB	1,083.0	50.9500/cwt	551.79
021	✓ 3	TS 12 x 6 x 5/16 x 50- 0	A500/GRB	5,415.0	50.9500/cwt	2,758.94
022	✓ 2	TS 12 x 6 x 3/8 x 40- 0	A500/GRB	3,423.2	50.9500/cwt	1,744.12
023	✓ 1	TS 12 x 6 x 1/2 x 35- 0	A500/GRB	1,948.1	51.9500/cwt	1,012.04
024	✓ 1	TS 12 x 6 x 1/2 x 50- 0	A500/GRB	2,783.0	51.9500/cwt	1,445.77
025	✓ 1	TS 12 x 8 x 1/4 x 35- 0	A500/GRB	1,142.1	50.9500/cwt	581.90
026	✓ 1	TS 12 x 8 x 1/4 x 40- 0	A500/GRB	1,305.2	50.9500/cwt	665.00
027	✓ 9	TS 12 x 8 x 3/8 x 40- 0	A500/GRB	17,244.0	50.9500/cwt	8,785.82
028	✓ 1	TS 12 x 8 x 3/8 x 50- 0	A500/GRB	2,395.0	50.9500/cwt	1,220.25
029	✓ 1	TS 12 x 8 x 5/8 x 65- 6	A500/GRB	4,974.2	54.9500/cwt	2,733.32
030	4	TS 12 x 12 x 3/8 x ~~31- 8~~ 32' 0	A500/GRB	7,359.3	56.9500/cwt	4,191.12
031	8	TS 12 x 12 x 3/8 x 34- ~~0~~ 6	A500/GRB	15,919.0	56.9500/cwt	9,065.87
032	✓ 24	TS 12 x 12 x 3/8 x 35- 0	A500/GRB	48,804.0	56.9500/cwt	27,793.88
033	✓ 4	TS 12 x 12 x 3/8 x 37- 0	A500/GRB	8,598.8	56.9500/cwt	4,897.02
034	✓ 8	TS 12 x 12 x 3/8 x 50- 6	A500/GRB	23,434.0	56.9500/cwt	13,345.66
035	✓ 8	TS 12 x 12 x 3/8 x 51- 6	A500/GRB	23,782.0	56.9500/cwt	13,543.85
036	✓ 4	TS 12 x 12 x 3/8 x 53- 6	A500/GRB	12,337.0	56.9500/cwt	7,025.92

SAME Ht.

(Continued on page 3)

PURCHASE ORDER

ME IER & JONES, INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106
PHONE: 207-799-8555
FAX: 207-767-2117

PURCHASE ORDER NUMBER: R4400
PURCHASE ORDER DATE: 01/29/08
PAGE: 3

VENDOR NUMBER: INF5

==========VENDOR==========
INFRA METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

==========SHIP TO==========
MEGQUIER & JONES INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

====SALESMAN====	===ORDERED BY===	===Ship DATE====	=====JOB NO=====	==========
Oak Williams	SAMUEL G. STONE	05/01/08	J-60	
====SHIP VIA====	======FOB=======	=====TERMS======	==========	==========
TRUCK	DELIVERED			

ITM	QTY	==========DESCRIPTION==========	==SPEC==	=WEIGHT=	COST UNIT/UM	==COST==
037	✓1	TS 12 x 12 x 1/2 x 30- 0	A500/GRB	2,282.1	56.9500/cwt	1,299.66
038	✓6	TS 18 x 6 x 3/8 x 31- 0	A500/GRB	10,807.0	56.9500/cwt	6,154.59
039	✓2	TS 18 x 6 x 3/8 x 40- 6	A500/GRB	4,667.4	56.9500/cwt	2,658.08
04_	✓2	TS 18 x 6 x 3/8 x ~~43- 8~~ 44'	A500/GRB	5,074.1	56.9500/cwt	2,889.70
041	✓2	TS 18 x 6 x 3/8 x 50- 0	A500/GRB	5,810.0	56.9500/cwt	3,308.80

HEAT NUMBERS MUST BE CLEARLY MARKED ON ALL MATERIAL

MILL TEST REPORTS REQUIRED

ALL MATERIAL MUST COMPLY WITH ASTM-A6

AUTHORIZED BY: Samuel G. Stone

		==========
SUB-TOTAL		151,683.07
34% FUEL SURCHARGE:	0.5848/cwt	1,613.01
		==========
TOTALS	275,822 lbs.	$153,296.08

R4400
J-60
SGS

BULL MOOSE TUBE ELKHART FACILITY 03/25/08
CERTIFICATION OF TESTS

[redacted]

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra Metals - Rail
8 Pent Highway
Track # 953
ROUTE: NS BUFF CSXT WSPRI CSO
Wallingford CT 06492

B/L Number 162120 Ship Via XTTX_142136

8" SQ X 0.500 HR X 66' **Order # 240790**
203.2 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135375 5120**
Ticket # = 59236787 **Heat # = 10888M08** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.050	.790	.010	.006	.036	.012	.032	.030	.020	.010	.001	60780	69509	38

8" SQ X 0.625 HR X 65' 2" **Order # 240790**
203.2 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135376 5120**
Ticket # = 59236761 **Heat # = T46422** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.060	.520	.008	.005	.047	.070	.040	.020	.030	.010	.001	58830	73563	33

10" SQ X 0.625 HR X 64' **Order # 240790**
254 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135382 6400**
Ticket # = 59239191 **Heat # = M48291** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	1.180	.017	.007	.038	.070	.054	.020	.030	.010	0.000	64240	83498	33

12" SQ X 0.375 HR X 51' 6" **Order # 240790**
304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135385 7680**
Ticket # = 59238937 **Heat # = AMK7800824** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	.730	.008	.007	.050	.011	.037	.052	.044	.035	.002	59490	71494	36

RECEIVED
APR 0 8 2008
By

Quality Manager: Richard Long

THIS WELDED STEEL TUBING IS MANUFACTURED IN THE UNITED STATES OF AMERICA AND HAS BEEN PRODUCED IN ACCORDANCE WITH THE STATED SPECIFICATION. LADLE CHEMISTRIES ARE REPORTED FROM DOCUMENTS PROVIDED BY THE SUPPLYING STEEL MILL. ANY PHYSICAL AND MECHANICAL TESTING RESULTS SHOWN ON THIS CERTIFICATION ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

R4400
J-60
SGS

BULL MOOSE TUBE ELKHART FACILITY 03/25/08
CERTIFICATION OF TESTS

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra Metals - Rail
8 Pent Highway
Track # 953
ROUTE: NS BUFF CSXT WSPRI CSO
Wallingford CT 06492

B/L Number 162120 Ship Via XTTX_142136

12" SQ X 0.375 HR X 35' **Order # 240790**
304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 115334 7680**
Ticket # = 59238953 **Heat # = AMK7800824** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	.730	.008	.007	.050	.011	.037	.052	.044	.035	.002	59490	71494	36

12" SQ X 0.375 HR X 50' 6" **Order # 240790**
304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 118360 7680**
Ticket # = 59238939 **Heat # = AMK7800824** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	.730	.008	.007	.050	.011	.037	.052	.044	.035	.002	59490	71494	36

8" SQ X 0.500 HR X 57' 6" **Order # 240790**
203.2 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 122864 5120**
Ticket # = 59236786 **Heat # = 10888M08** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.050	.790	.010	.006	.036	.012	.032	.030	.020	.010	.001	60780	69509	38

8" SQ X 0.500 HR X 65' 6" **Order # 240790**
203.2 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135374 5120**
Ticket # = 59236788 **Heat # = 10888M08** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.050	.790	.010	.006	.036	.012	.032	.030	.020	.010	.001	60780	69509	38

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By

Quality Manager: Richard Long

THIS WELDED STEEL TUBING IS MANUFACTURED IN THE UNITED STATES OF AMERICA AND HAS BEEN PRODUCED IN ACCORDANCE WITH THE STATED SPECIFICATION. LADLE CHEMISTRIES ARE REPORTED FROM DOCUMENTS PROVIDED BY THE SUPPLYING STEEL MILL. ANY PHYSICAL AND MECHANICAL TESTING RESULTS SHOWN ON THIS CERTIFICATION ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

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BULL MOOSE TUBE ELKHART FACILITY 03/25/08
CERTIFICATION OF TESTS

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra Metals - Rail
8 Pent Highway
Track # 953
ROUTE: NS BUFF CSXT WSPRI CSO
Wallingford CT 06492

B/L Number 162120 Ship Via XTTX_142136

12" SQ X 0.375 HR X 53' 6" **Order # 240790**
304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135386 7680**
Ticket # = 59238933 **Heat # = AMK7800824** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	.730	.008	.007	.050	.011	.037	.052	.044	.035	.002	59490	71494	36

12" X 8" X 0.625 HR X 65' 6" **Order # 240790**
203.2 X 304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135388 5127**
Ticket # = 59241675 **Heat # = M48290** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	1.190	.019	.006	.045	.060	.046	.020	.040	.010	.001	60930	82092	34

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Quality Manager: Richard Lory

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BULL MOOSE TUBE ELKHART FACILITY 03/25/08
CERTIFICATION OF TESTS

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra Metals - Rail
8 Pent Highway
Track # 953
ROUTE: NS BUFF CSXT WSPRI CSO
Wallingford CT 06492

B/L Number 162120 Ship Via XTTX_142136

8" SQ X 0.500 HR X 66'
203.2 mm
ASTM A500-03 Grade C
Ticket # = 59236787

Ladle Analysis and Physicals
Heat # = 10888M08

Order # 240790
Purchase Order # C1212B-MF
Item # 135375 5120

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	P YLD psi	TSN psi	ELN %
.050	.790	.010	.006	.036	.012	.032	.030	.020	.010	.001	60780	69509	38

8" SQ X 0.625 HR X 65' 2"
203.2 mm
ASTM A500-03 Grade C
Ticket # = 59236761

Ladle Analysis and Physicals
Heat # = T46422

Order # 240790
Purchase Order # C1212B-MF
Item # 135376 5120

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	P YLD psi	TSN psi	ELN %
.060	.520	.008	.005	.047	.070	.040	.020	.030	.010	.001	58830	73563	33

10" SQ X 0.625 HR X 64'
254 mm
ASTM A500-03 Grade C
Ticket # = 59239191

Ladle Analysis and Physicals
Heat # = M48291

Order # 240790
Purchase Order # C1212B-MF
Item # 135382 6400

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	P YLD psi	TSN psi	ELN %
.080	1.180	.017	.007	.038	.070	.054	.020	.030	.010	0.000	64240	83498	33

12" SQ X 0.375 HR X 51' 6"
304.8 mm
ASTM A500-03 Grade C
Ticket # = 59238937

Ladle Analysis and Physicals
Heat # = AMK7800824

Order # 240790
Purchase Order # C1212B-MF
Item # 135385 7680

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	P YLD psi	TSN psi	ELN %
.080	.730	.008	.007	.050	.011	.037	.052	.044	.035	.002	59490	71494	36

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APR 09 2008
By

Quality Manager: Richard Lary

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BULL MOOSE TUBE ELKHART FACILITY 03/25/08
CERTIFICATION OF TESTS

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra Metals - Rail
8 Pent Highway
Track # 953
ROUTE: NS BUFF CSXT WSPRI CSO
Wallingford CT 06492

B/L Number 162120 Ship Via XTTX_142136

12" SQ X 0.375 HR X 35' **Order # 240790**
304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 115334 7680**
Ticket # = 59238953 **Heat # = AMK7800824** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	.730	.008	.007	.050	.011	.037	.052	.044	.035	.002	59490	71494	36

12" SQ X 0.375 HR X 50' 6" **Order # 240790**
304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 118360 7680**
Ticket # = 59238939 **Heat # = AMK7800824** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	.730	.008	.007	.050	.011	.037	.052	.044	.035	.002	59490	71494	36

8" SQ X 0.500 HR X 57' 6" **Order # 240790**
203.2 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 122864 5120**
Ticket # = 59236786 **Heat # = 10888M08** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.050	.790	.010	.006	.036	.012	.032	.030	.020	.010	.001	60780	69509	38

8" SQ X 0.500 HR X 65' 6" **Order # 240790**
203.2 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135374 5120**
Ticket # = 59236788 **Heat # = 10888M08** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.050	.790	.010	.006	.036	.012	.032	.030	.020	.010	.001	60780	69509	38

Quality Manager: Richard Long

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BULL MOOSE TUBE ELKHART FACILITY 03/25/08
CERTIFICATION OF TESTS

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra Metals - Rail
8 Pent Highway
Track # 953
ROUTE: NS BUFF CSXT WSPRI CSO
Wallingford CT 06492

B/L Number 162120 Ship Via XTTX_142136

12" SQ X 0.375 HR X 53' 6" **Order # 240790**
304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135386 7680**
Ticket # = 59238933 **Heat # = AMK7800824** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	.730	.008	.007	.050	.011	.037	.052	.044	.035	.002	59490	71494	36

12" X 8" X 0.625 HR X 65' 6" **Order # 240790**
203.2 X 304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135388 5127**
Ticket # = 59241675 **Heat # = M48290** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.080	1.190	.019	.006	.045	.060	.046	.020	.040	.010	.001	60930	82092	34

RECEIVED
APR 09 2008
By

Quality Manager: Richard Long

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NOVA TUBE AND STEEL CORPORATION
600 Dean Sievers Place
Morrisville, PA, 19067
Tel: 215-295-8813 Fax: 215-295-8798

TEST CERTIFICATE

Sold to: INFRA-METALS CORP.
Ship to: INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CONNECTICUT
06492

DATE SHIPPED: 02/22/08
B/L #: 157915
P.O. #:C1187B-MF
SALES ORDER #: 129983

30's WITH THIS HAT

Description	Dimensions	Pcs	Mill/Heat Number	Specifications
Hot Roll Rectangular Tub	8x4x0.375x480 TR846 X 40	8	MIT /421J4191	ASTM A500 C
HSS Square Tubing	4x4x0.250x480 T044X40	16	STE /750228	ASTM A500 C
HSS Square Tubing	6x6x0.375x660 T066X55	3	MIT /424J0561	ASTM A500 C
HSS Square Tubing	6x6x0.375x720 T066X60	9	MIT /421J4192	ASTM A500 C

Chemical Analysis

Heat Number	C	Mn	P	S	Si	Cu	Ni	Cr	Cb	Mo	V	Al	N	Sn	B	Ti
MIT 421J4191	0.060	0.550	0.020	0.018	0.009	0.040	0.020	0.030	0.016	0.001	0.001	0.045	0.006	-	-	-
	Melted & Manufactured in the U.S.A.															
STE 750228	0.190	0.780	0.007	0.005	0.013	0.027	0.010	0.029	0.005	0.003	-	0.047	-	-	-	-
MIT 424J0561	0.070	0.620	0.016	0.016	0.004	0.020	0.020	0.020	0.018	0.001	0.002	0.061	0.007	-	-	-
	Melted & Manufactured in the U.S.A.															
MIT 421J4192	0.060	0.550	0.020	0.018	0.009	0.040	0.020	0.030	0.016	0.001	0.001	0.045	0.006	-	-	-
	Melted & Manufactured in the U.S.A.															

Mechanical Test Results

Heat Number/Size or Ser#	Yield	Tensile	Elong.%	N-fact	Crush
421J4191 HSR 8x4x0.375 (Tail)	66,795 PSI	70,433 PSI	24.00(2")		
750228 HSS 4x4x0.250 (Tail)	60,951 PSI	70,744 PSI	27.00(2")		
424J0561 HSS 6x6x0.375 (Tail)	63,785 PSI	76,084 PSI	26.00(2")		
421J4192 HSS 6x6x0.375 (Tail)	65,058 PSI	69,769 PSI	25.00(2")		

continue. . .

PS 182

NOVA TUBE AND STEEL CORPORATION
600 Dean Sievers Place
Morrisville, PA, 19067
Tel: 215-295-8813 Fax: 215-295-8798

T E S T C E R T I F I C A T E

Sold to: INFRA-METALS CORP.
Ship to: INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CONNECTICUT

06492

DATE SHIPPED: 02/22/08
B/L #: 157915
P.O. #:C1187B-MF
SALES ORDER #: 129983

Heat #	Manufactured in	
421J4191	United States	MITTAL STEEL - SPT
750228	United States	Stelco
424J0561	United States	MITTAL STEEL - SPT
421J4192	United States	MITTAL STEEL - SPT

Authorized by Andrew Hurlbrink, Quality Ctrl Dept

FEB 22, 2008N

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BULL MOOSE TUBE ELKHART FACILITY
CERTIFICATION OF TESTS

10/02/07

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra Metals - Rail
8 Pent Highway
Track # 953
ROUTE: NS BUFF CSXT WSPRI CSO
Wallingford CT 06492

B/L Number 149029 Ship Via TTPX_805109

8" X 4" X 0.375 HR X 40'
101.6 X 203.2 mm
ASTM A500-03 Grade C
Ticket # = 59218058

Ladle Analysis and Physicals

Heat # = 50523M07

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.060	.760	.010	.007	.024	.021	.029	.020	.040	.010	.002	63860	72856	34

Order # 223773
Purchase Order # C1065B-MF
Item # 110736 2565
P

8" X 4" X 0.375 HR X 45'
101.6 X 203.2 mm
ASTM A500-03 Grade C
Ticket # = 59218054

Ladle Analysis and Physicals

Heat # = 50522M07

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.060	.770	.009	.005	.052	.016	.030	.020	.030	.010	.001	59670	69497	37

Order # 223773
Purchase Order # C1065B-MF
Item # 110737 2565
P

8" X 4" X 0.375 HR X 48'
101.6 X 203.2 mm
ASTM A500-03 Grade C
Ticket # = 59218052

Ladle Analysis and Physicals

Heat # = 50522M07

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.060	.770	.009	.005	.052	.016	.030	.020	.030	.010	.001	59670	69497	37

Order # 223773
Purchase Order # C1065B-MF
Item # 118531 2565
P

8" X 4" X 0.375 HR X 55'
101.6 X 203.2 mm
ASTM A500-03 Grade C
Ticket # = 59218048

Ladle Analysis and Physicals

Heat # = 50165M07

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.050	.750	.008	.006	.046	.016	.029	.030	.030	.010	.001	57120	69883	35

Order # 223773
Purchase Order # C1065B-MF
Item # 121118 2565
P

Heat # = 50522M07

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELN %
.060	.770	.009	.005	.052	.016	.030	.020	.030	.010	.001	59670	69497	37

Quality Manager: Richard Long

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BULL MOOSE TUBE ELKHART FACILITY
CERTIFICATION OF TESTS

04/01/08

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra-Metals Corporation(Parent)
8 Pent Highway
Wallingford CT 06492

B/L Number 162919 Ship Via 524_F130

8" X 4" X 0.375 HR X 30'
101.6 X 203.2 mm **Ladle Analysis and Physicals**
ASTM A500-03 Grade C

Order # 240790
Purchase Order # C1212B-MF
Item # 134047 2565

Ticket # = 59240401 **Heat # = 11391M08** P

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELI
.060	.750	.009	.009	.035	.011	.032	.020	.020	.020	.001	59720	69696	38

8" X 4" X 0.375 HR X 48'
101.6 X 203.2 mm **Ladle Analysis and Physicals**
ASTM A500-03 Grade C

Order # 240790
Purchase Order # C1212B-MF
Item # 118531 2565

Ticket # = 50927760 **Heat # = 11389M08** P

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELI
.050	.780	.010	.008	.044	.015	.029	.030	.030	.020	.002	62980	71130	37

8" X 4" X 0.375 HR X 48'
101.6 X 203.2 mm **Ladle Analysis and Physicals**
ASTM A500-03 Grade C

Order # 240790
Purchase Order # C1212B-MF
Item # 118531 2565

Ticket # = 50927758 **Heat # = 11391M08** P

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELI
.060	.750	.009	.009	.035	.011	.032	.020	.020	.020	.001	59720	69696	38

8" X 4" X 0.375 HR X 50'
101.6 X 203.2 mm **Ladle Analysis and Physicals**
ASTM A500-03 Grade C

Order # 240790
Purchase Order # C1212B-MF
Item # 134049 2565

Ticket # = 59240393 **Heat # = 11391M08** P

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELI
.060	.750	.009	.009	.035	.011	.032	.020	.020	.020	.001	59720	69696	38

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MEGQUIER & JONES, INC

Quality Manager: Richard Lacy

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Atlas Tube Canada ULC
200 Clark St.
Harrow, Ontario, Canada
N0R 1G0
Tel: 519-738-3541
Fax: 519-738-3537

Ref.B/L: 80294280
Date: 05.06.2008
Customer: 81

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MATERIAL TEST REPORT

Sold to

Infra-Metals Corporation
8 Pent Highway
WALLINGFORD CT 06492
USA

Shipped to

Infra-Metals Corporation
8 Pent Highway
WALLINGFORD CT 06492
USA

Material: 7.0x3.0x250x40'0"0(2x2). Material No: 70030250 Made in: Canada
Sales order: 380908 Purchase Order: C1139J

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
A47104	4	0.190	0.780	0.010	0.006	0.100	0.017	0.100	0.000	0.020	0.040	0.050	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M100749141	066200 Psi	079510 Psi	29.8 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 7.0x3.0x250x45'0"0(2x1). Material No: 70030250 Made in: Canada
Sales order: 380908 Purchase Order: C1139J

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
A47104	2	0.190	0.780	0.010	0.006	0.100	0.017	0.100	0.000	0.020	0.040	0.050	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M100749135	066200 Psi	079510 Psi	29.8 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 7.0x3.0x250x30'0"0(2x2). Material No: 70030250 Made in: Canada
Sales order: 380908 Purchase Order: C1139J

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
897179	4	0.060	0.600	0.012	0.008	0.015	0.038	0.050	0.027	0.006	0.017	0.039	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M100749133	068120 Psi	073580 Psi	28.8 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 7.0x3.0x250x50'0"0(2x1). Material No: 70030250 Made in: Canada
Sales order: 380908 Purchase Order: C1139J

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
A47104	2	0.190	0.780	0.010	0.006	0.100	0.017	0.100	0.000	0.020	0.040	0.050	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M100749136	066200 Psi	079510 Psi	29.8 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Authorized by Quality Assurance: M Wheeler

The results reported on this report represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.

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MEGQUIER & JONES, INC

09Jan08 10: 7 **T E S T C E R T I F I C A T E** No: DCR 13980

Sold By:
INDEPENDENCE TUBE CORPORATION
6226 W. 74TH STREET
CHICAGO, IL 60638
Tel: 708-496-0380 Fax: 708-563-1950

P/O No C1164BMF
Rel PART I OF II
S/O No DCR 4272-003
B/L No DCR 3016-011 Shp 09Jan08
Inv No Inv

Sold To: (914)
INFRA-METALS
8 PENT HIGHWAY
WALLINGFORD, CT 06492

Ship To: (2)
INFRA-METALS (RAIL)
8 PENT HIGHWAY
TRACK #953
WALLINGFORD, CT

R4400
J-60
SGS

Tel: 203-294-2980 Fax: 203 294-2993

CERTIFICATE of ANALYSIS and TESTS Cert. No: DCR 13980
09Jan08

Part No
TUBING A500C
12" X 6" X 3/8" X 40'

Heat Number	Tag No	Pcs	Wgt
		6	10,269
48671	18699	4	6,846
	YLD=63800/TEN=79700/ELG=34.1		
48671	18707	2	3,423

Heat Number *** Chemical Analysis ***
48671 C=0.2300 Mn=0.8300 P=0.0090 S=0.0020 Si=0.0250 Al=0.0340
Cu=0.0200

MANUFACTURED IN USA
MEETS THE REQUIREMENTS ASTM A-500 GRADE B(C)-03a

09Jan08 10: 7 T E S T C E R T I F I C A T E No: DCR 13984

Sold By:
INDEPENDENCE TUBE CORPORATION
6226 W. 74TH STREET
CHICAGO, IL 60638
Tel: 708-496-0380 Fax: 708-563-1950

P/O No C1164BMF
Rel PART I OF II
S/O No DCR 4272-007
B/L No DCR 3016-015 Shp 09Jan08
Inv No Inv

Sold To: (914)
INFRA-METALS
8 PENT HIGHWAY
WALLINGFORD, CT 06492

Ship To: (2)
INFRA-METALS (RAIL)
8 PENT HIGHWAY
TRACK #953
WALLINGFORD, CT

R4400
J-60
SGS

Tel: 203-294-2980 Fax: 203 294-2993

CERTIFICATE of ANALYSIS and TESTS Cert. No: DCR 13984
09Jan08

Part No
TUBING A500C
12" X 6" X 3/8" X 60'

		Pcs	Wgt
		6	15,405

Heat Number	Tag No	Pcs	Wgt
M47493	60443	2	5,135
	YLD=59200/TEN=77600/ELG=40		
M47493	60444	2	5,135
M47493	60445	2	5,135

Heat Number *** Chemical Analysis ***
M47493 C=0.2000 Mn=0.7900 P=0.0170 S=0.0070 Si=0.0120 Al=0.0460
Cu=0.0300

MANUFACTURED IN USA
MEETS THE REQUIREMENTS ASTM A-500 GRADE B(C)-03a

31Jan08 10:33 T E S T C E R T I F I C A T E No: MAR 487919

Sold By:
INDEPENDENCE TUBE CORPORATION
6226 W. 74TH STREET
CHICAGO, IL 60638
Tel: 708-496-0380 Fax: 708-563-1950

P/O No C1184BMF
Rel PART I OF II
S/O No MAR 134586-001
B/L No MAR 81627-005 Shp 30Jan08
Inv No MAR -004 Inv 31Jan08

Sold To: (914)
INFRA-METALS
8 PENT HIGHWAY
WALLINGFORD, CT 06492

Ship To: (12)
INFRA-METALS "SPECIAL"
8 PENT HIGHWAY
TRACK #953
WALLINGFORD, CT

R4400
J-60
SGS

Tel: 203-294-2980 Fax: 203 294-2993

CERTIFICATE of ANALYSIS and TESTS Cert. No: MAR 487919
31Jan08

Part No		Pcs	Wgt
TUBING A500C			
12" X 8" X 1/4" X 40'		4	5,221
Heat Number	Tag No	Pcs	Wgt
49894	77311	4	5,221
	YLD=55900/TEN=73760/ELG=35.7		

Heat Number *** Chemical Analysis ***
49894 C=0.1900 Mn=0.8200 P=0.0080 S=0.0040 Si=0.0230 Al=0.0430
Cu=0.0200

MANUFACTURED IN USA
MEETS THE REQUIREMENTS ASTM A-500 GRADE B(C)-03a

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BULL MOOSE TUBE ELKHART FACILITY
CERTIFICATION OF TESTS

04/01/08

R4400
J-60
SGS

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra-Metals Corporation(Parent)
8 Pent Highway
Wallingford CT 06492

B/L Number 163960 Ship Via CT297_F124

12" X 8" X 0.375 HR X 40'
203.2 X 304.8 mm
ASTM A500-03 Grade C
Ticket # = 59241735

Ladle Analysis and Physicals
Heat # = AMK7910889

Order # 240790
Purchase Order # C1212B-MF
Item # 126657 5127

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA P	YLD psi	TSN psi	ELN
.090	.740	.009	.008	.040	.020	.034	.032	.021	.021	.002	58660	69740	30

18" X 6" X 0.375 HR X 40' 6"
152.4 X 457.2 mm
ASTM A500-03 Grade C
Ticket # = 59237308

Ladle Analysis and Physicals
Heat # = AMK7910783

Order # 240790
Purchase Order # C1212B-MF
Item # 135378 3854

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA P	YLD psi	TSN psi	ELN
.080	.770	.010	.006	.044	.013	.036	.033	.020	.024	.002	62140	72621	33

18" X 6" X 0.375 HR X 44'
152.4 X 457.2 mm
ASTM A500-03 Grade C
Ticket # = 59237307

Ladle Analysis and Physicals
Heat # = AMK7910783

Order # 240790
Purchase Order # C1212B-MF
Item # 135379 3854

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA P	YLD psi	TSN psi	ELN
.080	.770	.010	.006	.044	.013	.036	.033	020	.024	.002	62140	72621	33

18" X 6" X 0.375 HR X 50'
152.4 X 457.2 mm
ASTM A500-03 Grade C
Ticket # = 59237306

Ladle Analysis and Physicals
Heat # = AMK7910783

Order # 240790
Purchase Order # C1212B-MF
Item # 135380 3854

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA P	YLD psi	TSN psi	ELN
.080	.770	.010	.006	.044	.013	.036	.033	.020	.024	.002	62140	72621	33

Quality Manager: Richard Lacy

THIS WELDED STEEL TUBING IS MANUFACTURED IN THE UNITED STATES OF AMERICA AND HAS BEEN PRODUCED IN ACCORDANCE WITH THE STATED SPECIFICATION. LADLE CHEMISTRIES ARE REPORTED FROM DOCUMENTS PROVIDED BY THE SUPPLYING STEEL MILL. ANY PHYSICAL AND MECHANICAL TESTING RESULTS SHOWN ON THIS CERTIFICATION ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

RECEIVED
MAY 02 2008
By

BULL MOOSE TUBE ELKHART FACILITY 04/01/08

CERTIFICATION OF TESTS

R4400
J-60
SGS

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra-Metals Corporation(Parent)
8 Pent Highway
Wallingford CT 06492

B/L Number 163960 Ship Via CT297_F124

12" SQ X 0.375 HR X 37'
304.8 mm
ASTM A500-03 Grade C

Ladle Analysis and Physicals

Order # 240790
Purchase Order # C1212B-MF
Item # 135384 7680

Ticket # = 59238944 Heat # = AMK7800824

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELI
.080	.730	.008	.007	.050	.011	.037	.052	.044	.035	.002	59490	71494	36

12" X 4" X 0.250 HR X 35'
101.6 X 304.8 mm
ASTM A500-03 Grade C

Ladle Analysis and Physicals

Order # 240790
Purchase Order # C1212B-MF
Item # 135387 2569

Ticket # = 59240072 Heat # = K3703

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELI
.080	.770	.010	.009	.022	.010	.032	.150	.070	.060	.001	68290	77194	30

Quality Manager: Richard Long

RECEIVED
MAY 02 2008
By

THIS WELDED STEEL TUBING IS MANUFACTURED IN THE UNITED STATES OF AMERICA AND HAS BEEN PRODUCED IN ACCORDANCE WITH THE STATED SPECIFICATION. LADLE CHEMISTRIES ARE REPORTED FROM DOCUMENTS PROVIDED BY THE SUPPLYING STEEL MILL. ANY PHYSICAL AND MECHANICAL TESTING RESULTS SHOWN ON THIS CERTIFICATION ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

20Nov07 9:46 T E S T C E R T I F I C A T E No: MAR 476517

Sold By:
INDEPENDENCE TUBE CORPORATION
6226 W. 74TH STREET
CHICAGO, IL 60638
Tel: 708-496-0380 Fax: 708-563-1950

P/O No C1135BMF
Rel PART II OF II
S/O No MAR 132534-008
B/L No MAR 80194-019 Shp 19Nov07
Inv No MAR -002 Inv 20Nov07

Sold To: (914)
INFRA-METALS
8 PENT HIGHWAY
WALLINGFORD, CT 06492

Ship To: (2)
INFRA-METALS (RAIL)
8 PENT HIGHWAY
TRACK #953
WALLINGFORD, CT

R4400
J-60
SGS

Tel: 203-294-2980 Fax: 203 294-2993

CERTIFICATE of ANALYSIS and TESTS Cert. No: MAR 476517
20Nov07

Part No
TUBING A500C
12" X 8" X 3/8" X 55'

Heat Number	Tag No	Pcs	Wgt
		4	10,538
50572	67247	2	5,269
	YLD=56320/TEN=73690/ELG=36.5		
50572	67248	2	5,269

Heat Number *** Chemical Analysis ***
50572 C=0.2100 Mn=0.8000 P=0.0070 S=0.0020 Si=0.0220 Al=0.0290
Cu=0.0400

MANUFACTURED IN USA
MEETS THE REQUIREMENTS ASTM A-500 GRADE B(C)-03a

Atlas Tube Canada ULC
200 Clark St.
Harrow, Ontario, Canada
N0R 1G0
Tel: 519-738-3541
Fax: 519-738-3537

MATERIAL TEST REPORT

Ref.B/L: 80280226
Date: 02.17.2008
Customer: 81

R4400
J-60
SGS

Sold to

Infra-Metals Corporation
8 Pent Highway
WALLINGFORD CT 06492
USA

Shipped to

Infra-Metals Corporation
8 Pent Highway
WALLINGFORD CT 06492
USA

Material: 12.0x12.0x500x28'0"0(1x1)REC **Material No:** 120120500 **Made in:** Canada
Sales order: 369336 **Purchase Order:** C1224H

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
8965G		0.200	0.860	0.006	0.008	0.020	0.038	0.020	0.000	0.000	0.020	0.020	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200511040	057750 Psi	073500 Psi	38.9 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 12.0x12.0x500x25'0"0(1x1)REC-CSA **Material No:** 120120500 **Made in:** Canada
Sales order: 369336 **Purchase Order:** C1224H

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
682758		0.210	0.800	0.015	0.004	0.160	0.024	0.038	0.005	0.003	0.016	0.047	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200510997	058750 Psi	077300 Psi	35.9 %	CSA G40.21-04 50W CLASS C

Material Note:
Sales Or.Note:

Material: 12.0x12.0x500x52'0"0(1x1)REC-CSA **Material No:** 120120500 **Made in:** Canada
Sales order: 369336 **Purchase Order:** C1224H

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
682758		0.210	0.800	0.015	0.004	0.160	0.024	0.038	0.005	0.003	0.016	0.047	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200510998	058750 Psi	077300 Psi	35.9 %	CSA G40.21-04 50W CLASS C

Material Note:
Sales Or.Note:

Material: 12.0x12.0x500x52'0"0(1x1)REC-CSA **Material No:** 120120500 **Made in:** Canada
Sales order: 369336 **Purchase Order:** C1224H

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
682759		0.210	0.800	0.012	0.002	0.160	0.031	0.029	0.005	0.003	0.014	0.036	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200510990	058450 Psi	071420 Psi	36.8 %	CSA G40.21-04 50W CLASS C

Material Note:
Sales Or.Note:

Authorized by Quality Assurance: M Wheeler

The results reported on this report represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.

Steel Tube

RECEIVED
MAY 02 2008
By

Atlas Tube Canada ULC
200 Clark St.
Harrow, Ontario, Canada
N0R 1G0
Tel: 519-738-3541
Fax: 519-738-3537

MATERIAL TEST REPORT

Ref.B/L: 80286579
Date: 04.01.2008
Customer: 81

R4400
J-60
SGS

Sold to

Infra-Metals Corporation
8 Pent Highway
WALLINGFORD CT 06492
USA

Shipped to

Infra-Metals Corporation (Rail)
Track #953 - 8 Pent Highway
WALLINGFORD CT 06492
USA

Material: 12.0x4.0x250x24'0"0(2x2). Material No: 120040250 Made in: Canada
Sales order: 375932 Purchase Order: C1247B-MF - RAIL

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
585312	4	0.060	0.580	0.008	0.008	0.060	0.044	0.035	0.027	0.009	0.019	0.035	0.000

Bundle No	Yield	Tensile	Ein.2in	Certification
M200522318	068460 Psi	074650 Psi	29.0 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 18.0x6.0x375x45'0"0(1x4). Material No: 180060375 Made in: Canada
Sales order: 375932 Purchase Order: C1247B-MF - RAIL

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
896637	4	0.060	0.580	0.009	0.007	0.015	0.033	0.042	0.037	0.011	0.023	0.053	0.000

Bundle No	Yield	Tensile	Ein.2in	Certification
M200521874	060030 Psi	071310 Psi	35.3 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 18.0x6.0x375x48'0"0(1x2). Material No: 180060375 Made in: Canada
Sales order: 375932 Purchase Order: C1247B-MF - RAIL

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
896637	2	0.060	0.580	0.009	0.007	0.015	0.033	0.042	0.037	0.011	0.023	0.053	0.000

Bundle No	Yield	Tensile	Ein.2in	Certification
M200521880	060030 Psi	071310 Psi	35.3 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 8.0x8.0x500x48'0"0(2x2). Material No: 800805004800 Made in: Canada
Sales order: 375932 Purchase Order: C1247B-MF - RAIL

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
585649	4	0.070	0.590	0.009	0.005	0.050	0.036	0.033	0.036	0.010	0.022	0.031	0.000

Bundle No	Yield	Tensile	Ein.2in	Certification
M200522825	070720 Psi	077890 Psi	31.8 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Authorized by Quality Assurance:

The results reported on this report represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.

RECEIVED
MAY 02 2008
By

Atlas Tube Canada ULC
200 Clark St.
Harrow, Ontario, Canada
N0R 1G0
Tel: 519-738-3541
Fax: 519-738-3537

MATERIAL TEST REPORT

Ref.B/L: 80286557
Date: 04.23.2008
Customer: 81

R4400
J-60
SGS

Sold to

Infra-Metals Corporation
8 Pent Highway
WALLINGFORD CT 06492
USA

Shipped to

Infra-Metals Corporation (Rail)
Track #953 - 8 Pent Highway
WALLINGFORD CT 06492
USA

Material: 8.0x8.0x313x40'0"0(2x2). Material No: 80080313 Made in: Canada
Sales order: 375932 Purchase Order: C1247B-MF - RAIL

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
0628H	4	0.200	0.830	0.009	0.007	0.030	0.028	0.020	0.000	0.010	0.010	0.030	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200522614	056760 Psi	072040 Psi	36.8 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 8.0x8.0x313x40'0"0(2x2). Material No: 80080313 Made in: Canada
Sales order: 375932 Purchase Order: C1247B-MF - RAIL

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
0628H	4	0.200	0.830	0.009	0.007	0.030	0.028	0.020	0.000	0.010	0.010	0.030	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200522613	056760 Psi	072040 Psi	36.8 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 8.0x8.0x313x35'0"0(2x2). Material No: 80080313 Made in: Canada
Sales order: 375932 Purchase Order: C1247B-MF - RAIL

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
1036H	4	0.200	0.830	0.006	0.003	0.020	0.033	0.040	0.000	0.010	0.010	0.020	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200522604	051980 Psi	067230 Psi	37.0 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Material: 8.0x8.0x313x30'0"0(2x2). Material No: 80080313 Made in: Canada
Sales order: 375932 Purchase Order: C1247B-MF - RAIL

Heat No	Pcs	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
1036H	4	0.200	0.830	0.006	0.003	0.020	0.033	0.040	0.000	0.010	0.010	0.020	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200522603	051980 Psi	067230 Psi	37.0 %	ASTM A500-03A GRADE B&C

Material Note:
Sales Or.Note:

Authorized by Quality Assurance: M Wheeler

The results reported on this report represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.

Steel Tube

RECEIVED
MAY 02 2008
By

NOVA TUBE AND STEEL CORPORATION
600 Dean Sievers Place
Morrisville, PA, 19067
Tel: 215-295-8813 Fax: 215-295-8798

R4400
J-60
SGS

TEST CERTIFICATE

Sold to: INFRA-METALS CORP.
Ship to: INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CONNECTICUT
06492

DATE SHIPPED: 03/18/08
B/L #: 158800
P.O. #:C1194B-MF
SALES ORDER #: 130015

Description	Dimensions	Pcs	Mill/Heat Number	Specifications
HSS Square Tubing	4x4x0.375x480	8	MIT /421J4271	ASTM A500 C
HSS Square Tubing	4x4x0.375x480	16	MIT /411J9532	ASTM A500 C

TQ40x 40

Chemical Analysis

Heat Number	C	Mn	P	S	Si	Cu	Ni	Cr	Cb	Mo	V	Al	N	Sn	B	Ti
MIT 421J4271	0.070	0.570	0.013	0.011	0.010	0.030	0.020	0.020	0.018	0.001	0.001	0.047	0.006	-	-	-
	Melted & Manufactured in the U.S.A.															
MIT 411J9532	0.070	0.600	0.012	0.008	0.008	0.030	0.020	0.020	0.017	0.001	0.001	0.058	0.005	-	-	-
	Melted & Manufactured in the U.S.A.															

Mechanical Test Results

Heat Number/Size or Ser#	Yield	Tensile	Elong.%	N-fact	Crush
421J4271 HSS 4x4x0.375 (Tail)	65,908 PSI	72,287 PSI	24.00(2")		
411J9532 HSS 4x4x0.375 (Tail)	65,543 PSI	70,546 PSI	23.00(2")		

Heat #	Manufactured in	
421J4271	United States	MITTAL STEEL - SPT
411J9532	United States	MITTAL STEEL - SPT

Authorized by Andrew Hurlbrink, Quality Ctrl Dept

MAR 26, 2008N

TEST REPORT
RAPPORT D'ESSAI

NUMBER/NUMERO : 578876

DATE(M/M D/J Y/A): 2/05/08

PAGE: 1

K3 11161

R4400
J-60
SGS

WELTU
C12168

INFRA METALS CORP.
8 PENT HIGHWAY
VALLINGFORD
CT 06492 USA

YOUR P.O. NO. / VOTRE No DE COMMANDE	OUR ORDER NO./ NOTRE No DE COMMANDE	ITEM NO./ No DE L'ITEM	DESCRIPTION/ SIGNALEMENT
C12168-MF	306383	66475	TOCC X YO 6.000-6.000-375-04-240.000 RC ASTM A500-07 GR B & C

1.5" wide strip

HEAT NO. / HEAT CODE	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	V	Cb	Ti	N	B	ASA	Ca	CE	^^YIELD^^ (0.2% offset) ksi(MPa)	^TENSILE^ ksi(MPa)	ELONG 2",%
751262	.070	.630	.024	.007	.014	.052	.019	.056	.007	.003	.002	.045	.002	.004	.000	.030		.193	TUBE 71.1(490)	80.1(552)	30.0

CE = C + Mn/6 + (Ni + Cu)/15 + (Cr + Mo + V)/5
ASA = Acid Soluble Aluminum
Country of Origin CANADA
Does not contain mercury, cadmium or lead.

We hereby certify that the product was manufactured, sampled, tested and inspected in accordance with the specification and any other requirements designated on the purchase order or contract. The tests were found to meet all such requirements.

Nous certifions que ce product a ete manufacture, echantillonne, eprouve et inspecte d'apres les specifications et autres exigences sur le bon de commande ou le contrat. Les essays ont rencontres tous les exigences.

RECEIVED
MAY 02 2008
By

Authorized By/Autherise Par : DAVE DIFRESNE, D A MANAGER

COUCH
C1242B

R4400
J-60
COPY SGS

GUVEN BORU AND PROFIL SAN. VE TIC. LTD. STI.

BARBAROS MAH.TIMUR SOK. NO:28 34746 YENISAHRA - ISTANBUL / TURKEY

TO: CCC STEEL GMBH + CO. KG
PALMAILLE 67
22767 HAMBURG

ISSUING DATE: 01.10.2007
CERTIFICATE NUMBER: 13
PAGE: 1

MILL'S CERTIFICATE OF QUALITY

DESCRIPTION OF GOODS
MATERIAL : ERW STEEL BLACK COLD FORMED SQUARE AND RECTANGULAR HOLLOW SECTIONS, PLAIN SQUARE CUT ENDS, LIGHT OIL, ALL OTHER CONDITIONS AS PER PURCHASE ORDER 518-3217 DATED JULY 19, 2006.

PRODUCTION STANDART : ACC.TO ASTM A-500 GRADE A RESP.GRADE B UNLESS OTHERWISE STATED.
FOR 0,063"-0,078"-0,083" THICKNESSES ARE EITHER HOT OR COLD ROLLED AT PRODUCER'S OPTION.

RAW MATERIAL : ST 37,2 AND/OR ST 42,4

LOT 13
ITEM 1
MATERIAL : ERW STEEL BLACK COLD FORMED SQUARE HOLLOW SECTIONS.

	DIMENSIONS				MECHANICAL PROPERTIES PER EACH HEAT			ACTUAL CHEMICAL COMPOSITION PER EACH HEAT					
SIZE CODE	SIZE IN INCH	W.T. INCH	LENGTH IN FEET	HEAT NO. (HEAT NUMBER)	YIELD STRESS (N/MM2)	TENSILE TEST (N/MM2)	ELONGATION (%)	C	Mn	P	S	Si	GRADE
T0103 289	1 1/2 X 1 1/2	0,188	24	GB 395	327	419	35	0,065	0,294	0,010	0,022	0,008	B
163	2 X 2	0,250	24	GB 396	328	421	36	0,066	0,292	0,011	0,023	0,007	B
163	2 X 2	0,250	40	GB 396	328	421	36	0,066	0,292	0,011	0,023	0,007	B
T0254 206	2 1/2 X 2 1/2	0,250	24	GB 397	330	422	35	0,070	0,297	0,010	0,020	0,009	B
228	3 X 3	0,188	24	GB 397	330	422	35	0,070	0,297	0,010	0,020	0,009	B
228	3 X 3	0,188	40	GB 398	331	426	36	0,069	0,302	0,010	0,021	0,008	B
252	4 X 4	0,188	24	GB 398	331	426	36	0,069	0,302	0,010	0,021	0,008	B
252	4 X 4	0,188	40	GB 400	325	416	37	0,065	0,298	0,010	0,022	0,009	B
284	6 X 6	0,250	40	GB 406	325	418	38	0,070	0,303	0,010	0,022	0,008	B
284	6 X 6	0,250	48	GB 407	328	414	35	0,067	0,304	0,011	0,019	0,007	B

R4400
J-60
SGS

COPY

ISSUING DATE: 01.10.2007
CERTIFICATE NUMBER: 13
PAGE: 2

ITEM 2
MATERIAL : ERW STEEL BLACK COLD FORMED RECTANGULAR HOLLOW SECTIONS.

	DIMENSIONS				MECHANICAL PROPERTIES PER EACH HEAT			ACTUAL CHEMICAL COMPOSITION PER EACH HEAT					
SIZE CODE	SIZE IN INCH	W.T. INCH	LENGTH IN FEET	HEAT NO. (HEAT NUMBER)	YIELD STRESS (N/MM2)	TENSILE TEST (N/MM2)	ELONGATION (%)	C	Mn	P	S	Si	GRADE
176	3 X 2	0,125	24	GB 408	321	410	35	0,065	0,294	0,010	0,019	0,008	B
180	3 X 2	0,250	24	GB 408	321	410	35	0,065	0,294	0,010	0,019	0,008	B
187	4 X 2	0,188	24	GB 408	321	410	35	0,065	0,294	0,010	0,019	0,008	B
187	4 X 2	0,188	40	GB 409	323	409	36	0,067	0,296	0,011	0,021	0,007	B
286	4 X 2	0,250	24	GB 409	323	409	36	0,067	0,296	0,011	0,021	0,007	B
286	4 X 2	0,250	40	GB 410	320	415	36	0,068	0,301	0,010	0,020	0,009	B
198	6 X 2	0,188	24	GB 411	322	411	35	0,066	0,298	0,010	0,022	0,008	B
198	6 X 2	0,188	40	~~GB 411~~	322	411	35	0,066	0,298	0,010	0,022	0,008	B
269	8 X 4	0,250	40	GB 413	325	416	36	0,068	0,302	0,010	0,019	0,007	B
269	8 X 4	0,250	48	~~GB 413~~	325	416	36	0,068	0,302	0,010	0,019	0,007	B

WE CONFIRM THAT THE RADIOACTIVE CONTAMINATION OF THE MATERIAL IS NORMAL.

AS MILL AND MANUFACTURER

GÜVEN BORU
PROFİL SAN. ve TİC. LTD. ŞTİ.
Barbaros Mah.Timur Sok. No:28 Yenisahra / İSTANBUL
Tel:0216 472 50 54-472 84 75-Fax:0216 472 88 71
Anadolu Kurumlar V.D. 245 001 1600

RECEIVED
MAY 02 2008
By

NOVA TUBE AND STEEL CORPORATION
600 Dean Sievers Place
Morrisville, PA, 19067
Tel: 215-295-8813 Fax: 215-295-8798

R4400
J-60
SGS

TEST CERTIFICATE

Sold to: INFRA-METALS CORP.
Ship to: INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CONNECTICUT

06492

DATE SHIPPED: 01/03/08
B/L #: 156359
P.O. #:C11468-MF
SALES ORDER #: 129612

Description	Dimensions	Pcs	Mill/Heat Number	Specifications
Hot Roll Rectangular Tub	8x4x0.250x420 - 35	12	FAR /~~FAR7910654~~	ASTM A 500 C
Hot Roll Rectangular Tub	8x4x0.250x540 - 45	12	FAR /FAR7830694	ASTM A 500 C
Hot Roll Rectangular Tub	8x4x0.250x600 - 50	6	FAR /~~FAR7920650~~	ASTM A 500 C
Hot Roll Rectangular Tub	8x4x0.250x600 - 50	6	FAR /FAR7830694	ASTM A 500 C

Chemical Analysis

Heat Number	C	Mn	P	S	Si	Cu	Ni	Cr	Cb	Mo	V	Al	N	Sn	B	Ti
FAR FAR7910654	0.210	0.780	0.012	0.011	0.018	0.030	0.027	0.026	-	0.004	0.002	0.049	0.007	0.002	0.005	0.005
	Manufactured in the U.S.A.															
FAR FAR7830694	0.210	0.770	0.011	0.009	0.023	0.034	0.026	0.021	-	0.003	0.002	0.044	0.006	0.002	-	0.005
	Manufactured in the U.S.A.															
FAR FAR7920650	0.230	0.680	0.010	0.004	0.033	0.053	0.030	0.037	-	0.003	0.001	0.043	0.007	0.002	-	0.005
	Manufactured in the U.S.A.															

Mechanical Test Results

Heat Number/Size or Ser#	Yield	Tensile	Elong.%	N-fact	Crush
FAR7910654 HSR 8x4x0.25(Tail)	54,331 PSI	65,627 PSI	31.00(2")		
FAR7830694 HSR 8x4x0.25(Tail)	53,962 PSI	64,515 PSI	29.00(2")		
FAR7920650 HSR 8x4x0.25(Tail)	58,667 PSI	73,636 PSI	29.00(2")		

Heat #	Manufactured in	
FAR7910654	United States	DUFERCO FARRELL CORP
FAR7830694	United States	DUFERCO FARRELL CORP
FAR7920650	United States	DUFERCO FARRELL CORP

Authorized by Andrew Hurlbrink, Quality Ctrl Dept

JAN 3, 2008N

NOVA TUBE AND STEEL CORPORATION
600 Dean Sievers Place
Morrisville, PA, 19067
Tel: 215-295-8813 Fax: 215-295-8798

T E S T C E R T I F I C A T E

Sold to: INFRA-METALS CORP.
Ship to: INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CONNECTICUT

06492

DATE SHIPPED: 02/11/08
B/L #: 157444
P.O. #:C1187B-MF
SALES ORDER #: 129983

Heat #	Manufactured in	
895382	United States	Stelco
FAR7910654	United States	DUFERCO FARRELL CORP
FAR754481	United States	DUFERCO FARRELL CORP
FAR7920653	United States	DUFERCO FARRELL CORP

Pg 2 of 2

Authorized by Andrew Hurlbrink, Quality Ctrl Dept

FEB 11, 2008N

20Nov07 9:35 T E S T C E R T I F I C A T E No: MAR 476508

Sold By:
INDEPENDENCE TUBE CORPORATION
6226 W. 74TH STREET
CHICAGO, IL 60638
Tel: 708-496-0380 Fax: 708-563-1950

P/O No C1117BMF
Rel PART II OF II
S/O No MAR 131972-001
B/L No MAR 80194-010 Shp 19Nov07
Inv No MAR -001 Inv 20Nov07

Sold To: (914)
INFRA-METALS
8 PENT HIGHWAY
WALLINGFORD, CT 06492

Ship To: (2)
INFRA-METALS (RAIL)
8 PENT HIGHWAY
TRACK #953
WALLINGFORD, CT

R4400
J-60
SGS

Tel: 203-294-2980 Fax: 203 294-2993

CERTIFICATE of ANALYSIS and TESTS Cert. No: MAR 476508
20Nov07

Part No
TUBING A500C
12" X 6" X 5/16" X 30'

	Pcs	Wgt
	2	2,166

Heat Number Tag No
Y29133 66910
YLD=56480/TEN=73670/ELG=36.4

	Pcs	Wgt
	2	2,166

Heat Number *** Chemical Analysis ***
Y29133 C=0.2000 Mn=0.7900 P=0.0100 S=0.0080 Si=0.0150 Al=0.0410
Cu=0.0200

MANUFACTURED IN USA
MEETS THE REQUIREMENTS ASTM A-500 GRADE B(C)-03a

20Nov07 9:36 T E S T C E R T I F I C A T E No: MAR 476513

Sold By:
INDEPENDENCE TUBE CORPORATION
6226 W. 74TH STREET
CHICAGO, IL 60638
Tel: 708-496-0380 Fax: 708-563-1950

P/O No C1117BMF
Rel PART II OF II
S/O No MAR 131972-006
B/L No MAR 80194-015 Shp 19Nov07
Inv No MAR -006 Inv 20Nov07

Sold To: (914)
INFRA-METALS
8 PENT HIGHWAY
WALLINGFORD, CT 06492

Ship To: (2)
INFRA-METALS (RAIL)
8 PENT HIGHWAY
TRACK #953
WALLINGFORD, CT

R4400
J-60
SGS

Tel: 203-294-2980 Fax: 203 294-2993

CERTIFICATE of ANALYSIS and TESTS Cert. No: MAR 476513
20Nov07

Part No
TUBING A500C
12" X 6" X 5/16" X 50'

Heat Number	Tag No	Pcs	Wgt
		6	10,830
Y29131	66925	4	7,220
	YLD=58350/TEN=74660/ELG=35.1		
Y29131	66926	2	3,610

Heat Number *** Chemical Analysis ***
Y29131 C=0.2100 Mn=0.7800 P=0.0090 S=0.0070 Si=0.0180 Al=0.0460
Cu=0.0500

MANUFACTURED IN USA
MEETS THE REQUIREMENTS ASTM A-500 GRADE B(C)-03a

20Sep07 9:43 T E S T C E R T I F I C A T E No: MAR 467164

Sold By:
INDEPENDENCE TUBE CORPORATION
6226 W. 74TH STREET
CHICAGO, IL 60638
Tel: 708-496-0380 Fax: 708-563-1950

P/O No C10508FF
Rel PT I OF II
S/O No MAR 129626-002
B/L No MAR 78527-020 Shp 19Sep07
Inv No MAR -007 Inv 20Sep07

Sold To: (914)
INFRA-METALS
8 PENT HIGHWAY
WALLINGFORD, CT 06492

Ship To: (2)
INFRA-METALS (RAIL)
8 PENT HIGHWAY
TRACK #953
WALLINGFORD, CT

R4400
J-60
SGS

Tel: 203-294-2980 Fax: 203 294-2993

CERTIFICATE of ANALYSIS and TESTS Cert. No: MAR 467164
20Sep07

Part No
TUBING A500C
12" X 6" X 1/2" X 35'

		Pcs	Wgt
		2	3,896

Heat Number	Tag No	Pcs	Wgt
Y47329	55900	2	3,896
	YLD=57040/TEN=74870/ELG=37.8		

Heat Number *** Chemical Analysis ***
Y47329 C=0.2200 Mn=0.8000 P=0.0110 S=0.0110 Si=0.0130 Al=0.0480
Cu=0.0200

MANUFACTURED IN USA
MEETS THE REQUIREMENTS ASTM A-500 GRADE B(C)-03a

Atlas Tube Canada ULC
200 Clark St.
Harrow, Ontario, Canada
N0R 1G0
Tel: 519-738-3541
Fax: 519-738-3537

Ref.B/L: 80221427
Date: 01.22.2007
Customer: 81

R4400
J-60
SGS

MATERIAL TEST REPORT

Sold to

Infra-Metals Corporation
8 Pent Highway
WALLINGFORD CT 06492
USA

Shipped to

Infra-Metals Corporation (Rail
Track #953 - 8 Pent Highwa
WALLINGFORD CT 06492
USA

Material: 12.0x6.0x375x48'0"0(2x2). Material No: 1200603754800 Made in: Canada
Sales order: 257232 Purchase Order: C20467MF - JAN/FEB 0

Heat No	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
8884E	0.200	0.830	0.010	0.005	0.010	0.026	0.010	0.000	0.010	0.010	0.010	0.002

Bundle No	Yield	Tensile	Eln.2in	Certification
M200402219	053140 Psi	067300 Psi	34.5 %	ASTM A500-03A GRADE C & B

Material Note:
Sales Or.Note:

Material: 12.0x6.0x375x48'0"0(2x2). Material No: 1200603754800 Made in: Canada
Sales order: 257232 Purchase Order: C20467MF - JAN/FEB 0

Heat No	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
8884E	0.200	0.830	0.010	0.005	0.010	0.026	0.010	0.000	0.010	0.010	0.010	0.002

Bundle No	Yield	Tensile	Eln.2in	Certification
M200402217	053140 Psi	067300 Psi	34.5 %	ASTM A500-03A GRADE C & B

Material Note:
Sales Or.Note:

Material: 12.0x6.0x500x55'0"0(2x1). Material No: 1200605005500 Made in: Canada
Sales order: 257232 Purchase Order: C20467MF - JAN/FEB 0

Heat No	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
891780	0.190	0.760	0.010	0.007	0.050	0.049	0.023	0.005	0.003	0.008	0.013	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200402256	060000 Psi	072350 Psi	34.6 %	ASTM A500-03A GRADE C & B

Material Note:
Sales Or.Note:

Material: 12.0x6.0x500x55'0"0(2x1). Material No: 1200605005500 Made in: Canada
Sales order: 257232 Purchase Order: C20467MF - JAN/FEB 0

Heat No	C	Mn	P	S	Si	Al	Cu	Cb	Mo	Ni	Cr	V
891780	0.190	0.760	0.010	0.007	0.050	0.049	0.023	0.005	0.003	0.008	0.013	0.000

Bundle No	Yield	Tensile	Eln.2in	Certification
M200402255	060000 Psi	072350 Psi	34.6 %	ASTM A500-03A GRADE C & B

Material Note:
Sales Or.Note:

Authorized by Quality Assurance:

Steel Tube Institute OF NORTH AMERICA

Metals Service Center Institute

RECEIVED
MAY 02 2008
By

R4400
J-60
SGS

NOVA TUBE AND STEEL CORPORATION
600 Dean Sievers Place
Morrisville, PA, 19067
Tel: 215-295-8813 Fax: 215-295-8798

TEST CERTIFICATE

Sold to: INFRA-METALS CORP.
Ship to: INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CONNECTICUT

06492

DATE SHIPPED: 01/22/08
B/L #: 156993
P.O. #:C11878-MF
SALES ORDER #: 129983

Description	Dimensions	Pcs	Mill/Heat Number	Specifications
Hot Roll Rectangular Tub	6x2x0.250x288 TR624x24	15	STE /750229	ASTM A500 C
Hot Roll Rectangular Tub	8x4x0.375x288 TR846x24	8	FAR /FAR7920653	ASTM A500 C

Chemical Analysis

Heat Number	C	Mn	P	S	Si	Cu	Ni	Cr	Cb	Mo	V	Al	N	Sn	B	Ti
STE 750229	0.190	0.810	0.006	0.004	0.013	0.031	0.010	0.030	0.005	0.003	-	0.056	-	-	-	0.002
FAR FAR7920653	0.190	0.790	0.014	0.014	0.017	0.034	0.025	0.021	-	0.003	0.002	0.051	0.007	0.002	-	0.005

Manufactured in the U.S.A.

Mechanical Test Results

Heat Number/Size or Ser#	Yield	Tensile	Elong.%	N-fact	Crush
750229 HSR 6x2x0.250 (Tail)	59,752 PSI	67,502 PSI	27.00(2")		
FAR7920653 HSR 8x4x0.37(Tail)	59,111 PSI	68,337 PSI	30.00(2")		

Heat #	Manufactured in	
750229	United States	Stelco
FAR7920653	United States	DUFERCO FARRELL CORP

Authorized by Andrew Hurlbrink, Quality Ctrl Dept

JAN 22, 2008N

RECEIVED
MAY 02 2008
By

BULL MOOSE TUBE ELKHART FACILITY 04/01/08

CERTIFICATION OF TESTS

BULL MOOSE TUBE COMPANY

1819 Clarkson Rd.
Chesterfield, Missouri 63017

R4400
J-60
SGS

BILL TO Infra-Metals Corporation
8 Pent Highway
Wallingford CT 06492

SHIP TO Infra-Metals Corporation(Parent)
8 Pent Highway
Wallingford CT 06492

B/L Number 162919 Ship Via 524_F130

18" X 6" X 0.375 HR X 31' **Order # 240790**
152.4 X 457.2 mm **Ladle Analysis and Physicals** **Purchase Order # C1212B-MF**
ASTM A500-03 Grade C **Item # 135377 3854**
Ticket # = 59237304 **Heat # = AMK7910783** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELI
.080	.770	.010	.006	.044	.013	.036	.033	.020	.024	.002	62140	72621	33

12" X 10" X 0.500 HR X 45' **Order # 241507**
254.0 X 304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1221B-MF**
ASTM A500-03 Grade C **Item # 124864 6405**
Ticket # = 59239617 **Heat # = 11392M08** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELI
.050	.740	.011	.008	.033	.011	.027	.050	.020	.010	.002	59300	68282	40

12" X 10" X 0.500 HR X 50' **Order # 241507**
254.0 X 304.8 mm **Ladle Analysis and Physicals** **Purchase Order # C1221B-MF**
ASTM A500-03 Grade C **Item # 124866 6405**
Ticket # = 59244025 **Heat # = 11749M08** **P**

C	MN	P	S	AL	SI	CB	CU	CR	NI	VA	YLD psi	TSN psi	ELI
.060	.790	.010	.009	.050	.015	.034	.020	.030	.010	.002	64840	74088	35

Quality Manager: Richard Long

THIS WELDED STEEL TUBING IS MANUFACTURED IN THE UNITED STATES OF AMERICA AND HAS BEEN PRODUCED IN ACCORDANCE WITH THE STATED SPECIFICATION. LADLE CHEMISTRIES ARE REPORTED FROM DOCUMENTS PROVIDED BY THE SUPPLYING STEEL MILL. ANY PHYSICAL AND MECHANICAL TESTING RESULTS SHOWN ON THIS CERTIFICATION ARE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

SGS

PURCHASE ORDER

ME IER & JONES, INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106
PHONE: 207-799-8555
FAX: 207-767-2117

PURCHASE ORDER NUMBER: R4399
PURCHASE ORDER DATE: 01/29/08
PAGE: 1

VENDOR NUMBER: INF5

VENDOR
INFRA METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

SHIP TO
MEGQUIER & JONES INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SALESMAN	ORDERED BY	Ship DATE	JOB NO	
Oak Williams	SAMUEL G. STONE	05/01/08	J-60	
SHIP VIA	**FOB**	**TERMS**		
TRUCK	DELIVERED			

STANDARD WAREHOUSE LENGTHS

ITM	QTY	DESCRIPTION	SPEC	WEIGHT	COST UNIT/UM	COST
001	2	W 8 x 10 x 50- 0	A-992	1,000.0	53.9500/cwt	539.50
002	1	W 8 x 10 x 45- 0	A-992	450.0	53.9500/cwt	242.78
003	1	W 8 x 10 x 35- 0	A-992	350.0	53.9500/cwt	188.83
004	1	W 8 x 10 x 30- 0	A-992	300.0	53.9500/cwt	161.85
005	1	W 10 x 12 x 50- 0	A-992	600.0	53.9500/cwt	323.70
006	5	W 10 x 12 x 30- 0	A-992	1,800.0	53.9500/cwt	971.10
007	2	W 10 x 49 x 65- 0	A-992	6,370.0	51.9500/cwt	3,309.22
008	2	W 12 x 14 x 50- 0	A-992	1,400.0	51.9500/cwt	727.30
009	2	W 12 x 14 x 30- 0	A-992	840.0	51.9500/cwt	436.38
010	1	W 12 x 19 x 30- 0	A-992	570.0	51.9500/cwt	296.12
011	1	W 14 x 22 x 50- 0	A-992	1,100.0	51.9500/cwt	571.45
012	1	W 14 x 22 x 45- 0	A-992	990.0	51.9500/cwt	514.31
013	1	W 16 x 31 x 30- 0	A-992	930.0	51.9500/cwt	483.14
014	1	W 16 x 36 x 35- 0	A-992	1,260.0	51.9500/cwt	654.57
015	1	W 16 x 36 x 30- 0	A-992	1,080.0	51.9500/cwt	561.06
016	2	W 18 x 35 x 35- 0	A-992	2,450.0	51.9500/cwt	1,272.78
017	1	W 21 x 101 x 35- 0	A-992	3,535.0	57.9500/cwt	2,048.53

(Continued on page 2)

PURCHASE ORDER

ME IER & JONES, INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106
PHONE: 207-799-8555
FAX: 207-767-2117

PURCHASE ORDER NUMBER: R4399
PURCHASE ORDER DATE: 01/29/08
PAGE: 2

VENDOR NUMBER: INF5

==========VENDOR==========
INFRA METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

==========SHIP TO==========
MEGQUIER & JONES INC.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

====SALESMAN====	===ORDERED BY===	===Ship DATE====	=====JOB NO=====	==========
Oak Williams	SAMUEL G. STONE	05/01/08	J-60	
====SHIP VIA====	======FOB=======	=====TERMS======	==========	==========
TRUCK	DELIVERED			

ITM	QTY	==========DESCRIPTION==========	==SPEC==	=WEIGHT=	COST UNIT/UM	==COST==

HEAT NUMBERS MUST BE CLEARLY MARKED ON ALL MATERIAL

MILL TEST REPORTS REQUIRED

ALL MATERIAL MUST COMPLY WITH ASTM-A6

AUTHORIZED BY:

SUB-TOTAL		13,302.62
34% FUEL SURCHARGE:	0.5848/cwt	146.35
TOTALS	25,025 lbs.	$13,448.97

INFRA-METALS

8 PENT HWY.
WALLINGFORD, CT 06492
Phone: 203-294-2980 Fax: 203-294-2993

M.T.R. COVER SHEET
04/10/2008

Customer Name	:	MEGQUIER & JONES	**Control Number**	:	663687
Address	:	1156 BROADWAY	**Queued By**	:	ROSEMARY
City, State Zip	:	SOUTH PORTLAND, ME 04106	**Page Number**	:	1
Attention	:	SAM STONE	**Total Pages**	:	2
Phone Number	:	9,1.207.799.8555	**Fax Number**	:	1.207.767.2117
Reference Number	:	INFRA INV 552416			
Notes 1	:	R4399			
Notes 2	:	SO# 459095			

THE M.T.R.S THAT YOU REQUESTED ARE ATTACHED.
THANK YOU FOR YOUR BUSINESS !

HEAT #	PRODUCT CODE	I.D.#
30378490	W1049 X 65	R186850

Bill To:
INFRA-METALS CORPORATION-CT,R
DIV PREUSSAG INTERNATIONAL CO
8 PENT HWY
WALLINGFORD CT
06492 US

Ship To: 1
INFRA-METALS CORPORATION-CT
8 PENT HIGHWAY
TRACK# 953
WALLINGFORD CT
06492 US

Order Date:03/24/2008
PO No:C1138J
Mill Order No:3459585
Load No:1180970
Manifest No:1889633

CERTIFIED MATERIAL TEST REPORT

GERDAU AMERISTEEL
Petersburg Mill
GERDAU AMERISTEEL 25801 Hofheimer Way
Petersburg, VA 23803
(804) 524-2855

R4399
J-60
SGS

SPECIFICATIONS	SIZE	GRADE	LENGTH	PRODUCT
	W 10 X 49# / W250 X 73	992/572-50	65 FT / 19.812 M	WF BEAMS

ASTM A6-05a, A992-06a, A572-06

→ HEAT NO: 30378490

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	V	Al	Nb	CE
.08	1.13	.021	.039	.25	.37	.09	.11	.020	.012	.003	.002	.020	.33

PHYSICAL PROPERTIES

Yield Strength		Tensile Strength		Specimen Area		Elongation			Bend Test	ROA
KSI	MPa	KSI	MPa	Sq In	Sq cm	%	Gage Length		Dia. Result	%
57.0	393.0	74.5	513.7	0.804	5.19	24.4	8 In	200 mm		
56.1	386.8	73.6	507.5	0.806	5.20	26.6	8 In	200 mm		

RECEIVED
APR 09 2008
By

All manufacturing processes of this product, including electric arc melting and continuous casting, occurred in the U.S.A.
CMTR complies with DIN EN 10204 3.1.B

"I hereby certify that the contents of this report are correct and accurate. All tests and operations performed by this material manufacturer or its sub-contractors, when applicable, are in compliance with the requirements of the material specifications and applicable purchaser designated requirements."

Signed: _____ Date: Mar. 25, 2008
Tom L. Harrington: Quality Assurance Manager

Signed: _____ Date: _____
Notary Public (if applicable)

R4399
J-60
SGS

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

3/23/08 6:41:50

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

Sold To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Ship To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Customer #.: 502 - 1
Customer PO: C1173A
B.o.L. #...: 680863

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a://A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# / Grade(s) / Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni / ****** / CI	CE1 / CE2 / Pcm
W8X10	2802866	.81	55700	69000	29.68	.0680	.8150	.0091	.0286	.2170	.0890	.0400	.2230
030' 00.00"	A992-06a		384	476		.0330	.0170	.0055	.0014	.0028	.0119		.2615
W200X15.0		.80	55300	68700	29.08	.0008	.0016	.0000	.0024	.0049	.0000	2.6965	.1361
009.1440m			381	474		36 Piece(s)						InvH:	0
W8X10	2802780	.81	55500	68900	26.86	.0670	.8200	.0058	.0283	.2090	.1350	.0430	.2240
040' 00.00"	A992-06a		383	475		.0210	.0190	.0120	.0007	.0022	.0163		.2621
W200X15.0		.82	56000	68700	27.74	.0000	.0013	.0001	.0015	.0053	.0000	3.4619	.1324
012.1920m			386	474		12 Piece(s)						InvH:	0
W8X10	2802897	.82	55600	67700	27.34	.0730	.8520	.0126	.0303	.1770	.0910	.0300	.2373
040' 00.00"	A992-06a		383	467		.0440	.0240	.0057	.0034	.0034	.0161		.2701
W200X15.0		.81	55200	67900	26.29	.0058	.0019	.0008	.0000	.0055	.0000	2.7177	.1306
012.1920m			381	468		59 Piece(s)						InvH:	0
W8X10	2802896	.82	58100	70500	27.74	.0670	.9290	.0100	.0284	.1760	.0990	.0340	.2428
040' 00.00"	A992-06a		401	486		.0380	.0190	.0061	.0018	.0035	.0145		.2750
W200X15.0		.82	57500	70100	25.58	.0030	.0017	.0000	.0022	.0049	.0000	2.8327	.1392
012.1920m			396	483		1 Piece(s)						InvH:	0
W8X10	2802749	.81	55600	68600	27.45	.0680	.8400	.0093	.0299	.2000	.1360	.0510	.2330
050' 00.00"	A992-06a		383	473		.0410	.0190	.0125	.0012	.0028	.0113		.2686
W200X15.0		.83	57200	68800	28.33	.0011	.0015	.0000	.0025	.0047	.0000	3.5707	.1403
015.2400m			394	474		48 Piece(s)						InvH:	0

Elongation based on 8' (20.32cm) gauge length. 'No Weld Repair' was peformed. Hg free and no contact with Hg during manufacture.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

3/16/08 15:12:41

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

Sold To: INFRA METALS CORP - CT
8 PENT HIGHWAY
WALLINGFORD, CT 06492

Ship To: INFRA METALS CORP - CT
8 PENT HIGHWAY
WALLINGFORD, CT 06492

Customer #.: 502 - 1
B.o.L. #...: 679597

R4399
J-60
SGS

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a://A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# / Grade(s) / Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni / xxxxxx / CI	CE1 / CE2 / Pcm
W8X10	2802823	.83	55800	67500	28.69	.0670	.8030	.0065	.0251	.2310	.0850	.0350	.2198
035' 00.00"	A992-06a		385	465		.0310	.0210	.0058	.0013	.0030	.0121		.2608
W200X15.0		.82	55500	67900	30.01	.0025	.0015	.0000	.0022	.0045	.0000	2.5754	.1338
010.6680m			383	468		24 Piece(s)		Customer PO: C1167A				Inv#:	0
W8X10	2802741	.80	54000	67300	28.68	.0660	.8930	.0107	.0280	.1940	.1410	.0490	.2399
045' 00.00"	A992-06a		372	464		.0390	.0200	.0112	.0020	.0032	.0118		.2746
W200X15.0		.78	54600	70000	25.49	.0018	.0018	.0003	.0020	.0048	.0000	3.6593	.1385
013.7160m			376	483		1 Piece(s)		Customer PO: C1167A				Inv#:	0
W8X10	2802749	.81	55600	68600	27.45	.0680	.8400	.0093	.0299	.2000	.1360	.0510	.2330
045' 00.00"	A992-06a		383	473		.0410	.0190	.0125	.0012	.0028	.0113		.2686
W200X15.0		.83	57200	68800	28.33	.0011	.0015	.0000	.0025	.0047	.0000	3.5707	.1403
013.7160m			394	474		23 Piece(s)		Customer PO: C1167A				Inv#:	0
W8X13	2802662	.83	59200	71000	24.56	.0690	.7960	.0059	.0277	.2180	.0890	.0290	.2174
035' 00.00"	A992-06a		408	490		.0210	.0160	.0066	.0010	.0022	.0280		.2593
W200X19.3		.85	60600	71400	23.88	.0000	.0014	.0006	.0019	.0058	.0000	2.5945	.1328
010.6680m			418	492		24 Piece(s)		Customer PO: C1167A				Inv#:	0
W8X13	1802671	.84	58900	69800	26.04	.0740	.8130	.0077	.0293	.1760	.0910	.0300	.2278
045' 00.00"	A992-06a		406	481		.0250	.0230	.0056	.0028	.0033	.0292		.2630
W200X19.3		.84	58100	69400	26.48	.0061	.0017	.0006	.0000	.0054	.0000	2.6101	.1286
013.7160m			401	479		12 Piece(s)		Customer PO: C1167A				Inv#:	0

Elongation based on 8" (20.32cm) gauge length. 'No Weld Repair' was peformed.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B

Hg free and no contact with Hg during manufacture.
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

RECEIVED
MAY 02 2008
By_____

R4399
J-60
SG S

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

4/08/08 7:45:37

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

Sold To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Ship To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Customer #.: 502 - 1
Customer PO: C1173A
B.o.L. #...: 684169

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a;//A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# / Grade(s) / Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni / ****** / CI	CE1 / CE2 / Pcm
W8X10	1802820	.84	58300	69700	25.50	.0740	.8810	.0070	.0203	.1770	.0960	.0370	.2416
035' 00.00"	A992-06a		402	481		.0280	.0290	.0054	.0025	.0025	.0119		.2735
W200X15.0		.83	56900	68800	25.46	.0020	.0018	.0004	.0000	.0051	.0000	2.7228	.1329
010.6680m			392	474		24 Piece(s)						Inv#:	0
W8X10	1802731	.81	57300	70700	27.60	.0740	.8140	.0089	.0274	.2320	.1340	.0510	.2339
045' 00.00"	A992-06a		395	487		.0320	.0250	.0114	.0029	.0025	.0118		.2749
W200X15.0		.82	58500	71300	29.65	.0039	.0018	.0007	.0000	.0055	.0000	3.5676	.1334
013.7160m			403	492		52 Piece(s)						Inv#:	0
W8X10	1802736	.82	55600	67700	26.85	.0680	.8240	.0085	.0239	.2110	.1360	.0440	.2285
045' 00.00"	A992-06a		383	467		.0270	.0260	.0129	.0031	.0027	.0100		.2656
W200X15.0		.80	54100	67400	29.21	.0051	.0017	.0004	.0000	.0045	.0000	3.5371	.1270
013.7160m			373	465		20 Piece(s)						Inv#:	0
W8X10	2802741	.80	54000	67300	28.68	.0660	.8930	.0107	.0280	.1940	.1410	.0490	.2399
045' 00.00"	A992-06a		372	464		.0390	.0200	.0112	.0020	.0032	.0118		.2746
W200X15.0		.78	54600	70000	25.49	.0018	.0018	.0003	.0020	.0048	.0000	3.6593	.1385
013.7160m			376	483		12 Piece(s)						Inv#:	0
W8X13	2802668	.86	60100	69600	27.70	.0650	.8250	.0069	.0287	.1950	.0890	.0300	.2187
045' 00.00"	A992-06a		414	480		.0220	.0160	.0059	.0021	.0035	.0268		.2566
W200X19.3		.85	59300	69600	27.66	.0042	.0019	.0004	.0024	.0049	.0000	2.5816	.1321
013.7160m			409	480		12 Piece(s)						Inv#:	0

Elongation based on 8" (20.32cm) gauge length. 'No Weld Repair' was peformed. Hg free and no contact with Hg during manufacture.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

RECEIVED
MAY 02 2008
By_____

From: NUCOR STEEL - HUGER To: 12036794260 04-08 07:50

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

3/17/08 15:38:35

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

R4399
J-60
SGS

Sold To: INFRA METALS CORP - CT
8 PENI HIGHWAY

WALLINGFORD, CT 06492

Ship To: INFRA METALS CORP - CT
8 PENI HIGHWAY

WALLINGFORD, CT 06492

Customer #.: 502 - 1
Customer PO: C1353K
B.o.L. #...: 679752

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a;//A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# / Grade(s) / Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni ****** CI	CE1 / CE2 / Pcm
W8X10	2802754	.83	58600	70300	29.34	.0660	.8660	.0093	.0324	.2530	.1320	.0430	.2353
050' 00.00"	A992-06a		404	485		.0430	.0200	.0133	.0023	.0037	.0139		.2803
W200X15.0		.82	56100	68300	27.31	.0053	.0026	.0001	.0024	.0054	.0000	3.5626	.1408
015.2400m			387	471		11 Piece(s)						InvH:	0
W8X10	2802758	.82	56600	69100	26.80	.0740	.8530	.0083	.0290	.2330	.1290	.0450	.2427
050' 00.00"	A992-06a		390	476		.0450	.0270	.0112	.0034	.0027	.0140		.2843
W200X15.0		.82	56900	69200	27.26	.0043	.0020	.0003	.0000	.0044	.0000	3.4731	.1358
015.2400m			392	477		37 Piece(s)						InvH:	0

Elongation based on 8' (20.32cm) gauge length. 'No Weld Repair' was peformed.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B
CE1 = C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

RECEIVED
MAY 02 2008
By

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

2/09/08 21:10:50

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

Sold To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Ship To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Customer #.: 502 - 1

B.o.L. #...: 671738

R4399
J-60
SGS

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a;//A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# / Grade(s) / Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni / ****** / CI	CE1 / CE2 / Pcm
W10x12	1801866	.83	57700	69300	28.02	.0750	.8260	.0086	.0305	.2450	.1250	.0350	.2338
030' 00.00"	A992-06a		398	478		.0290	.0210	.0048	.0032	.0021	.0134		.2773
W250X17.9		.81	55400	68200	26.97	.0008	.0016	.0005	.0000	.0051	.0000	3.3792	.1343
009.1440m			382	470		32 Piece(s)		Customer PO: C1112A				Inv#:	0
W10X39.0	2713082	.82	55200	67600	23.40	.0660	1.0210	.0071	.0238	.2380	.0750	.0280	.2519
030' 00.00"	A992-06a		381	466		.0230	.0180	.0063	.0015	.0031	.0269		.2969
W250X58		.79	54100	68200	25.85	.0042	.0017	.0000	.0008	.0051	.0000	2.3594	.1358
009.1440m			373	470		6 Piece(s)		Customer PO: C1112A				Inv#:	0
W10X39.0	1713087	.79	53300	67800	22.88	.0750	1.0410	.0071	.0232	.2230	.0800	.0300	.2645
030' 00.00"	A992-06a		368	467		.0220	.0180	.0066	.0023	.0033	.0265		.3070
W250X58		.80	54700	68500	25.88	.0035	.0022	.0034	.0009	.0057	.0000	2.4454	.1460
009.1440m			377	472		7 Piece(s)		Customer PO: C1112A				Inv#:	0
W10X39.0	1801183	.81	56700	69700	25.43	.0690	1.0250	.0089	.0244	.2550	.1140	.0390	.2621
030' 00.00"	A992-06a		391	481		.0310	.0260	.0383	.0033	.0031	.0303		.3106
W250X58		.81	56800	69800	25.61	.0020	.0020	.0005	.0000	.0054	.0000	3.2179	.1386
009.1440m			392	481		11 Piece(s)		Customer PO: C1112A				Inv#:	0
W10X39.0	1802005	.79	54800	69700	20.98	.0720	1.0160	.0075	.0247	.2130	.1370	.0410	.2643
030' 00.00"	A992-06a		378	481		.0300	.0220	.0114	.0023	.0037	.0265		.3051
W250X58		.78	54700	69800	23.56	.0039	.0017	.0000	.0020	.0054	.0000	3.5350	.1506
009.1440m			377	481		1 Piece(s)		Customer PO: C1112A				Inv#:	0

Elongation based on 8' (20.32cm) gauge length. 'No Weld Repair' was peformed.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B

Hg free and no contact with Hg during manufacture.
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

RECEIVED
MAY 02 2008
By_____

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

3/24/08 5:45:56

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

Sold To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Ship To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Customer #.: 502 - 1

B.o.L. #...: 680926

R4399
J-60
SGS

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a://A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# / Grade(s) / Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni / ****** / CI	CE1 / CE2 / Pcm
S3X7.5	2710539	.81	57300	71000	25.86	.0630	.8380	.0068	.0232	.2170	.1120	.0440	.2231
040' 00.00"	A992-06a		395	490		.0290	.0180	.0069	.0019	.0033	.0283		.2650
S75X11.2		.81	57000	70400	25.06	.0028	.0013	.0000	.0012	.0058	.0000	3.1020	.1273
012.1920m			393	485		35 Piece(s)		Customer PO: C1313K				InvH:	0
S4X9.5	2715256	.81	53700	66100	26.35	.0660	.8500	.0068	.0264	.2130	.0690	.0280	.2228
040' 00.00"	A992-06a		370	456		.0240	.0160	.0057	.0011	.0032	.0264		.2636
S100X14.1		.80	53400	66400	26.88	.0026	.0021	.0000	.0008	.0054	.0000	2.1922	.1260
012.1920m			368	458		40 Piece(s)		Customer PO: C1313K				InvH:	0
W10x12	2801811	.81	54300	67100	29.99	.0670	.8010	.0073	.0233	.2010	.0740	.0290	.2161
050' 00.00"	A992-06a		374	463		.0230	.0180	.0053	.0018	.0029	.0126		.2522
W250X17.9		.83	56500	68400	26.89	.0011	.0014	.0000	.0013	.0055	.0000	2.2901	.1270
015.2400m			390	472		40 Piece(s)		Customer PO: C1160A				InvH:	0
W10x12	2801816	.82	57700	70500	29.56	.0670	.8130	.0125	.0222	.1780	.0720	.0260	.2178
050' 00.00"	A992-06a		398	486		.0260	.0160	.0056	.0017	.0020	.0135		.2502
W250X17.9		.80	56000	69700	27.06	.0000	.0014	.0000	.0011	.0100	.0000	2.2963	.1256
015.2400m			386	481		24 Piece(s)		Customer PO: C1160A				InvH:	0
W10x15	2801791	.84	55900	66300	26.90	.0670	.8500	.0088	.0295	.2220	.1250	.0390	.2302
030' 00.00"	A992-06a		385	457		.0310	.0190	.0052	.0022	.0031	.0137		.2700
W250X22.3		.82	54600	66600	27.56	.0024	.0020	.0001	.0024	.0047	.0000	3.3622	.1388
009.1440m			376	459		24 Piece(s)		Customer PO: C1160A				InvH:	0

Elongation based on 8" (20.32cm) gauge length. 'No Weld Repair' was peformed.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B

Hg free and no contact with Hg during manufacture.
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

RECEIVED
MAY 02 2008
By_____

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

1/31/08 6:59:36

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

Sold To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Ship To: LOGISTEC TERMINAL NEW HAVEN
100 WATERFRONT ST BRG/TRN ONLY

NEW HAVEN, CT 06473

Customer #.: 502 - 7

B.o.L. #...: 669621

R4399
SGS
J-60

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a;//A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# Grade(s) Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni / ****** / CI	CE1 / CE2 / Pcm
W10x30	2801458	.84	59600	71000	23.26	.0690	.9360	.0116	.0326	.2380	.1330	.0440	.2495
060' 00.00"	A992-06a		411	490		.0400	.0200	.0076	.0020	.0034	.0313		.2954
W250X44.8		.82	57800	70700	28.06	.0034	.0019	.0006	.0028	.0053	.0000	3.5952	.1487
018.2880m			399	487		6 Piece(s)		Customer PO: C1124A				InvH:	0
W12x14	2719594	.81	53900	66400	30.61	.0680	.8030	.0062	.0236	.1900	.0570	.0260	.2151
030' 00.00"	A992-06a		372	458		.0220	.0140	.0043	.0016	.0026	.0130		.2494
W310X21.0		.80	53100	66000	29.61	.0017	.0015	.0000	.0009	.0043	.0000	1.8793	.1245
009.1440m			366	455		8 Piece(s)		Customer PO: C1125A				InvH:	0
W12x14	2719594	.81	53900	66400	30.61	.0680	.8030	.0062	.0236	.1900	.0570	.0260	.2151
030' 00.00"	A992-06a		372	458		.0220	.0140	.0043	.0016	.0026	.0130		.2494
W310X21.0		.80	53100	66000	29.61	.0017	.0015	.0000	.0009	.0043	.0000	1.8793	.1245
009.1440m			366	455		8 Piece(s)		Customer PO: C1098A				InvH:	0
W12x14	2719594	.81	53900	66400	30.61	.0680	.8030	.0062	.0236	.1900	.0570	.0260	.2151
030' 00.00"	A992-06a		372	458		.0220	.0140	.0043	.0016	.0026	.0130		.2494
W310X21.0		.80	53100	66000	29.61	.0017	.0015	.0000	.0009	.0043	.0000	1.8793	.1245
009.1440m			366	455		8 Piece(s)		Customer PO: C1098A				InvH:	0
W12x14	2719586	.80	54000	67500	26.53	.0750	.8200	.0083	.0204	.1670	.0880	.0370	.2292
030' 00.00"	A992-06a		372	465		.0280	.0150	.0055	.0017	.0028	.0118		.2594
W310X21.0		.80	53700	67200	26.16	.0021	.0017	.0000	.0003	.0056	.0000	2.5732	.1307
009.1440m			370	463		56 Piece(s)		Customer PO: C1125A				InvH:	0

Elongation based on 8" (20.32cm) gauge length. 'No Weld Repair' was peformed.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B

Hg free and no contact with Hg during manufacture.
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

RECEIVED
MAY 02 2008
By_____

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

2/07/08 0:50:46

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

Sold To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Ship To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Customer M.: 502 - 1

B.o.L. M...: 671110

R4399
J-60
SGS

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a://A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# / Grade(s) / Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni / ****** / CI	CE1 / CE2 / Pcm
W10x26.0	1714636	.84	56200	67300	26.11	.0660	.8010	.0048	.0290	.2210	.1190	.0440	.2226
030' 00.00"	A992-06a		387	464		.0290	.0290	.0062	.0035	.0032	.0269		.2648
W250X38.5		.84	56400	66900	27.06	.0042	.0024	.0004	.0000	.0055	.0000	3.2000	.1237
009.1440m			389	461		24 Piece(s)		Customer PO: C1124A				InvH:	0
W10x26.0	1801524	.82	57400	70000	24.24	.0710	.8270	.0079	.0282	.2490	.0770	.0350	.2263
035' 00.00"	A992-06a		396	483		.0270	.0200	.0054	.0025	.0032	.0286		.2736
W250X38.5		.82	56800	69000	23.65	.0044	.0023	.0000	.0020	.0050	.0000	2.4584	.1380
010.6680m			392	476		12 Piece(s)		Customer PO: C1124A				InvH:	0
W12x14	1801040	.82	54400	66300	27.41	.0730	.8020	.0090	.0267	.2250	.1080	.0390	.2283
050' 00.00"	A992-06a		375	457		.0340	.0220	.0069	.0035	.0031	.0120		.2682
W310X21.0		.81	53000	65600	29.91	.0033	.0019	.0004	.0000	.0053	.0000	3.0686	.1300
015.2400m			365	452		8 Piece(s)		Customer PO: C1112A				InvH:	0
W12x14	2801044	.82	55400	67700	27.84	.0750	.8510	.0080	.0269	.2480	.1180	.0390	.2371
050' 00.00"	A992-06a		382	467		.0260	.0190	.0067	.0031	.0038	.0149		.2814
W310X21.0		.82	54500	66700	23.39	.0021	.0025	.0000	.0020	.0062	.0000	3.2582	.1452
015.2400m			376	460		8 Piece(s)		Customer PO: C1112A				InvH:	0
W12X40	2801309	.81	59300	72800	20.94	.0710	1.1260	.0119	.0262	.2710	.0710	.0300	.2768
030' 00.00"	A992-06a		409	502		.0310	.0220	.0078	.0021	.0039	.0344		.3288
W310X60		.80	59500	74300	24.54	.0043	.0021	.0000	.0023	.0058	.0000	2.4226	.1552
009.1440m			410	512		16 Piece(s)		Customer PO: C1112A				InvH:	0

Elongation based on 8" (20.32cm) gauge length. 'No Weld Repair' was peformed.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B

Hg free and no contact with Hg during manufacture.
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

RECEIVED
MAY 02 2008
By_____

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

1/31/08 6:59:36
100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

R4399
J-60
SGS

Sold To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Ship To: LOGISTEC TERMINAL NEW HAVEN
100 WATERFRONT ST BRG/IRN ONLY

NEW HAVEN, CT 06473

Customer #.: 502 - 7

B.o.L. #...: 669621

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a://A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# Grade(s) Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C Cr Pb	Mn Mo Ti	P Sn Ca	S Al B	Si V N	Cu Nb Zr	Ni ****** CI	CE1 CE2 Pcm
W12x16	1800973	.82	54600	66900	25.23	.0710	.8440	.0090	.0259	.2200	.1160	.0400	.2348
050' 00.00'	A992-06a		376	461		.0380	.0230	.0061	.0031	.0027	.0116		.2738
W310X23.8		.82	54900	67000	28.13	.0000	.0016	.0009	.0000	.0072	.0000	3.2149	.1306
015.2400m			379	462		8 Piece(s)		Customer PO: C1112A				InvH:	0
W12x16	1800973	.82	54600	66900	25.23	.0710	.8440	.0090	.0259	.2200	.1160	.0400	.2348
050' 00.00'	A992-06a		376	461		.0380	.0230	.0061	.0031	.0027	.0116		.2738
W310X23.8		.82	54900	67000	28.13	.0000	.0016	.0009	.0000	.0072	.0000	3.2149	.1306
015.2400m			379	462		8 Piece(s)		Customer PO: C1112A				InvH:	0
W12x16	1800973	.82	54600	66900	25.23	.0710	.8440	.0090	.0259	.2200	.1160	.0400	.2348
050' 00.00'	A992-06a		376	461		.0380	.0230	.0061	.0031	.0027	.0116		.2738
W310X23.8		.82	54900	67000	28.13	.0000	.0016	.0009	.0000	.0072	.0000	3.2149	.1306
015.2400m			379	462		8 Piece(s)		Customer PO: C1112A				InvH:	0
W12x19	2800637	.84	58300	69300	20.50	.0730	.8480	.0122	.0299	.1970	.1140	.0350	.2359
030' 00.00'	A992-06a		402	478		.0310	.0250	.0059	.0028	.0024	.0246		.2737
W310X28.3		.84	57300	68400	20.98	.0028	.0017	.0005	.0004	.0050	.0000	3.1756	.1336
009.1440m			395	472		108 Piece(s)		Customer PO: C1098A				InvH:	0
W12x19	2800637	.84	58300	69300	20.50	.0730	.8480	.0122	.0299	.1970	.1140	.0350	.2359
030' 00.00'	A992-06a		402	478		.0310	.0250	.0059	.0028	.0024	.0246		.2737
W310X28.3		.84	57300	68400	20.98	.0028	.0017	.0005	.0004	.0050	.0000	3.1756	.1336
009.1440m			395	472		8 Piece(s)		Customer PO: C1112A				InvH:	0

Elongation based on 8' (20.32cm) gauge length. 'No Weld Repair' was peformed.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B

Hg free and no contact with Hg during manufacture.
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

RECEIVED
MAY 02 2008
By_____

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

4/19/08 6:22:44

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

R4399
J-60
SGS

Sold To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Ship To: INFRA METALS CORP - CT
8 PENT HIGHWAY

WALLINGFORD, CT 06492

Customer #.: 502 - 1

B.o.L. #...: 687038

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a://A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# / Grade(s) / Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni / ****** / CI	CE1 / CE2 / Pcm
W14x22	2804843	.80	54300	67700	26.10	.0680	.8470	.0083	.0195	.1870	.1190	.0420	.2315
035' 00.00"	A992-06a		374	467		.0360	.0190	.0066	.0017	.0032	.0099		.2647
W360X32.9		.82	55900	68300	28.88	.0012	.0018	.0000	.0016	.0060	.0000	3.2110	.1345
010.6680m			385	471		7 Piece(s)		Customer PO: C1180A				InvH:	0
W14x22	2804843	.80	54300	67700	26.10	.0680	.8470	.0083	.0195	.1870	.1190	.0420	.2315
035' 00.00"	A992-06a		374	467		.0360	.0190	.0066	.0017	.0032	.0099		.2647
W360X32.9		.82	55900	68300	28.88	.0012	.0018	.0000	.0016	.0060	.0000	3.2110	.1345
010.6680m			385	471		7 Piece(s)		Customer PO: C1167A				InvH:	0
W14x22	2804843	.80	54300	67700	26.10	.0680	.8470	.0083	.0195	.1870	.1190	.0420	.2315
035' 00.00"	A992-06a		374	467		.0360	.0190	.0066	.0017	.0032	.0099		.2647
W360X32.9		.82	55900	68300	28.88	.0012	.0018	.0000	.0016	.0060	.0000	3.2110	.1345
010.6680m			385	471		7 Piece(s)		Customer PO: C1167A				InvH:	0
W14x22	2804904	.81	54600	67500	22.76	.0620	.8320	.0101	.0259	.2240	.1490	.0460	.2257
045' 00.00"	A992-06a		376	465		.0390	.0180	.0064	.0021	.0033	.0120		.2655
W360X32.9		.83	57000	68500	22.69	.0025	.0017	.0002	.0018	.0059	.0000	3.8136	.1317
013.7160m			393	472		42 Piece(s)		Customer PO: C1180A				InvH:	0
W14x22	2804904	.81	54600	67500	22.76	.0620	.8320	.0101	.0259	.2240	.1490	.0460	.2257
045' 00.00"	A992-06a		376	465		.0390	.0180	.0064	.0021	.0033	.0120		.2655
W360X32.9		.83	57000	68500	22.69	.0025	.0017	.0002	.0018	.0059	.0000	3.8136	.1317
013.7160m			393	472		7 Piece(s)		Customer PO: C1167A				InvH:	0

Elongation based on 8" (20.32cm) gauge length. 'No Weld Repair' was peformed. Hg free and no contact with Hg during manufacture.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

RECEIVED
MAY 02 2008
By_____

NUCOR STEEL - BERKELEY
P.O. Box 2259
Mt. Pleasant, S.C. 29464
Phone: (843) 336-6000

MILL TEST REPORT

4/06/08 2:31:02
100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice.

R4399
J-60
SGS

Sold To: INFRA METALS CORP - CT
8 PENI HIGHWAY

WALLINGFORD, CT 06492

Ship To: INFRA METALS CORP - CT
8 PENI HIGHWAY

WALLINGFORD, CT 06492

Customer #.: 502 - 1
Customer PO: C1180A
B.o.L. #...: 683745

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
AASHTO : M270-36-05/M270-50-05
ASME : SA-36 07a
ASTM : A992-06a://A36-05/A572-06-50/A709-06a36/A709-07 50/A709-345M
CSA : CSA-44W/G40.21-50W

Description	Heat# / Grade(s) / Test	Yield/ Tensile Ratio	Yield (PSI) (MPa)	Tensile (PSI) (MPa)	Elong %	C / Cr / Pb	Mn / Mo / Ti	P / Sn / Ca	S / Al / B	Si / V / N	Cu / Nb / Zr	Ni / ****** / CI	CE1 / CE2 / Pcm
W14x22	1805101	.81	56000	69000	28.36	.0710	.8530	.0089	.0222	.1990	.0780	.0250	.2299
040' 00.00"	A992-06a		386	476		.0250	.0210	.0047	.0032	.0032	.0164		.2663
W360X32.9		.80	54100	67900	27.08	.0058	.0022	.0007	.0000	.0058	.0000	2.3867	.1275
012.1920m			373	468		84 Piece(s)						InvH:	0
W14x22	2805104	.81	54600	67200	32.40	.0650	.8280	.0057	.0203	.2110	.0710	.0280	.2165
040' 00.00"	A992-06a		376	463		.0180	.0140	.0046	.0013	.0026	.0123		.2541
W360X32.9		.81	55000	67700	29.83	.0000	.0016	.0003	.0000	.0062	.0000	2.2056	.1195
012.1920m			379	467		21 Piece(s)						InvH:	0
W14x22	2805029	.81	55800	68500	28.69	.0730	.8480	.0088	.0208	.2020	.0870	.0290	.2327
050' 00.00"	A992-06a		385	472		.0270	.0230	.0048	.0038	.0030	.0142		.2692
W360X32.9		.83	55700	67300	27.34	.0045	.0019	.0006	.0000	.0060	.0000	2.5874	.1300
015.2400m			384	464		14 Piece(s)						InvH:	0
W14x22	2805035	.81	54800	67700	30.64	.0640	.7860	.0102	.0209	.1560	.0740	.0270	.2116
050' 00.00"	A992-06a		378	467		.0310	.0150	.0047	.0014	.0034	.0096		.2395
W360X32.9		.81	55400	68200	28.83	.0024	.0014	.0000	.0023	.0065	.0000	2.2755	.1269
015.2400m			382	470		49 Piece(s)						InvH:	0
W14x22	2805039	.81	53900	66800	26.68	.0640	.7880	.0063	.0212	.2000	.1030	.0320	.2133
050' 00.00"	A992-06a		372	461		.0260	.0160	.0069	.0014	.0028	.0115		.2489
W360X32.9		.82	56600	69200	29.93	.0018	.0015	.0000	.0020	.0063	.0000	2.8612	.1283
015.2400m			390	477		7 Piece(s)						InvH:	0

Elongation based on 8" (20.32cm) gauge length. 'No Weld Repair' was peformed. Hg free and no contact with Hg during manufacture.
CI = 26.01Cu+3.88Ni+1.20Cr+1.49Si+17.28P-(7.29Cu*Ni)-(9.10Ni*P)-33.39(Cu*Cu)
Pcm = C+(Si/30)+(Mn/20)+(Cu/20)+(Ni/60)+(Cr/20)+(Mo/15)+(V/10)+5B
CE1= C+(Mn/6)+((Cr+Mo+V)/5)+((Ni+Cu)/15)
CE2 = C+((Mn+Si)/6)+((Cr+Mo+V+Cb)/5)+((Ni+Cu)/15)

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. Work
Metallurgist

(State of South Carolina
(County of Berkeley
Sworn and subscribed before me

_____ day of _____

RECEIVED
MAY 02 2008
By

DATE	2/18/08
INVOICE NO.	207942
BILL OF LADING	894120
CUSTOMER NO.	9310
CUSTOMER P.O.	C 1129 A

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
INFRA-METALS CORP
8 PENT HIGHWAY
TRACK # 953
WALLINGFORD, CT 06492

SOLD TO
INFRA-METALS CORP.

8 PENT HIGHWAY
WALLINGFORD, CT 06492

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4399
J-60
SGS

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES					CHEMICAL PROPERTIES											
				YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT ENERGY FT-LBS / JOULES	C	Mn	P	S	Si	Cu	Ni	Cr	Mo / Sn	V / Pcm	Cb	CE / CI
1	W16 - 31.0	2	312836	.82	58000	71000	25			.09	.98	.016	.024	.25	.27	.10	.10	.02	.00	.016	.29
	30'			.80	57000	71000	23											.01	.17		
	W410 x 46.1				400	490	25														
	9.144 M				393	490	23														
2	W16 - 31.0	5	312848	.82	59000	72000	24			.07	.99	.016	.028	.22	.31	.10	.09	.02	.00	.018	.29
	30'			.83	59000	71000	24											.01	.15		
	W410 x 46.1				407	496	24														
	9.144 M				407	490	24														
3	W16 - 31.0	7	312858	.83	59000	71000	24			.07	.95	.019	.036	.25	.29	.10	.09	.02	.00	.017	.28
	30'			.83	58000	70000	24											.01	.14		
	W410 x 46.1				407	490	24														
	9.144 M				400	483	24														
4	W16 - 31.0	7	308315	.83	59000	71000	24			.07	.92	.015	.031	.27	.29	.10	.08	.03	.00	.023	.27
	32'			.83	60000	72000	24											.01	.14		
	W410 x 46.1				407	490	24														
	9.754 M				414	496	24														
5	W16 - 31.0	7	312797	.81	59000	73000	23			.07	.95	.021	.034	.23	.33	.11	.12	.02	.00	.016	.29
	32'			.83	59000	71000	23											.01	.16		
	W410 x 46.1				407	503	23														
	9.754 M				407	490	23														

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5B B=Approx..0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lennell
QUALITY ASSURANCE

CUSTOMER COPY

RECEIVED
MAY 02 2008
By

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
18 Day of 02/08
Charlene Wallis NOTARY PUBLIC
MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS NOTARY PUBLIC MISSISSIPPI CO. ARKANSAS MY Comm. Exp. 10-21-2013

DATE	8/31/07
INVOICE NO.	166304
BILL OF LADING	865584
CUSTOMER NO.	9310
CUSTOMER P.O.	C21381

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
INFRA-METALS CORP
8 PENT HIGHWAY
TRACK # 953
WALLINGFORD, CT 06492

SOLD TO
INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4399
J-60
SGS

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES						CHEMICAL PROPERTIES											
				YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG % / %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT ENERGY FT-LBS / JOULES	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
																		Sn	Pcm		CI
1	W16 - 36.0	3	302239	.76	53000	70000	24			.07	1.18	.013	.032	.31	.28	.12	.08	.02	.00	.018	.32
	30'			.75	53000	71000	24											.01	.15		
	W410 x 53.0				365	483	24														
	9.144 M				365	490	24														
2	W16 - 36.0	20	302263	.76	54000	71000	24			.07	1.12	.021	.035	.30	.25	.11	.11	.02	.00	.018	.31
	30'			.76	53000	70000	25											.01	.16		
	W410 x 53.0				372	490	24														
	9.144 M				365	483	25														

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MAY 02 2008
By

Pcm = C + Si + Mn + Cu + Ni + Cr + Mo + V + 5 B Approx. .0005 / 30 20 20 60 20 15 10

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lemell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
31 Day of 08/07
Charlene Wallis NOTARY PUBLIC
MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS
MY Comm. Exp.
NOTARY PUBLIC
10-21-2013
MISSISSIPPI CO. ARKANSAS

DATE	3/28/08
INVOICE NO.	217489
BILL OF LADING	900675
CUSTOMER NO.	9310
CUSTOMER P.O.	C 1131 A

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
INFRA-METALS CORP
8 PENT HIGHWAY
TRACK # 953
WALLINGFORD, CT 06492

SOLD TO
INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4399
J-60
SGS

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES: YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT ENERGY FT-LBS / JOULES	CHEMICAL PROPERTIES: C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
																		Sn	Pcm		CI
1	W16 - 36.0	5	315825	.76	56000	74000	25			.07	1.15	.014	.034	.31	.26	.11	.09	.03	.00	.019	.30
	35'			.75	54000	72000	24											.01	.15		
	W410 x 53.0				386	510	25														
	10.668 M				372	496	24														
2	W16 - 36.0	15	315835	.75	54000	72000	24			.08	1.15	.014	.034	.28	.28	.10	.10	.02	.00	.015	.32
	35'			.75	55000	73000	26											.01	.17		
	W410 x 53.0				372	496	24														
	10.668 M				379	503	26														
3	W16 - 36.0	10	315837	.75	54000	72000	26			.07	1.15	.014	.031	.28	.28	.10	.10	.03	.00	.015	.32
	35'			.75	54000	72000	24											.01	.16		
	W410 x 53.0				372	496	26														
	10.668 M				372	496	24														
4	W16 - 36.0	1	315795	.76	58000	76000	23			.07	1.30	.020	.040	.30	.31	.10	.14	.02	.00	.024	.35
	45'			.75	56000	75000	22											.01	.18		
	W410 x 53.0				400	524	23														
	13.716 M				386	517	22														
5	W16 - 36.0	9	315797	.74	56000	76000	21			.07	1.25	.015	.040	.28	.30	.11	.13	.03	.00	.025	.34
	45'			.77	58000	75000	24											.01	.17		
	W410 x 53.0				386	524	21														
	13.716 M				400	517	24														
6	W16 - 36.0	1	315827	.74	51000	69000	24			.07	1.15	.017	.039	.25	.27	.11	.10	.03	.00	.017	.32
	45'			.75	52000	69000	25											.01	.16		
	W410 x 53.0				352	476	24														
	13.716 M				359	476	25														
7	W16 - 36.0	2	315829	.74	52000	70000	25			.07	1.17	.016	.031	.26	.28	.10	.09	.02	.00	.016	.32
	45'			.73	52000	71000	23											.01	.15		
	W410 x 53.0				359	483	25														
	13.716 M				359	490	23														
8	W16 - 36.0	7	315835	.75	54000	72000	24			.08	1.15	.014	.034	.28	.28	.10	.10	.02	.00	.015	.32
	45'			.75	55000	73000	26											.01	.17		
	W410 x 53.0				372	496	24														
	13.716 M				379	503	26														
9	W16 - 36.0	10	315837	.75	54000	72000	26			.07	1.15	.014	.031	.28	.28	.10	.10	.03	.00	.015	.32
	45'			.75	54000	72000	24											.01	.16		
	W410 x 53.0				372	496	26														
	13.716 M				372	496	24														

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5 B (B=Appox..0003)

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)

RECEIVED
MAY 02 2008
By

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Doug Lennell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
28 Day of 03/08
Charlene Wallis NOTARY PUBLIC
MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS NOTARY PUBLIC MISSISSIPPI CO. ARKANSAS MY Comm. Exp. 10-21-2013

CERTIFIED MILL TEST REPORT

DATE	4/09/08
INVOICE NO.	220194
BILL OF LADING	902568
CUSTOMER NO.	9310
CUSTOMER P.O.	C 1131 A

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 • BLYTHEVILLE,AR 72316

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
INFRA-METALS CORP
8 PENT HIGHWAY
TRACK # 953
WALLINGFORD, CT 06492

SOLD TO
INFRA-METALS CORP.

8 PENT HIGHWAY
WALLINGFORD, CT 06492

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4399
J-60
SGS

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES: YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT ENERGY FT-LBS / JOULES	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
				CHEMICAL PROPERTIES														Sn	Pcm		CI
1	W18 - 35.0	4	301719	.75	55000	73000	24			.08	1.12	.019	.033	.29	.29	.14	.18	.03	.00	.019	.34
	35'			.75	54000	72000	22											.01	.17		
	W460 x 52.0				379	503	24														
	10.668 M				372	496	22														
2	W18 - 35.0	1	316268	.78	58000	74000	25			.08	1.16	.016	.031	.26	.28	.11	.06	.02	.00	.018	.32
	35'			.69	53000	77000	25											.01	.16		
	W460 x 52.0				400	510	25														
	10.668 M				365	531	25														
3	W18 - 35.0	2	316270	.76	57000	75000	22			.07	1.15	.014	.020	.29	.28	.11	.06	.02	.00	.021	.31
	35'			.75	55000	73000	25											.01	.15		
	W460 x 52.0				393	517	22														
	10.668 M				379	503	25														
4	W18 - 35.0	1	316448	.71	54000	76000	24			.08	1.25	.020	.033	.27	.27	.11	.12	.03	.01	.024	.35
	35'			.75	57000	76000	25											.01	.17		
	W460 x 52.0				372	524	24														
	10.668 M				393	524	25														
5	W18 - 35.0	2	316449	.75	57000	76000	24			.07	1.25	.018	.034	.26	.26	.11	.13	.03	.01	.026	.33
	35'			.74	57000	77000	23											.01	.16		
	W460 x 52.0				393	524	24														
	10.668 M				393	531	23														
6	W18 - 35.0	5	316455	.74	56000	76000	24			.08	1.30	.016	.034	.28	.25	.10	.14	.03	.01	.023	.36
	35'			.73	55000	75000	24											.01	.18		
	W460 x 52.0				386	524	24														
	10.668 M				379	517	24														
7	W18 - 35.0	5	316459	.76	59000	78000	23			.08	1.32	.025	.031	.25	.26	.10	.14	.03	.01	.026	.36
	35'			.72	57000	79000	23											.01	.18		
	W460 x 52.0				407	538	23														
	10.668 M				393	545	23														
8	W18 - 35.0	20	316526	.74	53000	72000	25			.07	1.18	.019	.038	.26	.29	.11	.12	.03	.00	.015	.33
	35'			.75	55000	73000	23											.01	.16		
	W460 x 52.0				365	496	25														
	10.668 M				379	503	23														
9	W18 - 35.0	10	316583	.76	57000	75000	23			.07	1.16	.013	.036	.26	.26	.11	.09	.04	.01	.024	.31
	40'			.77	56000	73000	25											.01	.15		
	W460 x 52.0				393	517	23														
	12.192 M				386	503	25														

RECEIVED
MAY 02 2008
By

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5 B B=Approx..0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lennell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS

9 Day of 04/08

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS NOTARY PUBLIC MISSISSIPPI CO. ARKANSAS MY Comm. Exp. 10-21-2013

Steel Dynamics, Inc.
2601 S. County Road 700 East
Columbia City, IN 46725-
(260) 625-8100

Certified Mill Test Report

100% Melted and Manufactured in USA

Date: 7/1/2007
Customer No: 000198
Bill of Lading No: 0000117542
MTR #: 0000117122

Ship to:
Infra Metals-CT
8 Pent Highway
Wallingford, CT 06492
Attn: Mark Johnson / David Dudzinski

Bill to:
INFRA METALS-CT
8 Pent Highway
Wallingford, CT 06492
Attn: Mark Haight

R4399
J-60
SGS

Item	Bundle	Section	Length	Pcs	Heat #	Grade(s)	Specification(s)	Customer P.O.
4†	020880399	W8X58	60 '0 "	4	A033492	A992 / A992M A709 g50S/g345S A572 gr50/gr345	ASTM A992/A992M - 06a ASTM A709/A709M - 06a ASTM A572/A572M - 06	C21442
5†	020896567	W21X122	60 '0 "	2	A034229	A992 / A992M A709 g50S/g345S A572 gr50/gr345	ASTM A992/A992M - 06a ASTM A709/A709M - 06a ASTM A572/A572M - 06	C1013K
6†	020896672	W21X111	60 '0 "	2	A034249	A992 / A992M A709 g50S/g345S A572 gr50/gr345	ASTM A992/A992M - 06a ASTM A709/A709M - 06a ASTM A572/A572M - 06	C1013K
7†	020896692	W21X101	35 '0 "	2	A034248	A992 / A992M A709 g50S/g345S A572 gr50/gr345	ASTM A992/A992M - 06a ASTM A709/A709M - 06a ASTM A572/A572M - 06	C1013K

CHEMICAL

Item	C	Mn	P	S	Si	Cu	V	Cr	Ni	Mo	Sn	N	B	Cb	C1	C2	PC				Analysis
4*	.06	1.25	.019	.023	.19	.33	.002	.07	.10	.014	.015	.0093	.0002	.021	.31	.34	.15				HEAT
5*	.08	1.25	.019	.023	.21	.35	.031	.09	.10	.018	.012	.0112	.0003	.002	.34	.37	.17				HEAT
6*	.08	1.24	.017	.040	.24	.43	.034	.09	.10	.020	.017	.0109	.0004	.003	.35	.39	.18				HEAT
7*	.08	1.17	.017	.039	.24	.41	.034	.09	.10	.019	.017	.0108	.0004	.002	.34	.38	.18				HEAT

MECHANICAL

Tension Testing Results

Charpy Impact Testing Results

Item	Test	Yield (Fy) Strength ksi/MPa	Tensile (Fu) Strength ksi/MPa	Fy/Fu	Elong (%) based on 8" gauge	ROA (%)	Bend Test Result	Test	Temp F/C	Sample 1 ft. lb/joules	Sample 2 ft. lb/joules	Sample 3 ft. lb/joules	% Shear	ASTM Grain Size No (per ASTM E112)
4	1	53/367	73/501	.73	19			1						
4	2	55/379	71/492	.77	18			2						
5	1	57/394	72/493	.79	28			1						
5	2	57/392	71/487	.80	28			2						
6	1	60/412	74/512	.81	23			1						
6	2	60/414	73/506	.82	26			2						
7	1	57/395	72/498	.79	23			1						
7	2	58/400	72/498	.81	25			2						

I hereby certify that the contents of this report are accurate and correct. All tests and operations performed by this material manufacturer are in compliance with the requirements of the material specifications and applicable purchaser designated.

Signed: _____
Quality Assurance

State of Indiana, County of Whitley

Sworn to and subscribed before me this ____ day of _____

Signed: _____
Notary Public

My commission expires: _____

Special Comments/Information:

* Fully Killed Steel
† Cast and Rolled to a Fine Grain Practice

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By _____

C1(IIW)=C+Mn/6+(Cr+Mo+V0)/5+(Ni+Cu)/15 C2(AWS)=C+(Mn+Si)/6+(Cr+Mo+V)/5+(Ni+Cu)/15 PC=C+Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B Icorr=25.01(Cu)+3.88(Ni)+1.20(Cr)+1.49(Si)+17.29(P)-7.29(Cu)(Ni)-9.10(Ni)(P)-33.39(Cu)2 [per ASTM G101]

DATE	3/29/08
INVOICE NO.	217896
BILL OF LADING	901076
CUSTOMER NO.	0720
CUSTOMER P.O.	R4394

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4394
J-60
SGS

J-60

SOLD TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES						CHEMICAL PROPERTIES												
				YIELD TO TENSILE RATIO	YIELD STRENGTH	TENSILE STRENGTH	ELONG	CHARPY IMPACT TEMP	CHARPY IMPACT IMPACT ENERGY	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
					PSI	PSI	%	°F	FT-LBS													
					MPa	MPa	%	°C	JOULES									Sn	Pcm		CI
1	W14 -145.0	3	315455	.74	55000	74000	29			.08	1.30	.013	.026	.25	.32	.19	.09	.03	.00	.019	.35
	48' 8"			.75	55000	73000	29											.01	.18		
	W360 x216.0				379	510	29														
	14.834 M				379	503	29														
2	W14 -145.0	7	315457	.75	54000	72000	29			.07	1.30	.014	.025	.24	.32	.17	.09	.03	.00	.020	.34
	48' 8"			.76	55000	72000	29											.01	.17		
	W360 x216.0				372	496	29														
	14.834 M				379	496	29														
3	W27 -194.0	1	314583	.75	55000	73000	26			.07	1.30	.024	.023	.23	.28	.08	.14	.03	.00	.020	.34
	51' 4"			.75	55000	73000	27											.01	.17		
	W690 x289.0				379	503	26														
	15.646 M				379	503	27														
4	W27 -194.0	1	314585	.73	55000	75000	27			.08	1.32	.022	.024	.24	.28	.08	.14	.03	.00	.019	.35
	53'			.73	55000	75000	26											.01	.18		
	W690 x289.0				379	517	27														
	16.154 M				379	517	26														

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By

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5 B B=Approx..0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lennell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
31 Day of 03/08

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS NOTARY PUBLIC MISSISSIPPI CO. ARKANSAS MY Comm. Exp. 10-21-2013

DATE	3/29/08
INVOICE NO.	217898
BILL OF LADING	901077
CUSTOMER NO.	0720
CUSTOMER P.O.	R4394

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4394
J-60
SGS

J-60

SOLD TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES							CHEMICAL PROPERTIES											
				YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT IMPACT ENERGY FT-LBS / JOULES		C	Mn	P	S	Si	Cu	Ni	Cr	Mo / Sn	V / Pcm	Cb	CE / CI
1	W14 -145.0	3	315467	.73	55000	75000	28				.07	1.30	.017	.023	.25	.34	.12	.13	.03	.00	.020	.35
	45' 4"			.73	54000	74000	28												.01	.18		
	W360 x216.0				379	517	28															
	13.818 M				372	510	28															
2	W14 -145.0	12	315469	.74	56000	76000	28				.08	1.31	.014	.023	.27	.32	.11	.11	.03	.01	.019	.36
	45' 4"			.74	56000	76000	27												.01	.19		
	W360 x216.0				386	524	28															
	13.818 M				386	524	27															
3	W14 -145.0	3	315471	.75	56000	75000	28				.07	1.31	.014	.026	.28	.29	.13	.09	.03	.00	.019	.34
	61'			.76	56000	74000	28												.01	.16		
	W360 x216.0				386	517	28															
	18.593 M				386	510	28															
4	W14 -145.0	3	315473	.75	56000	75000	29				.07	1.31	.014	.020	.27	.27	.11	.10	.03	.00	.019	.35
	61'			.76	56000	74000	31												.01	.17		
	W360 x216.0				386	517	29															
	18.593 M				386	510	31															
5	W14 -145.0	1	315483	.73	53000	73000	28				.08	1.30	.012	.017	.30	.27	.10	.11	.03	.00	.019	.35
	61'			.74	55000	74000	29												.01	.18		
	W360 x216.0				365	503	28															
	18.593 M				379	510	29															

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Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5 B Approx..0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lennell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
31 Day of 03/08

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS
MY Comm. Exp.
NOTARY PUBLIC
10-21-2013
MISSISSIPPI CO. ARKANSAS

DATE	5/05/08
INVOICE NO.	226679
BILL OF LADING	907159
CUSTOMER NO.	0720
CUSTOMER P.O.	R4394

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4394
J-60
SGS

J60

SOLD TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES						CHEMICAL PROPERTIES											
				YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG % / %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT ENERGY FT-LBS / JOULES	C	Mn	P	S	Si	Cu	Ni	Cr	Mo / Sn	V / Pcm	Cb	CE / CI
1	W14 -145.0	3	315446	.75	55000	73000	30			.07	1.32	.013	.024	.28	.26	.09	.10	.03	.00	.020	.34
	45' 4"			.74	55000	74000	29											.01	.17		
	W360 x216.0				379	503	30														
	13.818 M				379	510	29														
2	W14 -145.0	3	315467	.73	55000	75000	28			.07	1.30	.017	.023	.25	.34	.12	.13	.03	.00	.020	.35
	45' 4"			.73	54000	74000	28											.01	.18		
	W360 x216.0				379	517	28														
	13.818 M				372	510	28														
3	W14 -145.0	4	315469	.74	56000	76000	28			.08	1.31	.014	.023	.27	.32	.11	.11	.03	.01	.019	.36
	45' 4"			.74	56000	76000	27											.01	.19		
	W360 x216.0				386	524	28														
	13.818 M				386	524	27														
4	W14 -145.0	1	317414	.76	56000	74000	28			.07	1.30	.016	.025	.23	.36	.11	.10	.03	.00	.018	.35
	45' 4"			.75	55000	73000	26											.01	.18		
	W360 x216.0				386	510	28														
	13.818 M				379	503	26														
5	W14 -145.0	1	317844	.77	56000	73000	26			.08	1.33	.027	.019	.20	.30	.09	.10	.02	.00	.020	.35
	45' 4"			.78	58000	74000	27											.01	.19		
	W360 x216.0				386	503	26														
	13.818 M				400	510	27														
6	W14 -145.0	1	317850	.80	59000	74000	26			.08	1.33	.022	.024	.26	.30	.10	.10	.03	.00	.018	.36
	45' 4"			.80	59000	74000	26											.01	.19		
	W360 x216.0				407	510	26														
	13.818 M				407	510	26														
7	W14 -176.0	3	315508	.73	54000	74000	28			.07	1.31	.017	.017	.28	.31	.11	.11	.03	.00	.019	.35
	46' 4"			.71	52000	73000	27											.01	.18		
	W360 x262.0				372	510	28														
	14.122 M				359	503	27														
8	W14 -211.0	1	316113	.79	58000	73000	27			.07	1.37	.020	.022	.21	.27	.10	.10	.03	.05	.002	.36
	46' 4"			.75	55000	73000	28											.01	.18		
	W360 x314.0				400	503	27														
	14.122 M				379	503	28														

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MAY 15 2008
MEGQUIER & JONES, INC

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5 B Approx. .0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lennell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
5 Day of 05/08

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS
NOTARY PUBLIC
MISSISSIPPI CO. ARKANSAS
MY Comm. Exp. 10-21-2013

DATE	3/29/08
INVOICE NO.	217897
BILL OF LADING	901076
CUSTOMER NO.	0720
CUSTOMER P.O.	R4396

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 • BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4396
J-60
SGS

J-60

SOLD TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES						C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
				YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT ENERGY FT-LBS / JOULES									Sn	Pcm		CI
1	W21 - 44.0	4	315142	.72	55000	76000	23			.08	1.25	.019	.035	.32	.30	.09	.10	.02	.00	.021	.34
	41' 6"			.70	53000	76000	21											.01	.18		
	W530 x 66.0				379	524	23														
	12.649 M				365	524	21														
2	W21 - 44.0	3	315222	.76	56000	74000	24			.07	1.20	.016	.029	.28	.27	.09	.09	.02	.00	.019	.31
	42'			.75	56000	75000	22											.01	.15		
	W530 x 66.0				386	510	24														
	12.802 M				386	517	22														
3	W21 - 44.0	3	315159	.74	54000	73000	27			.08	1.15	.019	.035	.28	.26	.10	.10	.02	.00	.017	.31
	51'			.73	53000	73000	25											.01	.17		
	W530 x 66.0				372	503	27														
	15.545 M				365	503	25														
4	W21 - 83.0	5	314658	.73	56000	77000	25			.07	1.30	.024	.037	.32	.27	.10	.12	.02	.00	.026	.34
	30' 4"			.72	56000	78000	24											.01	.17		
	W530 x123.0				386	531	25														
	9.246 M				386	538	24														
5	W21 - 83.0	3	305089	.73	57000	78000	25			.08	1.28	.016	.026	.33	.29	.12	.13	.03	.00	.026	.35
	35'			.73	56000	77000	24											.01	.17		
	W530 x123.0				393	538	25														
	10.668 M				386	531	24														
6	W21 - 83.0	4	314655	.74	55000	74000	26			.07	1.25	.028	.035	.28	.31	.09	.13	.02	.00	.023	.34
	37'			.73	55000	75000	26											.01	.17		
	W530 x123.0				379	510	26														
	11.278 M				379	517	26														
7	W21 - 93.0	3	314628	.72	54000	75000	25			.07	1.25	.023	.036	.31	.28	.09	.12	.03	.00	.021	.33
	31' 8"			.71	54000	76000	25											.01	.16		
	W530 x138.0				372	517	25														
	9.652 M				372	524	25														
8	W21 - 93.0	4	314628	.72	54000	75000	25			.07	1.25	.023	.036	.31	.28	.09	.12	.03	.00	.021	.33
	41'			.71	54000	76000	25											.01	.16		
	W530 x138.0				372	517	25														
	12.497 M				372	524	25														

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By

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5 B B=Approx..0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lennell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
31 Day of 03/08

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS
NOTARY PUBLIC
MISSISSIPPI CO. ARKANSAS
MY Comm. Exp. 10-21-2013

DATE	5/05/08
INVOICE NO.	226680
BILL OF LADING	907159
CUSTOMER NO.	0720
CUSTOMER P.O.	R4396

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4396
J-60
SGS

J60

SOLD TO
MEGQUIER & JONES CORP.
1156 BROADWAY
SOUTH PORTLAND, ME 04106

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES						CHEMICAL PROPERTIES												
				YIELD TO TENSILE RATIO	YIELD STRENGTH	TENSILE STRENGTH	ELONG	CHARPY IMPACT TEMP	CHARPY IMPACT IMPACT ENERGY	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
					PSI	PSI	%	°F	FT-LBS													
					MPa	MPa	%	°C	JOULES									Sn	Pcm		CI
1	W16 - 26.0	2	308160	.82	59000	72000	26			.08	.92	.014	.027	.28	.25	.10	.10	.03	.01	.015	.28
	35'			.79	57000	72000	23											.01	.16		
	W410 x 38.8				407	496	26														
	10.668 M				393	496	23														
2	W16 - 26.0	5	318340	.81	59000	73000	23			.08	.95	.026	.036	.25	.29	.10	.13	.03	.01	.017	.30
	35'			.81	59000	73000	23											.01	.16		
	W410 x 38.8				407	503	23														
	10.668 M				407	503	23														
3	W16 - 26.0	7	318073	.80	56000	70000	24			.07	.97	.013	.032	.26	.24	.10	.07	.03	.00	.017	.27
	39'			.83	59000	71000	25											.01	.14		
	W410 x 38.8				386	483	24														
	11.887 M				407	490	25														
4	W16 - 26.0	7	318154	.84	61000	73000	24			.08	.96	.021	.039	.25	.25	.11	.12	.03	.01	.019	.29
	39'			.82	60000	73000	24											.01	.16		
	W410 x 38.8				421	503	24														
	11.887 M				414	503	24														

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MEGQUIER & JONES, INC

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5 B (B=Approx..0005)

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)^2

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lennell

QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS

5 Day of 05/08

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS
MY Comm. Exp.
NOTARY PUBLIC
10-21-2013
MISSISSIPPI CO. ARKANSAS

J-60
R44-27

SGS

NUCOR
NUCOR STEEL TUSCALOOSA, INC.

MILL TEST CERTIFICATE

1700 HOLT RD N.E.
Tuscaloosa, AL 35404-1000
800-827-8872

NO. 923008 06 DEC '07

Load Number	Tally	Mill Order Number	P.O. Number	Part Number	Certificate Number	Date
345392	00000000302689	N-089780-001	C1049C		L218164-1	11/25/2007 10:08

Grade

Order Description:
ABS A, 0.2500 IN x 96.000 IN x 240.000 IN
Quality Plan Description:
ABS A / A36: ASTM A36-05/ABS GR A 05/ASME SA36-00

Customer:

Sold TO:
INFRA-METALS CORPORATION Wallingford CT
Ship TO:
INFRA-METALS CORPORATION Wallingford CT

AMERICAN BUREAU OF SHIPPING ABS VICKSBURG

ABS A

Shipped Item	Heat/Slab Number	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Cb	V	Al	Ti	N2	B	Ca	Sn	CEV
7K1526A	B7X8760-03 ***	0.20	0.63	0.012	0.005	0.06	0.23	0.09	0.11	0.019	0.001	0.002	0.034	0.001	0.010	0.0002	0.0015	0.008	0.35
7K1526B	B7X8760-03 ***	0.20	0.63	0.012	0.005	0.06	0.23	0.09	0.11	0.019	0.001	0.002	0.034	0.001	0.010	0.0002	0.0015	0.008	0.35

Shipped Item	Certified By	Heat Number	Yield KSI	Tensile KSI	ELONGATION % 2"	ELONGATION % 8"	% Red Area	Bend OK?	Hard BHN	Charpy Impacts (Ft#) 1	2	3	Avg	Shear % 1	2	3	Avg	Test Temp
7K1526A	S7K1523AFT	B7X8760 ***	47.6	69.2		23.3												
7K1526A	S7K1524AFT	B7X8760 ***	44.9	67.5		26.0												
7K1526A	S7K1523AMT	B7X8760 ***	42.8	65.0		23.9												
7K1526A	S7K1524AMT	B7X8760 ***	41.6	63.9		23.1												
7K1526B	S7K1523AFT	B7X8760 ***	47.6	69.2		23.3												
7K1526B	S7K1524AFT	B7X8760 ***	44.9	67.5		26.0												
7K1526B	S7K1523AMT	B7X8760 ***	42.8	65.0		23.9												
7K1526B	S7K1524AMT	B7X8760 ***	41.6	63.9		23.1												

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Items: 2 PCS: 30 Weight: 49006 LBS

Mercury has not come in contact with this product during the manufacturing process not has any mercury been used by the manufacturing process. Certified in accordance with "EN 10204 3.1.B". No weld repair has been performed on this material. MANUFACTURED UNDER THE ABS QUALITY ASSURANCE PROGRAM, CERT- IFICATE NUMBER 06-MMPQA-392. WE HEREBY CERTIFY THAT THE INFORMATION HEREIN HAS BEEN MADE TO THE APPLICABLE SPECIFICATIONS BY THE EAF PROCESS AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABS RULES WITH SATISFACTORY RESULTS. Jon Miller ** Produced from Coil ** Manufactured to a fully killed fine grain practice.
ISO 9001:2000 Registered, PED Certified

"***" indicates Heats melted and Manufactured in the U.S.A.

We hereby certify that the product described above passed all of the tests required by the specifications.

Qiulin Yu - Rolling Mill Process Metallurgist

R4398
J-60
SGS

Bill To:
INFRA-METALS CORPORATION-CT,R
DIV PREUSSAG INTERNATIONAL CO
8 PENT HWY
WALLINGFORD CT
06492 US

Ship To: 1
INFRA-METALS CORPORATION-CT
8 PENT HIGHWAY
TRACK# 953
WALLINGFORD CT
06492 US

Order Date:05/22/2007
PO No:C21425
Mill Order No:3312985
Load No:1136276
Manifest No:1848368

CHAPARRAL STEEL
CERTIFIED MATERIAL TEST REPORT
CHAPARRAL STEEL
300 Ward Rd.
Midlothian, TX
76065-9651
(972) 775-8241

SIZE	GRADE	LENGTH	PRODUCT
W 14 X 109# / W360 X 162	992/572-50	65 FT / 19.812 M	WF BEAMS

SPECIFICATION
ASTM A6-05a, A992-06a, A572-06

HEAT NO:30380050

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	V	Al	Nb	CE
.08	1.25	.013	.029	.22	.30	.09	.08	.014	.012	.000	.000	.019	.33

PHYSICAL PROPERTIES

Yield Strength KSI	Yield Strength MPa	Tensile Strength KSI	Tensile Strength MPa	Specimen Area Sq In	Specimen Area Sq cm	Elongation %	Gage Length	Bend Test Dia.	Bend Test Result	ROA %
52.7	363.4	70.1	483.3	1.351	8.72	27.0	8In 200 mm			
53.2	366.8	70.7	487.5	1.356	8.75	28.5	8In 200 mm			

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All manufacturing processes of this product, including electric arc melting and continuous casting, occurred in the U.S.A. CMTR complies with DIN EN 10204 3.1.B

"I hereby certify that the contents of this report are correct and accurate. All tests and operations performed by this material manufacturer or its sub-contractors, when applicable, are in compliance with the requirements of the material specifications and applicable purchaser designated requirements."

Signed: _____ Date: Sep. 11, 2007
Tom L. Harrington: Quality Assurance Manager

Signed: _____ Date: _____
Notary Public (if applicable)

INFRA-METALS

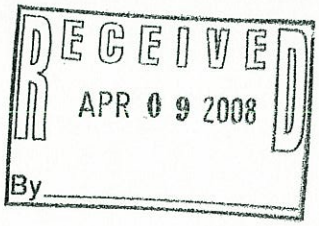
8 PENT HWY.
WALLINGFORD, CT 06492
Phone: 203-294-2980 Fax: 203-294-2993

M.T.R. COVER SHEET
04/16/2008

Customer Name	:	MEGQUIER & JONES	**Control Number**	:	663927
Address	:	1156 BROADWAY	**Queued By**	:	ROSEMARY
City, State Zip	:	SOUTH PORTLAND, ME 04106	**Page Number**	:	1
Attention	:	SAM STONE	**Total Pages**	:	2
Phone Number	:	9,1.207.799.8555	**Fax Number**	:	1.207.767.2117
Reference Number	:				
Notes 1	:	HAVE A GREAT DAY!!			

THE M.T.R.S THAT YOU REQUESTED ARE ATTACHED.
THANK YOU FOR YOUR BUSINESS !

HEAT #	PRODUCT CODE	I.D.#
305449	WF14109 X 65	R177780



DATE	11/07/07
INVOICE NO	182597
BILL OF LADING	876942
CUSTOMER NO.	7717
CUSTOMER P.O.	C1048A

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

CERTIFIED MILL TEST REPORT

100% MELTED AND MANUFACTURED IN U.S.A.
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice.

SHIP TO
INFRA-METALS CORP.
8 PENT HIGHWAY
TRACK# 953
WALLINGFORD, CT 06492

SOLD TO
INFRA-METALS CORP.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-06
ASTM A709/A709M-07 GR50 (345)
ASTM A709/A709M-07 GR50S (345S)
ASTM A6/A6M-07

R4398
J-60
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ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES						CHEMICAL PROPERTIES												
				YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG % / %	CHARPY IMPACT TEMP °F / °C	CHARPY IMPACT IMPACT ENERGY FT-LBS / JOULES	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE
																		Sn	Pcm		CI
1	W14 -109.0	1	305447	.78	58000	74000	26			.08	1.36	.020	.020	.24	.26	.11	.13	.04	.05	.001	.37
	65'			.78	58000	74000	26											.01	.19		
	W360 x162.0				400	510	26														
	19.812 M				400	510	26														
2	W14 -109.0	2	305449	.77	57000	74000	26			.08	1.38	.018	.020	.22	.28	.11	.13	.04	.06	.002	.39
	65'			.80	59000	74000	26											.01	.19		
	W360 x162.0				393	510	26														
	19.812 M				407	510	26														
3	W36 -232.0	1	307360	.78	59000	76000	28			.08	1.37	.023	.017	.24	.27	.11	.14	.04	.06	.002	.39
	50'			.77	58000	75000	26											.01	.19		
	W920 x345.0				407	524	28														
	15.240 M				400	517	26														
4	W36 -232.0	1	307365	.78	58000	74000	26			.07	1.37	.016	.020	.23	.28	.11	.09	.04	.05	.001	.37
	60'			.77	58000	75000	26											.01	.17		
	W920 x345.0				400	510	26														
	18.288 M				400	517	26														

Pcm = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5B B=Approx..0005

CARBON EQUIVALENT: CE = CE(IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)²

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ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lemell
QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
7 Day of 11/07

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2012

CHARLENE WALLIS NOTARY PUBLIC MISSISSIPPI CO. ARKANSAS MY Comm. Exp. 10-21-2012

BAYOU STEEL CORPORATION
RIVER ROAD P.O. BOX 5000
LA PLACE, LOUISIANA 70069-1156
Telephone (985) 652-4900

MATERIAL CERTIFICATION REPORT

R4402
J-60
SGS

INFRA-METALS CO.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

INFRA METALS CO.
#8 PENT HIGHWAY
WALLINGFORD, CT 06492

TESTED IN ACCORDANCE WITH: ASTM A6

INVOICE NO.
PRODUCT: UNEQUAL ANGLES
HEAT NO.: 54937 50 Pcs
Length 40'0"

DATE: 03/20/08
Cust I-3443 -0002
GRADE: A36 -05
SIZE: U 5 X 3-1/2 X 3/8 X 10.40

PO:C1343K

CHEMICAL ANALYSIS	
C	.09
Mn	.80
P	.022
S	.027
Si	.16
Cu	.31
Ni	.19
Cr	.15
Mo	.047
Cb	.000
V	.000
B	
Al	
Sn	
N	
Ti	

CI	
CE	.30

MECHANICAL PROPERTIES	TEST 1 IMPERIAL	TEST 1 METRIC	TEST 2 IMPERIAL	TEST 2 METRIC	TEST 3 IMPERIAL	TEST 3 METRIC
YIELD STRENGTH	47,492 PSI	327 MPa	47,840 PSI	330 MPa	PSI	MPa
TENSILE STRENGTH	67,230 PSI	464 MPa	67,774 PSI	467 MPa	PSI	MPa
ELONGATION	38.0 %	38.0 %	38.0 %	38.0 %	%	%
GAUGE LENGTH	8 in	203 mm	8 in	203 mm	in	mm
BEND TEST DIAMETER	d	d	d	d	d	d
BEND TEST RESULTS						
SPECIMEN AREA	sq in	sq mm	sq in	sq mm	sq in	sq mm
REDUCTION OF AREA	%	%	%	%	%	%
IMPACT STRENGTH	ft·lbs	J	ft·lbs	J	ft·lbs	J

IMPACT STRENGTH	IMPERIAL	METRIC	INTERNAL CLEANLINESS		GRAIN SIZE HARDNESS	
AVERAGE	ft·lbs	J	SEVERITY			
TEST TEMP	F	C	FREQUENCY		GRAIN PRACTICE REDUCTION RATIO	
ORIENTATION			RATING			

Customer Grade & Specs: A36 - 97a M183 GR.36

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By

I HEREBY CERTIFY THAT THE MATERIAL TEST RESULTS PRESENTED HERE ARE FROM THE REPORTED HEAT AND ARE CORRECT. ALL TESTS WERE PERFORMED IN ACCORDANCE TO THE SPECIFICATIONS REPORTED ABOVE. ALL STEEL IS ELECTRIC FURNACE MELTED, MANUFACTURED, PROCESSED, AND TESTED IN THE U.S.A WITH SATISFACTORY RESULTS, AND IS FREE OF MERCURY CONTAMINATION IN THE PROCESS.

NOTARIZED UPON REQUEST:
SWORN TO AND SUBSCRIBED BEFORE ME IN AND FOR ST. JOHN PARISH ON THIS _____ DAY OF _____, 20____

Michael E. Soileau, # 81887, Notary Public

SIGNED Mark Edwards
MARK EDWARDS, QUALITY ASSURANCE SUPERVISOR

DIRECT ANY QUESTIONS OR NECESSARY CLARIFICATIONS CONCERNING THIS REPORT TO THE SALES DEPARTMENT.

1-800-535-7692 (USA)

C20886
Amesi

R4402
J-60
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MILL TEST CERTIFICATE

订货单位： 江苏舜天股份有限公司
CONSIGNEE:
发货日期：2007年5月19日
DATE OF ISSUING: MAY 19, 2007
合同号：
CONTRACT NO. JSHH1201

产品名称：热轧槽钢
COMMODITY: PRIME STEEL CHANNELS
订购号 C20886
P.O. NO.
牌号（旧牌代号）：ASTM A572 GR50/A6-05A
STEEL GRADE: ASTM A572 GR50/A6-05A

原产地：中国
ORIGIN: CHINA
制表单位：唐山宏信钢铁有限公司
MILL: TANGSHAN GRAND FAITH STEEL CO., LTD
编号：
NO.: 78519021

规格 SPEC. IN INCH	炉号 HEAT NO.	支数PIECES OF EACH BUNDLE	件数 NO. OF BUNDLES	化学成分(%) CHEMICAL COMPOSITION (PCT)											机械性能 MECHANICAL PROPERTIES			
				C	Si	Mn	P	S	Ni	Cr	Cu	V	Mo	Nb	屈服强度 YIELD STRENGTH Mpa	抗拉强度 TENSILE STRENGTH Mpa	延伸率 ELONGATION % 2"	冷弯 COLD BENDING (180°) d=5.0
6*8.2*20	X-2917	36	12	0.19	0.26	1.30	0.029	0.031	0.13	0.16	0.23	0.026	0.024	0.006	356	525	26	OK
8*11.5*20	X-3023	24	8	0.15	0.25	1.31	0.022	0.027	0.12	0.13	0.22	0.017	0.022	0.006	357	524	25	OK
6*8.2*40	X-2917	32	18	0.19	0.26	1.30	0.029	0.031	0.13	0.16	0.23	0.026	0.024	0.006	356	525	26	OK
7*9.8*40	X-6308	28	6	0.19	0.30	1.24	0.025	0.022	0.12	0.13	0.28	0.016	0.026	0.008	360	565	24	OK
8*11.5*40	X-0917	20	21	0.16	0.31	1.25	0.022	0.017	0.13	0.16	0.23	0.026	0.024	0.006	362	553	25	OK
8*11.5*50	X-9817	18	9	0.15	0.26	1.29	0.022	0.023	0.12	0.13	0.22	0.026	0.026	0.006	360	533	24	OK
TOTAL:			74															

唐山宏信钢铁有限公司 质检专用章

REMARKS:

检验员：
INSPECTOR: 李坤

日期：
DATED: MAY 19,2007

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MAR 25 2008
By

BAYOU STEEL CORPORATION

RIVER ROAD P.O. BOX 5000
LA PLACE, LOUISIANA 70069-1156
Telephone (985) 652-4900

MATERIAL CERTIFICATION REPORT

INFRA-METALS CO.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

INFRA METALS CO.
#8 PENT HIGHWAY
WALLINGFORD, CT 06492

R4402
J-60
SGS

TESTED IN ACCORDANCE WITH: ASTM A6

INVOICE NO.
PRODUCT CHANNELS
HEAT NO. 56062 18 Pcs
Length 40'0"

DATE 08/07/07
Cust I-3443 -0002
GRADE A3652950 -
SIZE C 6 X 13.0

PO:C21794

CHEMICAL ANALYSIS	
C	.14
Mn	.94
P	.018
S	.029
Si	.17
Cu	.26
Ni	.21
Cr	.16
Mo	.064
Cb	.004
V	.000
B	
Al	
Sn	.008
N	
Ti	

CI	
CE	

MECHANICAL PROPERTIES	TEST 1 IMPERIAL	TEST 1 METRIC	TEST 2 IMPERIAL	TEST 2 METRIC	TEST 3 IMPERIAL	TEST 3 METRIC
YIELD STRENGTH	52,021 PSI	359 MPa	52,332 PSI	361 MPa	PSI	MPa
TENSILE STRENGTH	72,252 PSI	498 MPa	72,353 PSI	499 MPa	PSI	MPa
ELONGATION	30.0 %	30.0 %	26.0 %	26.0 %	%	%
GAUGE LENGTH	8 in	203 mm	8 in	203 mm	in	mm
BEND TEST DIAMETER	d	d	d	d	d	d
BEND TEST RESULTS						
SPECIMEN AREA	sq in	sq mm	sq in	sq mm	sq in	sq mm
REDUCTION OF AREA	%	%	%	%	%	%
IMPACT STRENGTH	ft·lbs	J	ft·lbs	J	ft·lbs	J

IMPACT STRENGTH	IMPERIAL	METRIC	INTERNAL CLEANLINESS		GRAIN SIZE HARDNESS	
AVERAGE	ft·lbs	J	SEVERITY			
TEST TEMP	F	C	FREQUENCY		GRAIN PRACTICE REDUCTION RATIO	
ORIENTATION			RATING			

Customer Grade & Specs: A36-04 A529-04 GRADE 50
44W, CSA50W, A70936
ASME SA36

I HEREBY CERTIFY THAT THE MATERIAL TEST RESULTS PRESENTED HERE ARE FROM THE REPORTED HEAT AND ARE CORRECT. ALL TESTS WERE PERFORMED IN ACCORDANCE TO THE SPECIFICATIONS REPORTED ABOVE. ALL STEEL IS ELECTRIC FURNACE MELTED, MANUFACTURED, PROCESSED, AND TESTED IN THE U.S.A WITH SATISFACTORY RESULTS, AND IS FREE OF MERCURY CONTAMINATION IN THE PROCESS.

NOTARIZED UPON REQUEST:

SWORN TO AND SUBSCRIBED BEFORE ME IN AND FOR ST. JOHN PARISH ON THIS _____ DAY OF _____ , 20____

Michael E. Soileau, # 81887, Notary Public

SIGNED Mark Edwards

MARK EDWARDS, QUALITY ASSURANCE SUPERVISOR

DIRECT ANY QUESTIONS OR NECESSARY CLARIFICATIONS CONCERNING THIS REPORT TO THE SALES DEPARTMENT.

1-800-535-7692 (USA)

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By

BAYOU STEEL CORPORATION
RIVER ROAD P.O. BOX 5000
LA PLACE, LOUISIANA 70069-1156
Telephone (985) 652-4900

MATERIAL CERTIFICATION REPORT

R4402
J-60
SGS

INFRA-METALS CO.
8 PENT HIGHWAY
WALLINGFORD, CT 06492

INFRA METALS CO.
#8 PENT HIGHWAY
WALLINGFORD, CT 06492

TESTED IN ACCORDANCE WITH: ASTM A6

INVOICE NO.
PRODUCT: CHANNELS
HEAT NO.: 56062 18 Pcs
Length 40'0"

DATE: 08/07/07
Cust I-3443 -0002
GRADE: A3652950 -
SIZE: C 6 X 13.0

PO: C21794

CHEMICAL ANALYSIS	
C	.14
Mn	.94
P	.018
S	.029
Si	.17
Cu	.26
Ni	.21
Cr	.16
Mo	.064
Cb	.004
V	.000
B	
Al	
Sn	.008
N	
Ti	

CI	
CE	

MECHANICAL PROPERTIES	TEST 1 IMPERIAL	TEST 1 METRIC	TEST 2 IMPERIAL	TEST 2 METRIC	TEST 3 IMPERIAL	TEST 3 METRIC
YIELD STRENGTH	52,021 PSI	359 MPa	52,332 PSI	361 MPa	PSI	MPa
TENSILE STRENGTH	72,252 PSI	498 MPa	72,353 PSI	499 MPa	PSI	MPa
ELONGATION	30.0 %	30.0 %	26.0 %	26.0 %	%	%
GAUGE LENGTH	8 in	203 mm	8 in	203 mm	in	mm
BEND TEST DIAMETER	d	d	d	d	d	d
BEND TEST RESULTS						
SPECIMEN AREA	sq in	sq mm	sq in	sq mm	sq in	sq mm
REDUCTION OF AREA	%	%	%	%	%	%
IMPACT STRENGTH	ft·lbs	J	ft·lbs	J	ft·lbs	J

IMPACT STRENGTH	IMPERIAL	METRIC	INTERNAL CLEANLINESS		GRAIN SIZE HARDNESS	
AVERAGE	ft·lbs	J	SEVERITY			
TEST TEMP	F	C	FREQUENCY		GRAIN PRACTICE REDUCTION RATIO	
ORIENTATION			RATING			

Customer Grade & Specs: A36-04 A529-04 GRADE 50
44W, CSA50W, A70936
ASME SA36

I HEREBY CERTIFY THAT THE MATERIAL TEST RESULTS PRESENTED HERE ARE FROM THE REPORTED HEAT AND ARE CORRECT. ALL TESTS WERE PERFORMED IN ACCORDANCE TO THE SPECIFICATIONS REPORTED ABOVE. ALL STEEL IS ELECTRIC FURNACE MELTED, MANUFACTURED, PROCESSED, AND TESTED IN THE U.S.A WITH SATISFACTORY RESULTS, AND IS FREE OF MERCURY CONTAMINATION IN THE PROCESS.

NOTARIZED UPON REQUEST:
SWORN TO AND SUBSCRIBED BEFORE ME IN AND FOR ST. JOHN PARISH ON THIS _____ DAY OF _____, 20____

Michael E. Soileau, # 81887, Notary Public

SIGNED Mark Edwards
MARK EDWARDS, QUALITY ASSURANCE SUPERVISOR

DIRECT ANY QUESTIONS OR NECESSARY CLARIFICATIONS CONCERNING THIS REPORT TO THE SALES DEPARTMENT.
1-800-535-7692 (USA)

RECEIVED
MAR 25 2008
By

R4402
J-60
SGS

60 pcs. = 17280

→ HEAT# E1658
DATE SHIPPED 3/21/2008
SHIPMENT# 0312043
→ SIZE: AN 3 X 3 X 3/8 40' 0"
ORDER ITEM# 200611/ 03
SOLD TO: INFRA-METALS CORP - CT
FAX#/EMAIL: 2032942993

CERTIFIED TEST REPORT

NUCOR
BAR MILL-AUBURN
NUCOR STEEL AUBURN, INC.
P.O. BOX 2008
QUARRY ROAD
AUBURN, NY 13021

CUST. P.O. C1347K
PART #:
GRADE : ASTM A36-05/A709 GR36
SPEC CSA G40.21-98 GR44W
SUPP. REQ:
SHIP TO: INFRA-METALS CORP-CT

CHEMICAL ANALYSIS %

C	MN	SI	P	S	CU	NI	CR	MO	SN	V	CB	TI	B	N2	O2
.180	.750	.190	.013	.040	.350	.1000	.140	.028	.014	.000	.0020	.0000	.0001	XXX	XXX

MECHANICAL RESULTS

YIELD	TENSILE	GAUGE	%	BEND	%
K.S.I.	K.S.I.	LENGTH	ELONG	PIN. DIA	R.A.
49.30	74.40	8	28.6	.0	.0
49.20	74.20	8	27.3	.0	.0
MPa	MPa	GAUGE	%	BEND	
		LENGTH	ELONG	PIN. DIA	R.A.

CHARPY IMPACT TEST

TEMP. F	FT./LB.	SUBSIZE SPECIMEN SAMPLE

Grain Size	Reduction Ratio	As Rolled Hardness	D.I.	C.E.	C.I.
XXX	XXX	XXX	XXX	.400	XXX

JOMINY END-QUENCH HARDENABILITY RESULTS (HRC)

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12

J13	J14	J15	J16	J18	J20	J22	J24	J26	J28	J30	J32

I CERTIFY THESE RESULTS TO BE CORRECT AS CONTAINED IN THE RECORDS OF THE COMPANY.

JIM BIERNAT, METALLURGIST
STATE OF NEW YORK SS.
COUNTY OF CAYUGA

Jim Biernat
(print)

AFTER BEING DULY SWORN BY ME, DECLARES THAT: THESE RESULTS ARE CORRECT AS CONTAINED IN THE RECORDS OF NUCOR STEEL AUBURN, INC

(sign)

SUBSCRIBED AND SHOWN BEFORE ME

THIS_____ DAY OF_____

L.S._____

THIS CERTIFICATE IS NOTARIZED ONLY WHEN REQUESTED

ALL MANUFACTURING PROCESSES FOR THIS STEEL, INCLUDING MELTING FROM SCRAP AND HOT ROLLING HAVE BEEN PERFORMED IN THE U.S.A. NO WELD REPAIR PERFORMED, STEEL NOT EXPOSED TO MERCURY OR ANY LIQUID ALLOY WHICH IS LIQUID AT AMBIENT TEMPERATURES.

DUAL CERTIFICATION

CUSTOMER SPECIAL INSTRUCTIONS:
ASTM A36 MATERIAL IS DUAL CERTIFIED TO
ASTM A709-97B GR. 36 AND AASHTO M183-98 GR.36

RECEIVED
MAR 25 2008
By_____

CF/03221
131200

Appendix B: Fireproofing Test Reports