RUSH

Contract Routing Form

ROUTING: Urgent Rush printed on: 02/08/2013

Contract between: Joe Daniels Construction Co., Inc.
and Dept. or Division: Engineering Division
Name/Phone Number: Paul S. 266-4366

Project: Olbrich Botanical Gardens Roof Replacement

Contract No.: 6828
Enactment No.: RES-13-00082
Dollar Amount: 1,060,000.00

File No.: 28649
Enactment Date: 02/06/2013

(Please DATE before routing)

Signatures Required	Date Received	Date Signed
City Clerk	02/11/13	02/11/13
Director of Civil Rights	2/11/13	2/12/13
Risk Manager	2-12-13	2-12-13
Finance Director	2-12-13	2-12-13
City Attorney	2-12-13	2-13-13
Mayor	~~2-13-13~~	2-13-13

Please return signed Contracts to the City Clerk's Office
Room 103, City-County Building for filing.

Original + 2 Copies

PO# 8153828

Dis Rights: OK / NA / Problem - Hold
Prev Wage: AA / Agency / No
Contract Value: see above
AA Plan: Approved
Amendment / Addendum # ____
Type: POS / Dvlp / Sbdv / Gov't / Grant / PW / Goal / Loan / Agrmt

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File #:	28649 Version: 1	Name:	Awarding Public Works Contract No. 6828, Olbrich Botanical Gardens Roof Replacement, 2220 Atwood Avenue.
Type:	Resolution	Status:	Passed
File created:	12/19/2012	In control:	BOARD OF PUBLIC WORKS
On agenda:	2/5/2013	Final action:	2/5/2013
Enactment date:	2/6/2013	Enactment #:	RES-13-00082
Title:	Awarding Public Works Contract No. 6828, Olbrich Botanical Gardens Roof Replacement, 2220 Atwood Avenue.		
Sponsors:	BOARD OF PUBLIC WORKS		
Attachments:	6828.pdf, 2.5.2013 registrations		

History (3) Text

Fiscal Note
Budget authority is available in the Acct. Nos. listed on the attached.
Title
Awarding Public Works Contract No. 6828, Olbrich Botanical Gardens Roof Replacement, 2220 Atwood Avenue.
Body
BE IT RESOLVED, that the following low bids for miscellaneous improvements be accepted and that the Mayor and City Clerk be and are hereby authorized and directed to enter into a contract with the low bidders contained herein, subject to the Contractor's compliance with Section 39.02 of the Madison General Ordinances concerning compliance with the Affirmative Action provisions **and subject to the Contractor's compliance with Section 33.07 of the Madison General Ordinances regarding Best Value Contracting:**

BE IT FURTHER RESOLVED, that the funds be encumbered to cover the cost of the projects contained herein.

See attached document (Contract No. 6828) for itemization of bids.

PROJECT	CONTRACTOR	AMOUNT OF BID

CONTRACT NO. 6828
OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT, 2220 ATWOOD AVENUE

	JOE DANIELS CONSTR. CO., INC.	$1,060,000.00

Acct. No. CB53-58401-810714-00-53W1369	$1,060,000.00
Contingency 8%±	84,800.00
GRAND TOTAL	$1,144,800.00

Wisconsin Office of the Commissioner of Insurance
Licensed Producer Search*

Friday, February 8, 2013

MCKENNA, PATRICK A
MADISON WI

Year of Birth: 1959
Status: Active
License Number: 2349196
NPN**: 650765
Effective Date: 06-27-1996
Expiration Date: 04-30-2014
License Type: Resident Intermediary Indv
CE Compliance: 04-30-2014

Lines of Authority

Line of Authority	Residency	Effective Date	Status
Property	Resident	06-27-1996	Active
Casualty	Resident	06-27-1996	Active

Appointments and Terminations

Company Name	Qualification Type/Status	Effective Date	Termination Date	Termination Reason
ACE American Insurance Company	CAS/Active	06-23-1999		
	PROP/Active	06-23-1999		
ACE Fire Underwriters Insurance Company	CAS/Inactive	06-23-1999	10-01-2002	Inadequate Production
	PROP/Inactive	06-23-1999	10-01-2002	Inadequate Production
ACE Property and Casualty Insurance Company	CAS/Active	06-23-1999		
	PROP/Active	06-23-1999		
ACUITY, A Mutual Insurance Company	CAS/Active	08-14-2007		
	CAS/Inactive	07-30-1996	08-07-2007	Canceled
	PROP/Active	08-14-2007		
	PROP/Inactive	07-30-1996	08-07-2007	Canceled
Addison Insurance Company	CAS/Active	09-19-2007		
	PROP/Active	09-19-2007		
ALLIED Property and Casualty Insurance Company	CAS/Inactive	07-14-2003	04-07-2010	Canceled
	PROP/Inactive	07-14-2003	04-07-2010	Canceled
AMCO Insurance Company	CAS/Inactive	07-14-2003	04-07-2010	Canceled
	PROP/Inactive	07-14-2003	04-07-2010	Canceled
American and Foreign Insurance Company	CAS/Inactive	10-04-2000	02-10-2005	Canceled
	PROP/Inactive	10-04-2000	02-07-2005	Canceled

American Casualty Company of Reading, Pennsylvania	CAS/Inactive	08-21-1996	01-05-2006	Canceled
	PROP/Inactive	08-21-1996	01-05-2006	Canceled
American Economy Insurance Company	CAS/Active	02-10-1998		
	PROP/Active	02-10-1998		
American Guarantee and Liability Insurance Company	CAS/Active	06-08-1999		
	PROP/Active	06-08-1999		
American Insurance Company, The	CAS/Inactive	07-25-1996	09-29-2005	Inadequate Production
	PROP/Inactive	07-25-1996	09-29-2005	Inadequate Production
American Manufacturers Mutual Insurance Company	CAS/Inactive	08-20-1996	02-17-2005	Canceled
	PROP/Inactive	08-20-1996	02-17-2005	Canceled
American Motorists Insurance Company	CAS/Inactive	08-20-1996	02-17-2005	Canceled
	PROP/Inactive	08-20-1996	02-17-2005	Canceled
American Protection Insurance Company	CAS/Inactive	08-20-1996	02-02-2005	Canceled
	PROP/Inactive	08-20-1996	02-02-2005	Canceled
American States Insurance Company	CAS/Inactive	02-10-1998	11-20-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	02-10-1998	11-20-2009	Vol. Surrender per Agent Rqst
American Zurich Insurance Company	CAS/Active	06-08-1999		
	PROP/Active	06-08-1999		
Arrowood Indemnity Company	CAS/Inactive	10-04-2000	08-28-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	10-04-2000	08-28-2006	Vol. Surrender per Agent Rqst
Artisan and Truckers Casualty Company	CAS/Inactive	01-15-2008	06-30-2008	Vol. Surrender per Agent Rqst
	PROP/Inactive	01-15-2008	06-30-2008	Vol. Surrender per Agent Rqst
Associated Indemnity Corporation	CAS/Inactive	07-25-1996	09-29-2005	Inadequate Production
	PROP/Inactive	07-25-1996	09-29-2005	Inadequate Production
Assurance Company of America	CAS/Inactive	09-09-1998	07-23-2012	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-09-1998	07-23-2012	Vol. Surrender per Agent Rqst
Automobile Insurance Company of Hartford, Connecticut, The	CAS/Inactive	06-14-2001	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Inactive	06-14-2001	11-28-2005	Vol. Surrender per

				Agent Rqst
AXIS Insurance Company	CAS/Inactive	07-25-1996	01-06-2005	Inadequate Production
	PROP/Inactive	07-25-1996	01-06-2005	Inadequate Production
Bankers Standard Insurance Company	CAS/Active	06-23-1999		
	PROP/Active	06-23-1999		
Berkley Regional Insurance Company	CAS/Active	04-22-2005		
	PROP/Active	04-22-2005		
Bituminous Casualty Corporation	CAS/Active	06-30-2005		
	PROP/Active	06-30-2005		
Bituminous Fire and Marine Insurance Company	CAS/Active	06-30-2005		
	PROP/Active	06-30-2005		
Capitol Indemnity Corporation	CAS/Active	07-24-1996		
	PROP/Active	07-24-1996		
Charter Oak Fire Insurance Company, The	CAS/Active	09-26-2007		
	CAS/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	CAS/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Active	09-26-2007		
	PROP/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
Chubb Indemnity Insurance Company	CAS/Active	05-12-2008		
	CAS/Inactive	09-10-1996	12-26-2006	Canceled
	PROP/Active	05-12-2008		
	PROP/Inactive	09-10-1996	12-26-2006	Canceled
Chubb National Insurance Company	CAS/Active	05-12-2008		
	PROP/Active	05-12-2008		
Cincinnati Casualty Company, The	CAS/Active	08-17-2007		
	PROP/Active	08-17-2007		
Cincinnati Indemnity Company, The	CAS/Active	08-17-2007		
	PROP/Active	08-17-2007		
Cincinnati Insurance Company, The	CAS/Active	08-17-2007		
	PROP/Active	08-17-2007		
Citizens Insurance Company of America	CAS/Inactive	12-18-1997	08-03-2005	Inadequate Production
	PROP/Inactive	12-18-1997	08-03-2005	Inadequate Production
Consolidated Insurance Company	CAS/Inactive	03-24-2000	11-20-2009	Vol. Surrender per Agent Rqst

	PROP/Inactive	03-24-2000	11-20-2009	Vol. Surrender per Agent Rqst
Continental Casualty Company	CAS/Inactive	08-21-1996	01-05-2006	Canceled
	PROP/Inactive	08-21-1996	01-05-2006	Canceled
Continental Insurance Company, The	CAS/Inactive	02-24-2006	09-15-2008	Canceled
	PROP/Inactive	02-24-2006	09-15-2008	Canceled
Continental Western Insurance Company	CAS/Inactive	08-12-2005	04-24-2009	Canceled
	PROP/Inactive	08-12-2005	04-24-2009	Canceled
Depositors Insurance Company	CAS/Inactive	07-14-2003	04-07-2010	Canceled
	PROP/Inactive	07-14-2003	04-07-2010	Canceled
Donegal Mutual Insurance Company	CAS/Active	11-09-2012		
	PROP/Active	11-09-2012		
Emcasco Insurance Company	CAS/Active	09-21-2007		
	PROP/Active	09-21-2007		
Employers Insurance Company of Wausau	CAS/Inactive	07-18-2005	12-10-2007	Vol. Surrender per Agent Rqst
	CAS/Inactive	08-23-1996	05-14-2003	Inadequate Production
	PROP/Inactive	07-18-2005	12-10-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	08-23-1996	05-14-2003	Inadequate Production
Employers Mutual Casualty Company	CAS/Active	09-21-2007		
	PROP/Active	09-21-2007		
Executive Risk Indemnity Inc.	CAS/Active	05-12-2008		
	CAS/Inactive	06-16-2000	12-26-2006	Canceled
	PROP/Active	05-12-2008		
	PROP/Inactive	06-16-2000	12-26-2006	Canceled
Fairmont Insurance Company	CAS/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
Fairmont Premier Insurance Company	CAS/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
Farmington Casualty Company	CAS/Inactive	07-19-1996	11-20-2000	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-19-1996	11-20-2000	Vol. Surrender per Agent Rqst
Federal Insurance Company	CAS/Active	05-12-2008		
	CAS/Inactive	09-10-1996	12-26-2006	Canceled

	PROP/Active	05-12-2008		
	PROP/Inactive	09-10-1996	12-26-2006	Canceled
Fidelity and Deposit Company of Maryland	CAS/Active	07-23-1996		
	PROP/Active	07-23-1996		
Fidelity and Guaranty Insurance Company	CAS/Inactive	08-02-1996	02-09-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	08-02-1996	02-09-2007	Vol. Surrender per Agent Rqst
Fidelity and Guaranty Insurance Underwriters, Inc.	CAS/Inactive	08-02-1996	02-09-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	08-02-1996	02-09-2007	Vol. Surrender per Agent Rqst
Fidelity National Property and Casualty Insurance Company	CAS/Inactive	01-12-1999	02-21-2000	Inadequate Production
	PROP/Inactive	01-12-1999	02-21-2000	Inadequate Production
Fireman's Fund Insurance Company	CAS/Inactive	07-25-1996	09-29-2005	Inadequate Production
	PROP/Inactive	07-25-1996	09-29-2005	Inadequate Production
Firemen's Insurance Company of Newark, New Jersey	CAS/Inactive	12-11-1996	01-22-1999	Inadequate Production
	PROP/Inactive	12-11-1996	01-22-1999	Inadequate Production
First Liberty Insurance Corporation, The	CAS/Inactive	01-14-2002	12-27-2005	Vol. Surrender per Agent Rqst
	PROP/Inactive	01-14-2002	12-27-2005	Vol. Surrender per Agent Rqst
First National Insurance Company of America	CAS/Inactive	07-24-1996	11-20-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-24-1996	11-20-2009	Vol. Surrender per Agent Rqst
General Casualty Company of Wisconsin	CAS/Active	08-16-2007		
	PROP/Active	08-16-2007		
General Insurance Company of America	CAS/Inactive	07-24-1996	11-20-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-24-1996	11-20-2009	Vol. Surrender per Agent Rqst
Globe Indemnity Company	CAS/Inactive	10-04-2000	02-07-2005	Canceled
	PROP/Inactive	10-04-2000	02-07-2005	Canceled
Great American Alliance Insurance Company	CAS/Inactive	07-26-1996	01-07-2002	Inadequate Production
	PROP/Inactive	07-26-1996	01-07-2002	Inadequate Production
Great American	CAS/Inactive	07-26-1996	01-07-2002	Inadequate Production

Assurance Company	PROP/Inactive	07-26-1996	01-07-2002	Inadequate Production
Great American Insurance Company	CAS/Inactive	07-26-1996	01-07-2002	Inadequate Production
	PROP/Inactive	07-26-1996	01-07-2002	Inadequate Production
Great American Insurance Company of New York	CAS/Inactive	07-26-1996	01-07-2002	Inadequate Production
	PROP/Inactive	07-26-1996	01-07-2002	Inadequate Production
Great Northern Insurance Company	CAS/Active	05-12-2008		
	CAS/Inactive	09-10-1996	12-26-2006	Canceled
	PROP/Active	05-12-2008		
	PROP/Inactive	09-10-1996	12-26-2006	Canceled
Guarantee Company of North America USA, The	CAS/Active	07-28-1998		
Gulf Insurance Company	CAS/Inactive	09-10-1996	06-30-2005	Inadequate Production
	PROP/Inactive	09-10-1996	06-30-2005	Inadequate Production
Hanover Insurance Company, The	CAS/Inactive	12-18-1997	08-03-2005	Inadequate Production
	PROP/Inactive	12-18-1997	08-03-2005	Inadequate Production
Hartford Casualty Insurance Company	CAS/Inactive	04-26-2000	10-26-2009	Canceled
	PROP/Inactive	04-26-2000	10-26-2009	Canceled
Hartford Fire Insurance Company	CAS/Inactive	04-26-2000	10-26-2009	Canceled
	PROP/Inactive	04-26-2000	10-26-2009	Canceled
Hartford Insurance Company of the Midwest	CAS/Inactive	04-26-2000	10-31-2008	Canceled
	PROP/Inactive	04-26-2000	10-31-2008	Canceled
Hartford Steam Boiler Inspection and Insurance Company, The	CAS/Inactive	05-12-1999	10-30-2008	Canceled
	PROP/Inactive	05-12-1999	10-21-2008	Canceled
Hartford Underwriters Insurance Company	CAS/Inactive	04-26-2000	10-31-2008	Canceled
	PROP/Inactive	04-26-2000	10-31-2008	Canceled
Hawkeye-Security Insurance Company	CAS/Inactive	01-14-2003	11-20-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	01-14-2003	11-20-2009	Vol. Surrender per Agent Rqst
HDI-Gerling America Insurance Company	CAS/Active	09-08-2005		
	PROP/Active	09-08-2005		
HIH America Compensation & Liability Insurance Company	CAS/Inactive	04-08-1999	05-11-2001	Company Defunct or Liquidation
	PROP/Inactive	04-08-1999	05-11-2001	Company Defunct or Liquidation

Indemnity Insurance Company of North America	CAS/Inactive	06-23-1999	10-01-2002	Inadequate Production
	PROP/Inactive	06-23-1999	10-01-2002	Inadequate Production
Indiana Insurance Company	CAS/Inactive	03-24-2000	11-20-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	03-24-2000	11-20-2009	Vol. Surrender per Agent Rqst
Insurance Company of North America	CAS/Active	06-23-1999		
	PROP/Active	06-23-1999		
Liberty Mutual Fire Insurance Company	CAS/Inactive	03-13-2006	12-06-2007	Vol. Surrender per Agent Rqst
	CAS/Inactive	01-14-2002	12-27-2005	Vol. Surrender per Agent Rqst
	PROP/Inactive	03-13-2006	12-06-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	01-14-2002	12-27-2005	Vol. Surrender per Agent Rqst
Liberty Mutual Insurance Company	CAS/Inactive	01-14-2002	12-27-2005	Vol. Surrender per Agent Rqst
	PROP/Inactive	01-14-2002	12-27-2005	Vol. Surrender per Agent Rqst
LM Insurance Corporation	CAS/Inactive	01-14-2002	12-27-2005	Vol. Surrender per Agent Rqst
	PROP/Inactive	01-14-2002	12-27-2005	Vol. Surrender per Agent Rqst
Lumbermens Mutual Casualty Company	CAS/Inactive	08-20-1996	02-17-2005	Canceled
	PROP/Inactive	08-20-1996	02-17-2005	Canceled
Maryland Casualty Company	CAS/Inactive	09-09-1998	07-23-2012	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-09-1998	07-23-2012	Vol. Surrender per Agent Rqst
Massachusetts Bay Insurance Company	CAS/Inactive	12-18-1997	08-03-2005	Inadequate Production
	PROP/Inactive	12-18-1997	08-03-2005	Inadequate Production
Merchants Bonding Company (Mutual)	CAS/Active	08-20-2007		
	CAS/Inactive	07-19-1996	09-27-2005	Canceled
Merchants National Bonding, Inc.	CAS/Active	02-06-2013		
MetLife Insurance Company of Connecticut	CAS/Inactive	09-04-1996	04-21-2003	Inadequate Production
Middlesex Mutual Assurance Company	CAS/Inactive	03-08-2006	01-17-2011	Vol. Surrender per Agent Rqst
	PROP/Inactive	03-08-2006	01-17-2011	Vol. Surrender per

				Agent Rqst
National Fire Insurance Company of Hartford	CAS/Inactive	08-21-1996	01-05-2006	Canceled
	PROP/Inactive	08-21-1996	01-05-2006	Canceled
National Surety Corporation	CAS/Inactive	07-25-1996	09-29-2005	Inadequate Production
	PROP/Inactive	07-25-1996	09-29-2005	Inadequate Production
Nationwide Affinity Insurance Company of America	CAS/Inactive	04-11-2005	04-07-2010	Canceled
	PROP/Inactive	04-11-2005	04-07-2010	Canceled
Nationwide Mutual Insurance Company	CAS/Inactive	07-14-2003	04-07-2010	Canceled
	PROP/Inactive	07-14-2003	04-07-2010	Canceled
Navigators Insurance Company	CAS/Inactive	02-19-2004	04-30-2008	Canceled
	PROP/Inactive	02-19-2004	04-30-2008	Canceled
Netherlands Insurance Company, The	CAS/Inactive	08-12-1996	11-20-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	08-12-1996	11-20-2009	Vol. Surrender per Agent Rqst
North American Specialty Insurance Company	CAS/Active	09-18-2000		
	PROP/Active	09-18-2000		
North River Insurance Company, The	CAS/Inactive	12-23-1996	12-17-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	12-23-1996	12-17-2009	Vol. Surrender per Agent Rqst
Northern Insurance Company of New York	CAS/Inactive	09-09-1998	07-23-2012	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-09-1998	07-23-2012	Vol. Surrender per Agent Rqst
Northwestern National Casualty Company	CAS/Inactive	04-14-1999	02-28-2001	Vol. Surrender per Agent Rqst
	PROP/Inactive	04-14-1999	02-28-2001	Vol. Surrender per Agent Rqst
Old Republic Insurance Company	CAS/Active	08-07-2007		
	CAS/Inactive	08-02-1996	04-20-2005	Canceled
	PROP/Inactive	08-02-1996	04-20-2005	Canceled
Old Republic Surety Company	CAS/Active	08-07-2007		
	CAS/Inactive	08-02-1996	04-20-2005	Canceled
	PROP/Inactive	08-02-1996	04-20-2005	Canceled
Pacific Employers Insurance Company	CAS/Active	06-23-1999		
	PROP/Active	06-23-1999		
Pacific Indemnity	CAS/Active	05-12-2008		

Company	CAS/Inactive	09-10-1996	12-26-2006	Canceled
	PROP/Active	05-12-2008		
	PROP/Inactive	09-10-1996	12-26-2006	Canceled
Peerless Indemnity Insurance Company	CAS/Inactive	06-21-2004	11-20-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	06-21-2004	11-20-2009	Vol. Surrender per Agent Rqst
Peerless Insurance Company	CAS/Inactive	08-12-1996	11-20-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	08-12-1996	11-20-2009	Vol. Surrender per Agent Rqst
Phoenix Insurance Company, The	CAS/Active	09-26-2007		
	CAS/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	CAS/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Active	09-26-2007		
	PROP/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
Platte River Insurance Company	CAS/Active	07-12-2005		
	PROP/Active	07-12-2005		
Progressive Classic Insurance Company	CAS/Inactive	07-18-2005	06-30-2008	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-18-2005	06-30-2008	Vol. Surrender per Agent Rqst
Progressive Northern Insurance Company	CAS/Inactive	07-18-2005	06-30-2008	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-18-2005	06-30-2008	Vol. Surrender per Agent Rqst
Property and Casualty Insurance Company of Hartford	CAS/Inactive	07-05-2005	10-31-2008	Canceled
	PROP/Inactive	07-05-2005	10-31-2008	Canceled
Regent Insurance Company	CAS/Active	08-16-2007		
	PROP/Active	08-16-2007		
Royal Insurance Company of America	CAS/Inactive	10-04-2000	02-08-2005	Canceled
	PROP/Inactive	10-04-2000	02-07-2005	Canceled
SAFECO Insurance Company of America	CAS/Inactive	07-24-1996	11-20-2009	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-24-1996	11-20-2009	Vol. Surrender per Agent Rqst
SAFECO Insurance	CAS/Inactive	09-27-2008	11-20-2009	Vol. Surrender per

Company of Illinois				Agent Rqst
	PROP/Inactive	09-27-2008	11-20-2009	Vol. Surrender per Agent Rqst
Safeguard Insurance Company	CAS/Inactive	10-04-2000	02-10-2005	Canceled
	PROP/Inactive	10-04-2000	02-10-2005	Canceled
Seaboard Surety Company	CAS/Inactive	08-09-1996	12-05-2005	Inadequate Production
	PROP/Inactive	08-09-1996	12-05-2005	Inadequate Production
Security Insurance Company of Hartford	CAS/Inactive	03-11-2005	08-28-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	03-11-2005	08-28-2006	Vol. Surrender per Agent Rqst
Sheboygan Falls Insurance Company	CAS/Active	11-09-2012		
	PROP/Active	11-09-2012		
SOCIETY INSURANCE, a mutual company	CAS/Active	01-15-2010		
	CAS/Inactive	07-08-2005	11-14-2007	Canceled
	PROP/Active	01-15-2010		
	PROP/Inactive	07-08-2005	11-14-2007	Canceled
St. Paul Fire and Casualty Insurance Company	CAS/Inactive	09-10-1996	02-09-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-10-1996	02-09-2007	Vol. Surrender per Agent Rqst
St. Paul Fire and Marine Insurance Company	CAS/Inactive	09-10-1996	02-09-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-10-1996	02-09-2007	Vol. Surrender per Agent Rqst
St. Paul Guardian Insurance Company	CAS/Inactive	09-10-1996	02-09-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-10-1996	02-09-2007	Vol. Surrender per Agent Rqst
St. Paul Mercury Insurance Company	CAS/Inactive	09-10-1996	02-09-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-10-1996	02-09-2007	Vol. Surrender per Agent Rqst
St. Paul Protective Insurance Company	CAS/Inactive	11-04-1998	04-21-2003	Vol. Surrender per Agent Rqst
	PROP/Inactive	11-04-1998	04-21-2003	Vol. Surrender per Agent Rqst
Statewide Insurance Company	CAS/Inactive	07-18-1996	04-08-2002	Canceled
	PROP/Inactive	07-18-1996	04-08-2002	Canceled
TIG Insurance Company	CAS/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-11-2000	09-26-2003	Vol. Surrender per

				Agent Rqst
TIG Insurance Company of Texas	CAS/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
TIG Insurance Corporation of America	CAS/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
Torus National Insurance Company	CAS/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-11-2000	09-26-2003	Vol. Surrender per Agent Rqst
Transcontinental Insurance Company	CAS/Inactive	08-21-1996	01-05-2006	Canceled
	PROP/Inactive	08-21-1996	01-05-2006	Canceled
Transportation Insurance Company	CAS/Inactive	08-21-1996	01-05-2006	Canceled
	PROP/Inactive	08-21-1996	01-05-2006	Canceled
Travelers Casualty and Surety Company	CAS/Active	09-26-2007		
	CAS/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	CAS/Inactive	07-19-1996	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Active	09-26-2007		
	PROP/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-19-1996	11-28-2005	Vol. Surrender per Agent Rqst
Travelers Casualty and Surety Company of America	CAS/Active	02-04-2008		
	CAS/Inactive	07-19-1996	11-09-2007	Canceled
	PROP/Active	02-04-2008		
	PROP/Inactive	07-19-1996	11-09-2007	Canceled
Travelers Casualty Company of Connecticut	CAS/Inactive	07-19-1996	11-20-2000	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-19-1996	11-20-2000	Vol. Surrender per Agent Rqst
Travelers Casualty Insurance Company of America	CAS/Active	09-26-2007		
	CAS/Inactive	07-19-1996	11-22-2000	Vol. Surrender per Agent Rqst
	PROP/Active	09-26-2007		
	PROP/Inactive	07-19-1996	11-22-2000	Vol. Surrender per Agent Rqst
Travelers Commercial	CAS/Inactive	06-14-2001	11-28-2005	Vol. Surrender per Agent Rqst

Insurance Company	CAS/Inactive	07-19-1996	11-22-2000	Vol. Surrender per Agent Rqst
	PROP/Inactive	06-14-2001	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-19-1996	11-22-2000	Vol. Surrender per Agent Rqst
Travelers Constitution State Insurance Company	CAS/Inactive	11-24-1998	12-11-2003	Vol. Surrender per Agent Rqst
	PROP/Inactive	11-24-1998	12-11-2003	Vol. Surrender per Agent Rqst
Travelers Home and Marine Insurance Company, The	CAS/Inactive	11-29-2005	12-29-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	11-29-2005	12-29-2006	Vol. Surrender per Agent Rqst
Travelers Indemnity Company of America, The	CAS/Active	09-26-2007		
	CAS/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	CAS/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Active	09-26-2007		
	PROP/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
Travelers Indemnity Company of Connecticut, The	CAS/Active	09-26-2007		
	CAS/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	CAS/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Active	09-26-2007		
	PROP/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
Travelers Indemnity Company, The	CAS/Active	09-26-2007		
	CAS/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	CAS/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Active	09-26-2007		
	PROP/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
Travelers Property	CAS/Active	09-26-2007		

Casualty Company of America	CAS/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	CAS/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Active	09-26-2007		
	PROP/Inactive	01-13-2006	12-29-2006	Vol. Surrender per Agent Rqst
	PROP/Inactive	09-04-1996	11-28-2005	Vol. Surrender per Agent Rqst
Travelers Property Casualty Insurance Company	CAS/Inactive	07-22-2005	11-28-2005	Vol. Surrender per Agent Rqst
	PROP/Inactive	07-22-2005	11-28-2005	Vol. Surrender per Agent Rqst
Trumbull Insurance Company	CAS/Inactive	07-05-2005	10-31-2008	Canceled
	PROP/Inactive	07-05-2005	10-31-2008	Canceled
Twin City Fire Insurance Company	CAS/Inactive	04-26-2000	10-26-2009	Canceled
	PROP/Inactive	04-26-2000	10-26-2009	Canceled
United Fire & Casualty Company	CAS/Active	07-26-1996		
	PROP/Active	07-26-1996		
United Pacific Insurance Company	CAS/Inactive	08-27-1996	02-13-2001	Company Merger
	PROP/Inactive	08-27-1996	02-13-2001	Company Merger
United States Fidelity and Guaranty Company	CAS/Inactive	08-02-1996	02-09-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	08-02-1996	02-09-2007	Vol. Surrender per Agent Rqst
United States Fire Insurance Company	CAS/Inactive	12-23-1996	03-08-2004	Canceled
	PROP/Inactive	12-23-1996	03-08-2004	Canceled
United Wisconsin Insurance Company	CAS/Active	03-14-2003		
USF&G Insurance Company of Wisconsin	CAS/Inactive	08-02-1996	01-01-2001	Company Merger
	PROP/Inactive	08-02-1996	01-01-2001	Company Merger
Valiant Insurance Company	CAS/Inactive	09-09-1998	12-05-2007	Canceled
	PROP/Inactive	09-09-1998	12-05-2007	Canceled
Valley Forge Insurance Company	CAS/Inactive	08-21-1996	01-05-2006	Canceled
	PROP/Inactive	08-21-1996	01-05-2006	Canceled
Venture Insurance Company	CAS/Inactive	07-08-2005	01-04-2006	Canceled
	PROP/Inactive	07-08-2005	01-04-2006	Canceled
Vigilant Insurance Company	CAS/Active	05-12-2008		
	CAS/Inactive	09-10-1996	12-26-2006	Canceled
	PROP/Active	05-12-2008		

	PROP/Inactive	09-10-1996	12-26-2006	Canceled
Virginia Surety Company, Inc.	CAS/Inactive	01-28-1997	11-30-1998	Vol. Surrender per Agent Rqst
	PROP/Inactive	01-28-1997	11-30-1998	Vol. Surrender per Agent Rqst
Washington International Insurance Company	CAS/Active	09-07-2001		
	PROP/Active	09-07-2001		
Wausau Business Insurance Company	CAS/Inactive	07-18-2005	12-10-2007	Vol. Surrender per Agent Rqst
	CAS/Inactive	08-23-1996	05-14-2003	Inadequate Production
	PROP/Inactive	07-18-2005	12-10-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	08-23-1996	05-14-2003	Inadequate Production
Wausau General Insurance Company	CAS/Inactive	07-18-2005	12-10-2007	Vol. Surrender per Agent Rqst
	CAS/Inactive	08-23-1996	05-14-2003	Inadequate Production
	PROP/Inactive	07-18-2005	12-10-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	08-23-1996	05-14-2003	Inadequate Production
Wausau Underwriters Insurance Company	CAS/Inactive	07-18-2005	12-10-2007	Vol. Surrender per Agent Rqst
	CAS/Inactive	08-23-1996	05-14-2003	Inadequate Production
	PROP/Inactive	07-18-2005	12-10-2007	Vol. Surrender per Agent Rqst
	PROP/Inactive	08-23-1996	05-14-2003	Inadequate Production
West Bend Mutual Insurance Company	CAS/Active	03-13-2008		
	CAS/Inactive	07-08-2005	10-17-2007	Canceled
	PROP/Active	03-13-2008		
	PROP/Inactive	07-08-2005	10-17-2007	Canceled
Western Surety Company	CAS/Active	07-21-2003		
Zurich American Insurance Company	CAS/Active	06-08-1999		
	PROP/Active	06-08-1999		
Zurich American Insurance Company of Illinois	CAS/Active	06-08-1999		
	PROP/Active	06-08-1999		

* Photocopies of this report provided to an insurer should be confirmed on-line for accuracy.

** NPN = National Producer Number assigned by the National Insurance Producer Registry to assist with nonresident licensing in the future.

$1,060,000.00
ORIGINAL

BID OF JOE DANIELS CONSTRUCTION CO., INC.

2013

PROPOSAL, CONTRACT, BOND AND SPECIFICATIONS

FOR

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT

CONTRACT NO. 6828

IN

MADISON, DANE COUNTY, WISCONSIN

AWARDED BY THE COMMON COUNCIL
MADISON, WISCONSIN ON FEBRUARY 5, 2013

PLEASE RETURN PLANS AND SPECIFICATIONS TO:

CITY ENGINEERING DIVISION
1600 EMIL STREET
MADISON, WISCONSIN 53713

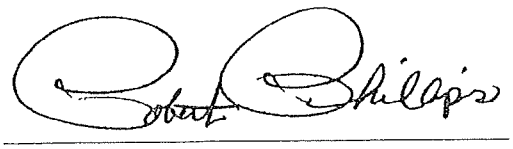
www.cityofmadison.com/business/pw

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

INDEX

This Proposal, and Agreement have
been prepared by:

CITY ENGINEERING DIVISION
CITY OF MADISON
MADISON, DANE COUNTY, WISCONSIN



Robert F. Phillips, P.E., City Engineer

SECTION A: ADVERTISEMENT FOR BIDS

REQUEST FOR BID FOR PUBLIC WORKS CONSTRUCTION
CITY OF MADISON, WISCONSIN

A BEST VALUE CONTRACTING MUNICIPALITY

CONTRACT NO.	PROJECT NAME:
6828	OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
SBE GOAL	13%

Plans and Specifications are available at 1600 Emil Street, Madison, WI 53713; 608-267-1197 or on our website at www.cityofmadison.com/business/pw/contracts/openforBid.cfm.

PREQUALIFICATIONS

Bidders who have not been prequalified by the City Engineer and Affirmative Action Director for the period of **February 1, 2012 to January 31, 2014** must submit their application on or before 1:00 p.m., JANUARY 11, 2013, Room 115, City-County Building, Madison, WI 53703. Postmark is not applicable. Contractors be prequalified by the City Engineer including an affirmative action plan approved by the Affirmative Action Director prior to the bid opening or the bid will be rejected. Forms are available at the same location or on our website at www.cityofmadison.com/business/pw/forms.cfm.

PRE-BID MEETING

Representatives of the Affirmative Action Department will be present to discuss the Small Business Enterprise requirements on JANUARY 4, 2013 at 1:00 PM at 1600 Emil Street, Madison Wisconsin. There will also be an On-Site Informational meeting on January 3, 2013 at 10:00 AM at Olbrich Gardens.

OTHER REQUIREMENTS

Sealed bids must be accompanied with a Bid Bond equal to at least 5% of the bid or a Certificate of Annual/Biennial Bid Bond or certified check, payable to the City Treasurer.

Prevailing Wage Rates may be required and are attached in Section I of the contract. See Special Provisions to determine applicability.

Deadline for the Submittal of Bid is JANUARY 11, 2013 by 1:00 PM, at 1600 Emil Street, Madison, WI 53713.

Bid Opening will be on JANUARY 18, 2013 at 1:30 PM at 1600 Emil Street, Madison, WI 53713.

REQUEST FOR BIDS FOR PUBLIC WORKS CONSTRUCTION FOR THE CITY OF MADISON, WISCONSIN

A BEST VALUE CONTRACTING MUNICIPALITY

Plans and Specifications for Public Works Projects that are open for bid are available on the City of Madison website at http://www.cityofmadison.com/business/PW/contracts/openforBid.cfm or by calling City Engineering at 608-266-4751.

Sealed bids must be accompanied with a Bid Bond equal to at least 5% of the bid or a Certificate of Annual/Biennial Bid Bond or certified check, payable to the City Treasurer.

Prevailing Wage Rates may be required and are attached in Section I of the contract. See Special Provisions to determine applicability.

Bidders must be prequalified with the City Engineer and the Affirmative Action Director. Deadline date for submittal of application is noticed on our website. Forms are available on the web at http://www.cityofmadison.com/business/pw/forms.cfm or by contacting City Engineering at 608-266-4620

Publ. WSJ 12/18/12, 12/21/12, 12/28/12, 1/4/13

SECTION B: INSTRUCTIONS TO BIDDERS

The City of Madison Standard Specifications for Public Works Construction - 2013 Edition, as supplemented and amended from time to time, forms a part of these contract documents as if attached hereto.

These standard specifications are available on the City of Madison Public Works website at www.cityofmadison.com/Business/PW/specs.cfm or by contacting City Engineering Division, Room 115, City-County Building, 210 Martin Luther King Jr. Blvd., Madison, WI 53703.

The Contractor shall review these Specifications prior to preparation of proposals for the work to be done under this contract, with specific attention to Article 102 **"BIDDING REQUIREMENTS AND CONDITIONS"** and Article 103 **"AWARD AND EXECUTION OF THE CONTRACT."** For the convenience of the bidder, below are highlights of three subsections of the specifications.

Section 102.1: Pre-Qualification of Bidders

In accordance with Wisconsin State Statutes 66.0901 (2) and (3), all bidders must submit to the Board of Public Works proof of responsibility on forms furnished by the City. The City requires that all bidders be qualified on a biennial basis.

Bidders must present satisfactory evidence that they have been regularly engaged in the type of work specified herein and they are fully prepared with necessary capital, materials, machinery and supervisory personnel to conduct the work to be contracted for to the satisfaction of the City. All bidders must be pre-qualified by the Board of Public Works for the type of construction on which they are bidding prior to the opening of the bid.

In accordance with Section 39.02(9)(a)l. of the Madison General Ordinances, all bidders shall submit in writing to the Affirmative Action Division Manager of the City of Madison, a Certificate of Compliance or an Affirmative Action Plan at the same time or prior to the submission of the proof of responsibility forms. The bidder shall be disqualified if the bidder fails to or refuses to, prior to opening of the bid, submit a Certificate of compliance, Affirmative Action Plan or Affirmative Action Data Update, as applicable, as defined by Section 39.02 of the Madison General Ordinances (entitled Affirmative Action) and as required by Section 102.11 of the Standard Specifications.

Section 102.4: Proposals

No bid will be accepted that does not contain an adequate or reasonable price for each and every item named in the Schedule of Unit Prices.

A lump sum bid for the work in accordance with the plans and specifications is required. The lump sum bid musts be the same as the total amounts bid for the various items and it shall be inserted in the space provided.

All papers bound with or attached to the proposal form are considered a part thereof and must not be detached or altered when the proposal is submitted. The plans, specifications and other documents designated in the proposal form will be considered a part of the proposal whether attached or not.

A proposal submitted by an individual shall be signed by the bidder or by a duly authorized agent. A proposal submitted by a partnership shall be signed by a member/partner or by a duly authorized agent thereof. A proposal submitted by a corporation shall be signed by an authorized officer or duly authorized registered agent of such corporation, and the proposal shall show the name of the State under the laws of

which such corporation was chartered. The required signatures shall in all cases appear in the space provided therefore on the proposal.

Each proposal shall be placed, together with the proposal guaranty, in a sealed envelope, so marked as to indicate name of project, the contract number or option to which it applies, and the name and address of the Contractor. Proposals will be received at the place and until the hour on the date designated in the advertisement. When sent by mail, the sealed proposal marked as indicated above shall be enclosed in an additional envelope. Proposals sent by mail, submitted in person or otherwise delivered must be in the hands of the official conducting the letting by the hour on the date designated in the advertisement. Proposals received after the date designated will be returned to the bidder unopened.

The Bidder shall execute form ERD-7777 (R.9/03), a part of these proposal pages and submit same with the bidder's proposal, if applicable. REFER TO PROPOSAL SECTION.

Section 102.5: Bid Deposit (Proposal Guaranty)

No proposal shall be considered unless either (i) it is accompanied by a bid deposit of the character and amount described in the Advertisement for Bids or (ii) a biennial bid bond in an amount and form acceptable to the City of Madison has been previously submitted.

Bid deposits of unsuccessful bidders shall be returned following the award of the contract by the Common Council. Bid deposit of the successful bidders shall be returned within forty-eight (48) hours following execution of the contract and bond as required.

Bidders for this Contract(s) must be Pre-Qualified for at least one of the following type(s) of construction denoted by an ☒

Building Demolition

101 ☐ Asbestos Removal
120 ☐ House Mover
110 ☐ Building Demolition

Street, Utility and Site Construction

201 ☐ Asphalt Paving
205 ☐ Blasting
210 ☐ Boring/Pipe Jacking
215 ☐ Concrete Paving
220 ☐ Con. Sidewalk/Curb & Gutter/Misc. Concrete Work
221 ☐ Concrete Bases and Other Concrete Work
225 ☐ Dredging
230 ☐ Fencing
235 ☐ Fiber Optic Cable/Conduit Installation
241 ☐ Horizontal Saw Cutting of Sidewalk
240 ☐ Grading and Earthwork
242 ☐ Infrared Seamless Patching
245 ☐ Landscaping, Maintenance
250 ☐ Landscaping, Site and Street
251 ☐ Parking Ramp Maintenance
255 ☐ Pavement Sealcoating and Crack Sealing
260 ☐ Petroleum Above/Below Ground Storage Tank Removal/Installation
265 ☐ Retaining Walls, Precast Modular Units
270 ☐ Retaining Walls, Reinforced concrete
275 ☐ Sanitary, Storm Sewer & Water Main Const.
280 ☐ Sewer Lateral Drain Cleaning/Internal TV Insp.
285 ☐ Sewer Lining
290 ☐ Sewer Pipe Bursting
295 ☐ Soil Borings
300 ☐ Soil Nailing
305 ☐ Storm & Sanitary Sewer Laterals & Water Svc.
320 ☐ Traffic Signals
330 ☐ Traffic Control During Construction
310 ☐ Street Construction
315 ☐ Street Lighting
318 ☐ Tennis Court Resurfacing
330 ☐ Traffic Control During Construction
320 ☐ Traffic Signals
325 ☐ Traffic Signing & Marking
332 ☐ Tree Pruning/Removal
333 ☐ Tree, Pesticide Treatment of
335 ☐ Trucking
399 ☐ Other_____

Bridge Construction

501 ☐ Bridge Construction and/or Repair

Building Construction

401 ☐ Floor Covering (including carpet, ceramic tile installation, rubber, VCT
402 ☐ Building Automation Systems
403 ☐ Concrete
404 ☐ Doors and Windows
405 ☐ Electrical - Power, Lighting & Communications
410 ☐ Elevator - Lifts
412 ☐ Fire Suppression
413 ☐ Furnishings - Furniture and Window Treatments
415 ☐ General Building Construction, Equal or Less than $250,000
420 ☒ General Building Construction, $250,000 to $1,500,000
425 ☐ General Building Construction, Over $1,500,000
428 ☐ Glass and/or Glazing
429 ☐ Hazardous Material Removal
430 ☐ Heating, Ventilating and Air Conditioning (HVAC)
433 ☐ Insulation - Thermal
435 ☐ Masonry
437 ☐ Metals
440 ☐ Painting and Wallcovering
445 ☐ Plumbing
450 ☐ Pump Repair
455 ☐ Pump Systems
460 ☒ Roofing and Moisture Protection
461 ☐ Solar Photovoltaic/Hot Water Systems
465 ☐ Soil/Groundwater Remediation
466 ☐ Warning Sirens
470 ☐ Water Supply Elevated Tanks
475 ☐ Water Supply Wells
480 ☐ Wood, Plastics & Composites-Structural & Architectural
499 ☐ Other_____

State of Wisconsin Certifications

1 ☐ Class 5 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for quarries, open pits and road cuts.

2 ☐ Class 6 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for trenches, site excavations, basements, underwater demolition, underground excavations, or structures 15 feet or less in height.

3 ☐ Class 7 Blaster - Blasting Operations and Activities for structures greater than 15 ' in height, bridges, towers, and any of the objects or purposes listed as "Class 5 Blaster or Class 6 Blaster".

4 ☐ Petroleum Above/Below Ground Storage Tank Removal and Installation (Attach copies of State Certifications.)

5 ☐ Hazardous Material Removal.(Contractor to be certified for asbestos and lead abatement per the Wisconsin Department of Health Services, Asbestos and Lead Section (A&LS).) See the following link for application: http://www.dhs.wisconsin.gov/Asbestos/Cert/Index.htm. State of Wisconsin Performance of Asbestos Abatement Certificate must be attached.

6 ☐ Certification number as a Certified Arborist or Certified Tree Worker as administered by the International Society of Arboriculture.

7 ☐ Pesticide application (Certification for Commercial Applicator For Hire with the certification in the category of turf and landscape (3.0) and possess a current license issued by the DATCP).

8 ☐ Other_____

SECTION C: SBE

Instructions to Bidders
City of Madison
SBE Program Information

2 Small Business Enterprise (SBE) Program Information

2.1 Policy and Goal

The City of Madison reaffirms its policy of nondiscrimination in the conduct of City business by maintaining a procurement process which remains open to all who have the potential and ability to sell goods and services to the City. It is the policy of the City of Madison to allow Small Business Enterprises (SBE) maximum feasible opportunity to participate in City of Madison contracting. The bidder acknowledges that its bid has been submitted in accordance with the SBE program and is for the public's protection and welfare.

Please refer to the "ADVERTISEMENT FOR BIDS" for the goal for the utilization of SBEs on this project. SBEs may participate as subcontractors, vendors and/or suppliers, which provide a commercially useful function. The dollar value for SBE suppliers or 'materials only' vendors shall be discounted to 60% for purposes of meeting SBE goals.

A bidder which achieves or exceeds the SBE goal will be in compliance with the SBE requirements of this project. In the event that the bidder is unable to achieve the SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Failure to either achieve the goal or demonstrate a good faith effort to do so will be grounds for the bidder being deemed a non-responsible contractor ineligible for award of this contract.

A bidder may count towards its attainment of the SBE goal only those expenditures to SBEs that perform a commercially useful function. For purposes of evaluating a bidder's responsiveness to the attainment of the SBE goal, the contract participation by an SBE is based on the percentage of the total base bid proposed by the Contractor. The total base bid price is inclusive of all addenda.

Work performed by an SBE firm in a particular transaction can be counted toward the goal only if it involves a commercially useful function. That is, in light of industry practices and other relevant considerations, does the SBE firm have a necessary and useful role in the transaction, of a kind for which there is a market outside the context of the SBE Program, or is the firm's role a superfluous step added in an attempt to obtain credit towards goals? If, in the judgment of the Affirmative Action Division, the SBE firm will not perform a commercially useful function in the transaction, no credit towards goals will be awarded.

The question of whether a firm is performing a commercially useful function is completely separate from the question of whether the firm is an eligible SBE. A firm is eligible if it meets the definitional criteria and ownership and control requirements, as set forth in the City of Madison's SBE Program.

If the City of Madison determines that the SBE firm is performing a commercially useful function, then the City of Madison must then decide what that function is. If the commercially useful function is that of an SBE vendor / supplier that regularly transacts business with the respective product, then the City of Madison will count 60% of the value of the product supplied toward SBE goals.

To be counted, the SBE vendor / supplier must be engaged in selling the product in question to the public. This is important in distinguishing an SBE vendor / supplier, which has a regular trade with a variety of customers, from a firm which performs supplier-like functions on an ad hoc basis or for only one or two contractors with whom it has a special relationship.

A supplier of bulk goods may qualify as an eligible SBE vendor / supplier if it either maintains an inventory or owns or operates distribution equipment. With respect to the distribution equipment; e.g., a fleet of trucks, the term "operates" is intended to cover a situation in which the supplier leases the equipment on a regular basis for its entire business. It is not intended to cover a situation in which the firm simply provides drivers for trucks owned or leased by another party; e.g., a prime contractor, or leases such a party's trucks on an ad hoc basis for a specific job.

If the commercially useful function being performed is not that of a qualified SBE vendor / supplier, but rather that of delivery of products, obtaining bonding or insurance, procurement of personnel, acting as a broker or manufacturer's representative in the procurement of supplies, facilities, or materials, etc., only the fees or commissions will apply towards the goal.

For example, a business that simply transfers title of a product from manufacturer to ultimate purchaser; e. g., a sales representative who re-invoices a steel product from the steel company to the Contractor, or a firm that puts a product into a container for delivery would not be considered a qualified SBE vendor / supplier. The Contractor would not receive credit based on a percentage of the cost of the product for working with such firms.

Concerning the use of services that help the Contractor obtain needed supplies, personnel, materials or equipment to perform a contract: only the fee received by the service provider will be counted toward the goal. For example, use of a SBE sales representative or distributor for a steel company, if performing a commercially useful function at all, would entitle the Contractor receiving the steel to count only the fee paid to the representative or distributor toward the goal. This provision would also govern fees for professional and other services obtained expressly and solely to perform work relating to a specific contract.

Concerning transportation or delivery services: if an SBE trucking company picks up a product from a manufacturer or a qualified vendor / supplier and delivers the product to the Contractor, the commercially useful function it is performing is not that of a supplier, but simply that of a transporter of goods. Unless the trucking company is itself the manufacturer or a qualified vendor / supplier in the product, credit cannot be given based on a percentage of the cost of the product. Rather, credit would be allowed for the cost of the transportation service.

The City is aware that the rule's language does not explicitly mention every kind of business that may contribute work on this project. In administering these programs, the City would, on a case-by-case basis, determine the appropriate counting formula to apply in a particular situation.

2.2 Contract Compliance

Questions concerning the SBE Program shall be directed to the Contract Compliance Officer of the City of Madison Department of Civil Rights, Affirmative Action Division, 210 Martin Luther King, Jr. Blvd., Room 523, Madison, WI 53703; telephone (608) 266-4910.

2.3 Certification of SBE by City of Madison

The Affirmative Action Division maintains a directory of SBEs which are currently certified as such by the City of Madison. Contact the Contract Compliance Officer as indicated in Section 2.2 to receive a copy of the SBE Directory or you may access the SBE Directory online at www.cityofmadison.com/dcr/aaTBDir.cfm.

All contractors, subcontractors, vendors and suppliers seeking SBE status must complete and submit the **Targeted Business Certification Application** to the City of Madison Affirmative Action Division by the time and date established for receipt of bids. A copy of the Targeted Business Certification Application is available by contacting the Contract Compliance Officer at the address and telephone indicated in Section 2.2 or you may access the Targeted Business Certification Application online at www.cityofmadison.com/dcr/aaTBDir.cfm. Submittal of the Targeted Business Certification Application by the time specified does not guarantee that the applicant will be certified as a SBE eligible to be utilized towards meeting the SBE goal for this project.

2.4 Small Business Enterprise Compliance Report

2.4.1 Good Faith Efforts

Bidders shall take all necessary affirmative steps to assure that SBEs are utilized when possible and that the established SBE goal for this project is achieved. A contractor who self performs a portion of the work, and is pre-qualified to perform that category of work, may subcontract that portion of the work, but shall not be required to do so. When a bidder is unable to achieve the established SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Such a good faith effort should include the following:

2.4.1.1 Attendance at the pre-bid meeting.

2.4.1.2 Using the City of Madison's directory of certified SBEs to identify SBEs from which to solicit bids.

2.4.1.3 Assuring that SBEs are solicited whenever they are potential sources.

2.4.1.4 Referring prospective SBEs to the City of Madison Affirmative Action Division for certification.

2.4.1.5 Dividing total project requirements into smaller tasks and/or quantities, where economically feasible, to permit maximum feasible SBE participation.

2.4.1.6 Establishing delivery schedules, where requirements permit, which will encourage participation by SBEs.

2.4.1.7 Providing SBEs with specific information regarding the work to be performed.

2.4.1.8 Contacting SBEs in advance of the deadline to allow such businesses sufficient time to prepare a bid.

2.4.1.9 Utilizing the bid of a qualified and competent SBE when the bid of such a business is deemed reasonable (i.e. 5% above the lowest bidder), although not necessarily low.

2.4.1.10 Contacting SBEs which submit a bid, to inquire about the details of the bid and confirm that the scope of the work was interpreted as intended.

2.4.2 Reporting SBE Utilization and Good Faith Efforts

The Small Business Enterprise Compliance Report is to be submitted by the bidder in a separate sealed envelope marked: **"ENVELOPE 2 - SBE COMPLIANCE REPORT."** This report is due by the specified bid closing time and date. Bids submitted without a completed SBE Compliance Report as outlined below shall be deemed non-responsible and the bidder ineligible for award of this contract.

2.4.2.1 If the Bidder meets or exceeds the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

2.4.2.1.1 **Cover Page,** Page C-7; and
2.4.2.1.2 **Summary Sheet,** C-8.

2.4.2.2 If the bidder does not meet the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

2.4.2.2.1 **Cover Page,** Page C-7;
2.4.2.2.2 **Summary Sheet,** C-8; and
2.4.2.2.3 **SBE Contact Report,** C-9 and C-10. (A separate Contact Report must be completed for each applicable SBE which is not utilized.)

2.5 Appeal Procedure

A bidder which does not achieve the established goal and is deemed non-responsible for failure to demonstrate a good faith effort to achieve such goal and subsequently denied eligibility for award of contract may, within 72 hours of receiving such notification, appeal that decision to a special appeals committee composed of three (3) members of the Affirmative Action Commission, three (3) members of the Board of Public Works and a seventh member appointed by the Mayor. All appeals must be made in writing to the City Engineer and received within 72 hours of City of Madison's notice. Postmark not applicable.

2.6 SBE Requirements After Award of the Contract

The successful bidder shall identify SBE subcontractors, suppliers and vendors on the subcontractor list in accordance with the specifications. The Contractor shall submit a detailed explanation of any variances between the listing of SBE subcontractors, vendors and/or suppliers on the subcontractor list and the Contractor's SBE Compliance Report for SBE participation.

No change in SBE subcontractors, vendors and/or suppliers from those SBEs indicated in the SBE Compliance Report will be allowed without prior approval from the Engineer and the Affirmative Action Division. The contractor shall submit in writing to the City of Madison Affirmative Action Division a request to change any SBE citing specific reasons which necessitate such a change. The Affirmative Action Division will use a general test of reasonableness in approving or rejecting the contractor's request for change. If the request is approved, the Contractor will make every effort to utilize another SBE if available.

The City will monitor the project to ensure that the actual percentage commitment to SBE firms is carried out.

2.7 SBE Definition and Eligibility Guidelines

A Small Business Enterprise is a business concern awarded certification by the City of Madison. For the purposes of this program a Small Business Enterprise is defined as:

A. An independent business operated under a single management. The business may not be a subsidiary of any other business and the stock or ownership may not be held by any individual or any business operating in the same or a similar field. In determining whether an entity qualifies as a SBE, the City shall consider all factors relevant to being an independent business including, but not limited to, the date the business was established, adequacy of its resources for the work in which it proposes to involve itself, the degree to which financial, equipment leasing and other relationships exist with other ineligible firms in the same or similar lines of work. SBE owner(s) shall enjoy the customary incidents of ownership and shall share in the risks and profits commensurate with their enjoyment interests, as demonstrated by an examination of the substance rather than form or arrangements that may be reflected in its ownership documents.

B. A business that has averaged no more than $4.0 million in annual gross receipts over the prior three year period and the principal owner(s) do not have a personal net worth in excess of $1.32 million.

Firm and/or individuals that submit fraudulent documents/testimony may be barred from doing business with the City and/or forfeit existing contracts.

SBE certification is valid for one (1) year unless revoked.

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

Small Business Enterprise Compliance Report

Cover Sheet

This information MUST be submitted in a separate sealed envelope marked "ENVELOPE NO. 2 - SBE COMPLIANCE REPORT."

Prime Bidder Information:

Company:_____

Address:_____

Telephone Number:_____ Fax Number:_____

Contact Person/Title:_____

Prime Bidder Certification:

I, _____, _____ of
Name Title

_____ certify that the information
Company

contained in this SBE Compliance Report is true and correct to the best of my knowledge and belief.

_____ _____
Witness' Signature Bidder's Signature

_____
Date

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

Small Business Enterprise Compliance Report

Summary Sheet

This information MUST be submitted in a separate sealed envelope marked "ENVELOPE NO. 2 - SBE COMPLIANCE REPORT."

SBE SUBCONTRACTORS WHO ARE NOT SUPPLIERS

Name(s) of SBEs Utilized	Type of Work	% of Total Bid Amount

Subtotal SBE who are not suppliers: _____ %

SBE SUBCONTRACTORS WHO ARE SUPPLIERS

Name(s) of SBEs Utilized	Type of Work	% of Total Bid Amount

Subtotal Contractors who are suppliers: _____ % x 0.6 = _____ % (discounted to 60%)

Total Percentage of SBE Utilization: _____%.

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

Small Business Enterprise Compliance Report

SBE Contact Report

This information MUST be submitted in a separate sealed envelope marked "ENVELOPE NO. 2 - SBE COMPLIANCE REPORT."

Submit separate copy of this form for each SBE which you are not able to utilize towards meeting the SBE goal for this project. Attach separate sheets if necessary.

SBE Information:

Company:_____

Address:_____

Telephone Number:_____

Contact Person/Title:_____

1. Outline below all efforts to solicit a bid from the above SBE. Include date, means of contact, who from your company made this contact and the result.

_____

_____

_____

2. Describe the information provided to the aforementioned SBE regarding the scope of work for which he/she was to provide a bid.

_____

_____

_____

Is this the same scope of work on which the subcontractor you intend to utilize based his/her bid?

☐ Yes ☐ No

3. Did this SBE submit a bid? ☐ Yes ☐ No

4. Is the General Contractor pre-qualified to self-perform this category of work?

☐ Yes ☐ No

5. If you responded "Yes" to Question 3, please check the items below which apply and provide the requested detail. If you responded "No" to Question 3, please skip ahead to item 6 below.

☐ The SBE listed above is unavailable for work on this project for the following reasons. Provide specific detail for this conclusion.

_____

_____

☐ The SBE listed above is unqualified for work on this project. Provide specific details for this conclusion.

_____

_____

☐ The SBE listed above provided a price that was unreasonable (i.e. more than 5% above the lowest bidder). Provide specific detail for this conclusion including the SBE's price and the price of the subcontractor you intend to utilize.

_____

_____

☐ A contract with the SBE listed above may constitute a breach of the bidder's collective bargaining agreements. Provide specific detail for this conclusion including, but not limited to, correspondence from the SBE indicating it will not sign a project labor agreement and/or correspondence from the applicable trade union indicating a project labor agreement will not be allowed at the time of project bidding.

_____

_____

☐ Other; please specify reason(s) other than listed above which made it impossible for you to utilize this SBE on this project.

_____

_____

6. Describe any other good faith efforts:

_____

_____

SECTION D: SPECIAL PROVISIONS

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

It is the intent of these Special Provisions to set forth the final contractual intent as to the matter involved and shall prevail over the Standard Specifications and plans whenever in conflict therewith. In order that comparisons between the Special Provisions can be readily made, the numbering system for the Special Provisions is equivalent to that of the Specifications.

Whenever in these Specifications the term "Standard Specifications" appears, it shall be taken to refer to the City of Madison Standard Specifications for Public Works Construction and Supplements thereto.

SECTION 102.10: MINIMUM RATE OF WAGE SCALE

For this project, payment of prevailing wages (white sheet) is not required if either: a single trade accounts for 85% or more of the total labor costs of the project and the bid is less than $48,000; or no single trade accounts for 85% or more of the total labor costs of the project and the bid is less than $100,000. For bids not meeting either of these conditions, prevailing wages shall be required.

If required, the wages and benefits paid on the contract shall not be less than those specified in the Prevailing Wage Determination included with these contract documents for the following types of work:

- ☒ Building and Heavy Construction
- ☐ Sewer, Water, and Tunnel Construction
- ☐ Local Street and Miscellaneous Paving Operations
- ☐ Residential and Agricultural Construction

All bidders are notified that all labor employed on City contracts must be paid in accordance with the minimum rate of wage scale included in the Contract Documents.

For the information of the employees working on the project, a copy of the wage scale included in the contract documents and the provisions of Section 66.0903(8) of the Wisconsin Statutes shall be kept posted by the employer and in at least one conspicuous and easily accessible place at the site of the project.

The Contractor shall keep weekly payroll records setting forth the name, address, telephone number, classification, wage rate and fringe benefit package of each employee who worked on such City project and all other projects the employee worked in the same period, and the Contractor must keep records of the individual time each employee worked on the project and for each day of the project. Such records shall also set forth the total number of hours of overtime credited to each such employee for each day and week and the amount of overtime pay received in that week. Such records shall, in addition, set forth the full weekly wages earned by each such employee and the actual hourly wage paid to that employee. The Contractor shall submit payroll records to the Engineer every week for those periods when work is being done on the project. Said submittal shall be within twenty-one (21) calendar days of the end of the Contractor's weekly pay period.

The Contractor shall ensure that employees shall be paid unconditionally and shall receive the full amounts accrued at the time of payment, computed at rates not less than those stated in the City of Madison "Minimum Rate of Wage Scale" and that each employee's rate shall be determined by the work that is done within the trade or occupation classification which should be properly assigned to such employee. Questions regarding an employee's classification or rate of pay within that classification, shall be resolved by the practice that predominates in the industry and on which the trade or occupation rate/classification is based. Therefore, rate of pay, classification and work jurisdiction disputes shall be resolved by relying upon practices established by collective bargaining agreements and guidelines used in such determinations by appropriate recognized trade unions operating within the City of Madison.

The Contractor shall agree that the normal rate of wage paid to the Contractor's employees on other projects shall not be reduced or otherwise diminished as a result of the requirement to pay no less than the minimum rate of wage scale on a City project. Mulcting of employees on City projects by contractors, such as by kickbacks or other such devices, is prohibited.

These contract provisions shall apply to all work performed on the contract by the Contractor with its own organization and with assistance of laborers under its immediate superintendency and to all work performed by piecework or by subcontract. No laborer, worker, or mechanic shall be employed directly upon the site of the work except on a wage basis, but this shall not be construed to prohibit the rental of equipment from individuals.

In the event of a refusal by the Contractor to submit payroll records as required by the contract, the City of Madison shall have the option to cancel this contract and request the Surety to perform or to relet the balance of the work for bids, and in that event, to charge the Contractor for any loss which the City may incur thereby.

SECTION 102.12: BEST VALUE CONTRACTING

This Contract shall be considered a Best Value Contract if the Contractor's bid is equal to or greater than $53,000 for a single trade contract; or equal to or greater than $257,500 for a multi-trade contract pursuant to MGO 33.07(7).

SECTION 105.1: AUTHORITY OF THE ENGINEER

The Engineer shall resolve all questions which arise as to the quality and acceptability of materials furnished, work performed, manner of performance, rate of progress of the work, interpretation of the plans and Specifications, acceptable fulfillment of the contract, compensation, and disputes and mutual rights between Contractors under the Specifications. The Engineer shall determine the amount and quantity of work performed and materials furnished.

All decisions of the Engineer shall, when so requested, be rendered in writing. They shall be final and conclusive in all matters unless within ten (10) days after such decision the Contractor applies in writing to the Board of Public Works for a review of such decision.

Any change proposed by a Contractor in SBE subcontractors, vendors or suppliers from those SBEs indicated on the SBE Compliance Report must be approved by the Engineer and the City's Manager of the Affirmative Action Division (hereafter, AAD). When requested, such decision shall be rendered in writing. Such decisions shall be final and conclusive in all matters unless within ten (10) days after such decision the Contractor or the affected SBE applies in writing to the Board of Public Works for a review of such decision.

In the event the Engineer and the AAD disagree over the proper decision to be made regarding an SBE, the Mayor shall appoint a third person to resolve the disagreement, within 30 days of appointment. The decision thus rendered may be reviewed by the Board of Public Works upon request of the Contractor or the affected SBE as set forth in Sections 105.1 and 105.2 of the City's standard specifications.

SECTION 109.2 PROSECUTION OF THE WORK

The Contractor shall begin work on or before **March 11th, 2013.** The total time of completion for the contract shall be **ONE HUNDRED SIXTY (160) CALENDAR DAYS.**

Work shall begin only after the start work letter is received. If it is desirable to begin work before the above-mentioned date, the Contractor shall establish a mutually acceptable date with the Project Manager.

PROJECT MANUAL

OLBRICH BOTANICAL GARDENS
ROOF REPLACEMENT

Madison, Wisconsin

December 11, 2012

DIMENSION IV
Madison Design Group
architecture · engineering · interior design

PROJECT MANUAL TITLE PAGE

PROJECT	**Olbrich Botanical Gardens Roof Replacement** **Madison, WI**
OWNER:	**City of Madison**
CONTACT:	Paul Stauffer, Project Manager Department of Public Works Engineering Division City-County Building, Room 115 210 Martin Luther King, Jr. Boulevard Madison, WI 53703 I 608.266.4366
ARCHITECT/STRUCTURAL ENGINEER (A/E):	**DIMENSION IV – MADISON DESIGN GROUP, LLC** Contact: Ron Siggelkow, AIA 6515 Grand Teton Plaza, Suite 120 Madison, Wisconsin 53719 I 608.829.4444, Ext. 20
STRUCTURAL ENGINEERING:	**ONEIDA TOTAL INTEGRATED ENTERPRISES (OTIE), INC.** Contact Name: James J. Hall, PE, SE 5100 Eastpark Boulevard, Suite 200 Madison, WI 53718 I 608.241.6717
LANDSCAPE ARCHITECT:	**THOMAS DUNBAR, FASLA** 2628 Blue Aster Boulevard Sun Prairie, WI 53590 I 608.381.0828
DATE OF PROJECT MANUAL:	December 11, 2012

END OF DOCUMENT 00001

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
MADISON, WISCONSIN
December 11, 2012

PROJECT SPECIFICATIONS

TABLE OF CONTENTS

SECTION 01 0002 – GENERAL REQUIREMENTS

PART 1 GENERAL

SCOPE

The work under this section includes general rules for the project. Included are the following topics:

PART 1 – GENERAL

1. Scope of Work
2. Pre-Bid Information
3. Commencement and Completion
4. Contacts
5. Qualifications of Bidder
6. Work by the City and City Furnished Equipment
7. Salvage Materials
8. Provisions for Future Work
9. Special Site Conditions
10. General
11. Guarantees
12. Sustainable Construction Methods and Materials
13. Schedule of Operations
14. Documents
15. References
16. Quality Control Requirements
17. Quality Assurance
18. Codes and Permits
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21. Operation and Maintenance Data
22. Safeguards – Existing Equipment, Underground Utilities and Artifacts
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PART 2 - PRODUCTS

1. Specified Items – Substitutes
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1. Installation
2. General Installation Methods
3. Delivery, Handling and Storage of Materials
4. Demolition and Recycling
5. Cutting, Patching and Painting
6. Excavation, Backfill, or Surface Restoration
7. Dewatering, Weather Protection
8. Sealing and Firestopping
9. Cleaning
10. Continuity of Service and Shutdown
11. Project Meetings
12. Temporary Construction
13. Identification
14. Lubrication
15. Punch List
16. Tests and Final Acceptance
17. Training and Demonstration
18. Fence
19. Roadway
20. Signs

1. SCOPE OF WORK

The scope of this project includes the replacement of approximately 19,500 square feet of a structural standing seam metal roof system with a structural deck system that supports an architectural copper standing and flat seam roof system. It shall include the addition of a structural support deck system that incorporates the addition of an optimal value of thermal insulation and all other components to achieve a waterproof roofing system that eliminates the occurrence of the existing ice damming conditions. The intent is to achieve an overall R-value of 30 or greater for the roof. Additionally, the approximately 1,000 square feet of single ply membrane roof system over the mechanical room will be replaced and the skylight in the entry area shall be replaced. The scope also includes roofing services for the restroom addition.

2. PRE-BID INFORMATION

A pre-bid meeting will be conducted at the job site, inside the main entry lobby of the facility to be reroofed, at 10 A.M. on Thursday, January 3, 2013. While attendance is not mandatory, it is highly encouraged. Failure to attend the pre-bid meeting does not in any way relieve bidder of responsibility for understanding the existing site conditions. Access to the building and grounds at times other than at the pre-bid meeting is very limited.

There will also be a pre-bid tour of the existing building at that time to provide bidders the opportunity to acquaint themselves with the project. A representative from the designer's office will be present to take questions that will be answered by addendum.

3. COMMENCEMENT AND COMPLETION

The successful Bidder must agree to commence the work on or before a date to be specified in a written "Start Work Letter" and to fully complete all the work within consecutive 150 calendar days thereafter.

4. CONTACTS

The City's designee for architectural and engineering is: Jim Gersich, AIA
Company: Dimension IV Madison Design Group
Address: Suite 120, 6515 Grand Teton Avenue, Madison
Phone: 608-829-4444 ext 24
Email: jgersich@dimensionivmadison.com

The City's designee for project management: Paul Stauffer
Company: City of Madison
Address: Room 115, 210 Martin Luther King Jr. Blvd.
Phone: 608-266-4366
Email: pstauffer@cityofmadison.com

The City's designee for the site contact/building is: Don Saunders, Facilities
Company: City of Madison, Olbrich Botanical Gardens
Address: 3330 Atwood Avenue, Madison, Wisconsin
Phone: 608-246-4711
Email: dsaunders@cityofmadison.com

5. QUALIFICATIONS OF BIDDER

By submitting the bid, the bidder certifies as to meeting the following requirements:
Metal roofing contractors experienced in flat seam and standing seam copper roofs, gutters, and downspouts.

Has completed one or more projects of at least 50% of the size or value of the division of work being bid and the type of work completed is similar to that being bid. If a greater magnitude of experience is deemed necessary, other than size or value of the work, such requirements will be described in the appropriate technical section of these specifications.

Has access to all necessary equipment and has organizational capacity and technical competence necessary to do the work properly and expeditiously.

Maintains a permanent place of business.

6. WORK BY THE CITY AND CITY FURNISHED EQUIPMENT

Not Applicable: No work or equipment will be provided by the City.

The following work will be accomplished by the City or will be let under separate contracts and will not be included under this Contract:

a. Construction of the (concurrent) toilet room addition up to and including its roof framing and purlins.
b. Furnishing leaf mulch, stock piled on the project site, for use by contractor in ground cover at planting beds.

7. SALVAGE MATERIALS

No materials removed from this project shall be reused except as specifically noted below. All materials removed shall become the property of and shall be disposed of by the Contractor. Refer also to recycling requirements.

The following material shall be removed from service and turned over to the City, at a site selected by the City, in the same condition as when it was removed: Existing snow slide guards and their attachment devices.

8. PROVISIONS FOR FUTURE WORK

Not Applicable: No provisions for future work are necessary.

9. SPECIAL SITE CONDITIONS

Unless otherwise noted, construction operations shall be limited to the hours between 7:30 a.m. and 6:00 p.m., Mondays through Fridays, except for holidays. A request must be made to the City at least forty-eight hours in advance for approval of work days or hours other than those stated above. Compliance is required with the City of Madison Noise Ordinance. It is the preference of the City that the work week consist of Mondays through Thursdays, except for holidays, since the buildings and grounds are heavily used by the public Fridays through Sundays, and on holidays.

Refer also to project drawings for required temporary facilities and controls. Furnish, install, and maintain all temporary fencing required for the duration of the project; after completion, remove temporary fencing and repair damage caused by same.

Limited site vehicle parking is available for Contractor's use. Two parking spaces will be provided for the contractor's use, as designated by the City and shown on the Drawings.

No permanently reserved on-site loading zone will be provided for Contractor's use. For loading and unloading, a driveway may occasionally be reserved for a short time duration (e.g. less than one day) if arranged in advance with the site contact.

No permanently reserved on-site space for trash and recycling containers will be provided. Refer to project Drawings where Contractor shall erect a temporary fenced area for all such items, including parking for contractors' and subcontractors' privately-owned vehicles.

Remainder of the building and site will be occupied during construction. Contractors shall take particular care to avoid disturbance and disruption to the existing building structure and to the ongoing activities of the occupants.

A temporary field office and temporary toilets are required. The Contractor's labor force may not use City facilities. The Contractor shall maintain the temporary toilets and other spaces provided by the City in clean and sanitary condition at all times.

10. GENERAL

The City of Madison Standard Publications for Public Works Construction – current Edition, as supplemented from time to time, forms a part of these contract documents as if attached hereto.

These Standard Specifications are available upon request form the City Engineer, City Engineering Division, Room 115, City County Building, 210 Martin Luther King Jr. Blvd., Madison, WI 53710. An electronic copy is available from the City Website http://www.cityofmadison.com/business/pw/specs.cfm. The Contractor shall review these specifications prior to preparation of proposal for the work to be done under this contract. Failure to do so does not relive the Contractor from meeting all requirements.

All articles in these General Requirements are applicable to all Divisions and Sections apply to each Division of these Specifications as fully as if repeated within that Division. The Conditions of the Contract, General and Supplementary General Conditions, and these General Requirements shall apply to the Contractor and engaged in this work. Items listed under Scope of Work for each Division of the Specifications are not necessarily all inclusive.

Portions of these specifications are of the abbreviated, simplified type and may include incomplete sentences. Omissions of words or phrases such as "the Contractor shall", "in conformity with", "shall be", "as noted on the drawings", "in accordance with details", are intentional. Omitted words or phrases shall be supplied by inference in the same manner, as they are when a note occurs on the drawings. Such terms as approved, reviewed, equal, as directed, as required, as permitted, acceptable, satisfactory mean by or to the City Engineer or designee.

These specifications and drawings are intended to include everything necessary to perform the entire work properly. Every item necessarily required might not be specifically mentioned or shown. Unless expressly stated, all systems and equipment shall be complete and operable. The words "furnish", "install", and "provide" shall mean the same in a sense that the Contractor shall furnish and install all the necessary materials, apparatus, and devices to complete the equipment and systems installation herein specified, except such parts as are specifically exempted herein. If an item is either called for in the specifications or shown on the plans, it shall be considered sufficient for the inclusion of said item in this contract. If a conflict exists within the Specifications or exists within the Drawings, the Contractor shall furnish the item, system, or workmanship, which is the highest quality, largest, largest quantity or most closely fits the City's intent. Materials and labor shall be new (unless noted or stated otherwise), first class, and workmanlike, and shall be subject at all times to the City's or designee's inspections, tests and approval from the commencement until the acceptance of the completed work. Whenever a particular manufacturer's product is named, it is intended to establish a level of quality and performance requirements unless more explicit restrictions are stated to apply. It must be understood that the details and drawings are diagrammatic. The Contractor shall verify all dimensions at the site and be responsible for their accuracy. If items are too large to fit into existing space Contractor shall provide smaller model of same type upon approval by The City at no cost to the City. All sizes as given are minimum except as noted. Prior to bidding bidder must visit site to become familiar and verify existing conditions. Failure to do so does not relieve the bidder from the responsibility to verify existing conditions, to point out errors in drawings or specifications or code violations.

Bidders shall bring inadequacies, omissions or conflicts to the City's attention at least ten (10) days before the date set for bid opening. Prompt clarification will be supplied to all bidders of record by addendum. Failure to request clarification or interpretation of the drawings and specifications will not relieve the successful Bidder of responsibility. Signing of the contract will be considered as implicitly denoting that the Contractor has thorough understanding of the scope of work and comprehension of the contract documents. The City is not responsible for verbal instructions.

Information pertaining to existing conditions that are described in the specifications or appear on the drawings is based on available records. While such data has been collected with reasonable care, there is no expressed or implied guarantee that conditions so indicated are entirely representative of those actually existing. This information is provided to inform the Contractor of known, existing conditions so that due diligence is taken by the Contractor to avoid damage. Where site observation or documents indicate existing underground utilities/services in close proximity (within four feet horizontally and/or four feet vertically) to necessary new construction work, the Contractor shall be responsible to test, probe or otherwise determine exact locations so as to prevent damage to such utilities/services.

It is expected that Contractors have access to their own cell phone for their own use. No additional telephone service will be provided.

The City will not furnish Watchpersons. The Contractor shall provide such precautionary measures, to include the furnishing of watchpersons if deemed necessary, to protect persons and property from damage or loss where the Contractor's work is involved.

Contractors shall cooperate with all the testing consultants and verify system completion to the testing consultants. Demonstrate the starting, interlocking and control features of each system so the testing Contractor can perform its work.

The Contractor resumes responsibility for all work specified in this contract except for work explicitly noted as be done by the City or a Contractor separately hired by the City. The Contractor shall immediately inform the City of the name of the person(s) designated as Superintendent representing the Contractor at the site.
The Contractor shall take complete charge of the work under this contract and coordinate the work of all trades on the project. All Contractors shall work in cooperation with the Contractor and with each other, and fit their work into the structure as job conditions may demand. The City shall make all final decisions as to the right-of-way and run of pipe, ducts, etc., at

prearranged meetings with responsible representatives of the Contractors involved. Contractor(s) shall coordinate the work with adjacent work with other Contractors prior to installation and shall cooperate with all other trades to facilitate the general progress of the work. The Contractor shall coordinate and schedule the work of all its subcontractors, and shall furnish all information required by them for proper scheduling and execution of the work. In the same manner, the Contractor shall coordinate the work with that of the City, and any other Contractor operating in the area, including reasonable adjustments of schedule in order to allow other Contractors or the City to do their work. Coordinate all work with other Contractors prior to installation. Any installed work that is not coordinated and that interferes with other Contractor's work shall be removed or relocated at the installing Contractor's expense.

Each trade shall afford all other trades every reasonable opportunity for the installation of their work and for the storage of their material. In no case will the Contractor(s) be permitted to exclude from the premises or work, any other Contractor or employees thereof, or interfere with any other Contractor in the executing or installation of their work. In case it is indicated which trade is responsible for which work, this is meant as a suggestion and it is the Contractor's responsibility in its contracts with subcontractors to clarify who ultimately will do the work. If conflicts arise between the Contractor and subcontractor about who is responsible for which work to be done it is the Contractor's responsibility to make sure the work gets done in time even if the dispute between Contractor and subcontractor gets settled later.

The City Engineer shall have the right to make final and binding decisions on disputes between the Contractor and any other subcontractor operating in the area regarding: (a) access to the site with work force, equipment, and/or materials to their work area or (b) their adjacent work areas.

The Contractor shall cooperate with other trades and City personnel in locating work in a proper manner. Should it be necessary to raise or lower or move longitudinally any part of the electrical or piping or ducting work to better fit the general installation, such work shall be done at no extra cost to the City, provided such decision is reached prior to actual installation. The Contractor shall check location of electrical outlets with respect to other installations before installing.

The Contractor shall provide and maintain in working order during the entire construction period, a minimum of three (3) fire extinguishers on each floor and roof level, including basement of the building, and one (1) in temporary office. Extinguishers shall be nonfreezing type such as A-B-C rated dry chemical, of not less than 10-pound capacity each. In addition, any subcontractor who maintains an enclosed shed on the site shall provide and maintain, in an accessible location, one or more similar nonfreezing type fire extinguisher in each enclosed shed.

The area to be set aside for the work under this contract is shown on the drawings, and the Contractor shall confine the construction to the immediate area within the construction limits. The Contractor shall immediately upon entering the site for purpose of beginning work, locate general reference points and take such action as is necessary to prevent their destruction. The Contractor shall lay out its work and be responsible for all lines, elevations and measurements of the building and other work executed under its Contract. The Contractor must exercise proper precaution to verify dimensions on the drawings before laying out work and will be held responsible for any error resulting from failure to exercise such precaution. The Contractor shall verify grades, lines, levels, locations, and dimensions as shown on drawings and report any errors or inconsistencies to the City before commencing work. Starting of work by the Contractor shall imply acceptance of existing conditions. Confine all operations, equipment, apparatus and storage of materials, to the immediate area of work to the greatest possible extent. Contractor shall ascertain, observe and comply with all rules and regulations in effect on the project site, including but not limited to parking and traffic regulations, use of walks, security restrictions and hours of allowable ingress and egress. Any special traffic control during construction involving lane closures shall be in accordance with the federal standard, Manual of Uniform Traffic Control Devices.

Using datum, the lot lines and present levels have been established as shown on the drawings. Other grades, lines, levels and benchmarks, shall be established and maintained by the Contractor, who shall be responsible for them. The Contractor shall make provision to preserve property line stakes, benchmarks, or datum point. If any are lost, displaced or disturbed through neglect of any Contractor, Contractor's agents or employees, the Contractor responsible shall pay the cost of restoration.

The City's payment and guarantee provisions and when and how the City will accept the work are listed in the Standard Specifications under Sections 105.15 and 110.5.

11. GUARANTEES

All work, material and equipment is guaranteed by the Contractor to be free of faults for at least one year or longer if specified elsewhere. This year begins from the date of final acceptance from the City, which is stated in the Standard Specifications under Section 105.16. The Contractor agrees to return to the project and commence work as directed upon notification by the City and will furnish at his own expense all necessary labor and material to make proper repairs or corrections made necessary by defective material or inferior workmanship furnished or performed under this contract. If a subcontractor is not complying, the Contractor is held responsible.

All corrections and repairs are to be made no more than 30 days after notification of the Contractor for equipment and material that is not critical to the operation of the building. Critical equipment and material, including but not limited to HVAC, roofing, electrical, shall be repaired or brought into temporary and safe working condition in less than 7 days and temporary alternatives have to be provided by the Contractor. If Contractor fails to do so the City reserves the right to perform the work himself or subcontract a different Contractor and charge the Contractor the full cost of the repair and correction and cost of any material, rental fee, labor and equipment to provide temporary relief and protection to enable safe operation of the building.

12. SUSTAINABLE CONSTRUCTION METHODS AND MATERIALS

All construction methods and materials shall meet these requirements unless specified differently elsewhere. Contractor is to provide all documentations, certifications and other material necessary to prove compliance to the City and third party certifiers.

Construction Activity Pollution Prevention:

- Stabilize any relocated and moved soil with fast growing grasses and place mulch (hay, woodchips, straw) on it to cover and hold soil
- Divert surface runoff from distributed areas into sediment basin or sediment traps with a mound of stabilized soil
- Construct posts with filter fabric media to remove sediment from stormwater leaving the site.

Site Development:

- Follow requirements in site development plan and don't disturb areas beyond the marked areas

Construction Waste Management:

- Recycle all recyclable material. This includes any material for which there is a recycling facility in Wisconsin.
- Separate all waste material in plastic, metal, paper, acoustical tile, brick, concrete, clean wood, glass, gypsum drywall, carpet and insulation and provide designated on-site collection areas in dumpsters.
- Keep track of volume and weight of each material and track if it was recycled or disposed otherwise.
- Keep track of volume and weight of donated material and any reused on site
- Haul all recyclable material to recycling facility at no cost to the City.
- It is permissible to separate waste off-site by specialized recycling contractor. This contractor needs to be provide proof of recycling and needs to be WASTECAP certified as "Accredited Professional in Construction and Demolition Debris Recycling".

Indoor Air Quality:

- All to be connected to the indoor air path are to be protected from dirt and debris.

13. SCHEDULE OF OPERATIONS

Within 10 calendar days after the effective date of Start Work Letter, the Contractor shall provide a critical path method (CPM) network diagram and a preliminary construction progress schedule covering Contractor operations for the entire 150 calendar days. The diagram shall show the order in which the Contractor proposes to accomplish the work. The CPM shall show interdependence and duration, along with installation man-hours by craft of each activity. Any work element longer than 15 days shall be broken down into component parts. The critical path and float for each activity shall also be shown. The diagram or bar chart shall be neatly lettered and legibly drawn to a time scale. The preliminary progress schedule shall be a bar graph or an arrow diagram showing the times the Contractor intends to commence and complete the various work stages, with operations and contract items planned to start during the entire project duration.

Install work in phases to accommodate City's occupancy requirements. During the construction period, coordinate on a daily basis, all operations with the City.

Existing buildings and grounds, heavily used by public:

- All weekends, starting at 6:00 a.m. Fridays, plus holidays.
- Saturday, April 20, 2013 through Sunday, May 29, 2013.

- Friday, May 10, 2013 through Sunday, May 12, 2013 (annual plant sale and Mother's Day weekend).
- Friday, May 24, 2013, through Monday, May 27, 2013 (Memorial Day weekend).
- Friday, June 14, 2013, through Sunday, June 16, 2013 (Rhapsody in Bloom event).
- Wednesday, July 17, 2013, through Sunday, August 11, 2013, (Blooming Butterflies event).

After the initial schedule submittal, the Contractor shall update the schedule monthly by entering actual progress for the period and submit copies as part of the payment request.

PHASING REQUIREMENTS

1. Start Work Letter issued on Monday, March 11, 2013.
2. Pre-Construction Conference on Monday, March 11, 2013.
3. Skylight Replacement: Shop drawings prep and approval = 2 weeks (weeks of March 11 and March 18).
4. Skylight Replacement: Skylight fabrication = 2 weeks (weeks of March 25 and April 1)
5. Skylight Replacement: Skylight delivery, stockpiling, install safety protection = 1 week (week of April 8).
6. Skylight Replacement: Installation of skylight and removal of safety protection = 1 week (week of April 15).
7. The Commons: Steel shop drawings prep and approval = weeks of March 11 and March 18.
8. The Commons: Steel fabrication = weeks of March 25 and April 1.
9. The Commons: Steel delivery, stockpiling = 1 week (week of April 8).
10. The Commons: Installation of steel = 3 days (April 15, 16, and 17).
11. The Commons: Installation of ceilings = 2 days (April 18 and 19).
12. Exterior Work & Toilet Addition Shell & Core: Shop drawings prep and approvals = 6 weeks (March 11 through April 19).
13. Install fenced enclosure in ice skating pond: Week of April 15.
14. Exterior Work & Toilet Addition: Partial product deliveries and stockpiling = 4 weeks (April 22 through May 17).
15. Exterior Work & Toilet Addition: Mobilize site and install phase 1A fencing = 1 week (May 13 through May 17).
16. Exterior Work & Toilet Addition: Initial copper deliveries = 1 week (May 13 through May 17).
17. Exterior Work & Toilet Addition: Toilet rooms shell and core addition = 8 weeks (May 20 through July 12).
18. Exterior Work: Phase 1 Reroof HeadHouse = 2 weeks (May 20 through May 31).
19. Exterior Work: Phase 2 Reroof Front Entry Area = ~2 weeks (June 3 through June 13).
20. Exterior Work: Phase 3 Reroof Backside of The Commons, including enclosure of The Commons west wall clerestory windows, and Courtyard = 3 weeks (June 24 through July 12).
21. Exterior Work & Toilet Addition Roof: Phase 4 Reroof The Commons, Main Building, and Toilets Addition = 3 weeks (July 15 through August 2).
22. Exterior Work: Phase 5 Demobilize Site, Landscaping and Cleanup = 1 week (August 5 through 9).
23. Substantial Completion: August 9, 2013.

14. DOCUMENTS

All electronic files used or created for this project become property of the City. All files have to be submitted to the City upon request and once each phase (design, construction) is completed. Only Microsoft Office, PDF, and AutoCAD version 2008 and lower documents are acceptable. All documents that once existed in Microsoft or AutoCAD version must be submitted in such. AutoCAD files have to be submitted in original drawing form for further use in future projects. Sheet-set files alone will not be sufficient. All AutoCAD files must be submitted as PDF in addition. The Contractor can use CAD files and other files necessary for this project upon request.

The City or designee will provide the Contractor with a suitable set of Contract Documents on which daily records of changes and deviations from contract shall be recorded. Dimensions and elevations on the record drawings shall locate all buried or concealed piping, conduit, or similar items.

The daily record of changes shall be the responsibility of Contractor's field superintendent. No arbitrary mark-ups will be permitted. During the first week of each month, the Contractor shall present, at the project site, the job copy showing variations and changes to date to the City for review.

During first week of each month, the Contractor shall present at the project site all changes to architectural/engineering plans for review. At completion of the project, the Contractor shall submit the marked-up record drawings to the City prior to final payment.

Contractor shall provide list with all equipment installed. This list shall contain, but not limited to, type, make and special product key and number. For grant purposes the contractor may have to provide detailed information about equipment installed and labor provided to third party institutions, such as Focus on Energy.

15. REFERENCES

This section specifies administrative requirements for compliance with standards.

Definitions:

1. "Indicated" refers to graphic representations, notes or schedules on the Drawings or other Paragraphs or Schedules in Specifications and similar requirements in Contract Documents. Where terms such as shown, noted, scheduled and specified are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.
2. The term "furnish" is used to mean supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and similar operations.
3. The term "install" is used to describe operations at project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations.
4. The term "provide" means to furnish and install, complete and ready for the intended use.

Industry Standards:

1. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
2. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
3. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
4. Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations as referenced in the Contract Documents are defined to mean the associated names. Names and addresses are subject to change and are believed to be, but are not assured to be, accurate and up-to-date as of date of Contract Documents.

AA ALUMINUM ASSOCIATION
818 Connecticut Avenue, N.W.
Washington, DC 20006

AABC ASSOCIATED AIR BALANCE COUNCIL
100 Vermont Avenue, N.W.
Washington, DC 20005

ACI AMERICAN CONCRETE INSTITUTE
Box 19150, Redford Station
Detroit, MI 48219

ADC AIR DIFFUSION COUNCIL
435 North Michigan Avenue
Chicago, IL 60611

AGC ASSOCIATED GENERAL CONTRACTORS OF AMERICA
1957 E. Street, N.W.
Washington, DC 20006

AISC AMERICAN INSTITUTE OF STEEL CONSTRUCTION
1221 Avenue of the Americas
New York, NY 10020

AISI AMERICAN IRON & STEEL INSTITUTE
1000 16th Street, N.W.
Washington, D.C. 20036

AMCA AIR MOVEMENT & CONTROL ASSOCIATION
30 West University Drive
Arlington Heights, IL 60004

ANSI AMERICAN NATIONAL STANDARDS INSTITUTE
1430 Broadway
New York, NY 10018

APA AMERICAN PLYWOOD ASSOCIATION
Box 11700
Tacoma, WI 98411

ARI AIR CONDITIONING & REFRIGERATION INSTITUTE
1815 North Fort Myer Drive
Arlington, VA 22209

ASHRAE AMERICAN SOCIETY OF HEATING, REFRIGERATION & AIR CONDITIONING ENGINEERS
345 East 47th Street
New York, NY 10017

ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS
345 East 47th Street
New York, NY 10017

ASTM AMERICAN SOCIETY FOR TESTING & MATERIALS
1916 Race Street
Philadelphia, PA 19103

AWI ARCHITECTURAL WOODWORK INSTITUTE
2310 South Walter Reed Drive
Arlington, VA 22206

AWPA AMERICAN WOOD-PERSERVERS ASSOCIATION
7735 Old Georgetown Road
Bethesda, MD 20014

AWS AMERICAN WELDING SOCIETY
2501 NW 7th Street
Miami, FL 33125

CRSI CONCRETE REINFORCING STEEL INSTITUTE
933 Plum Grove Road
Schaumburg, IL 60195

FS FEDERAL SPECIFICATION GENERAL SERVICES ADMINISTRATION
SPECIFICATIONS and CONSUMER INFORMATION
Distribution Section (WFSIS)
Washington Navy Yard, Bldg. 197
Washington, DC 20407

IEEE INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS
345 East 47th Street
New York, NY 10017

IMIAC INTERNATIONAL MASONRY INDUSTRY ALL-WEATHER COUNCIL
INTERNATIONAL MASONRY INSTITUTE
823 15th Street, N.W.
Washington, DC 20005

NAAMM NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS
221 North LaSalle Street
Chicago, IL 60601

NEBB NATIONAL ENVIRONMENTAL BALANCING BUREAU
8224 Old Courthouse Road
Vienna, VA 22180

NEMA NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
2101 L Street, N.W.
Washington, DC 20037

NFPA NATIONAL FIRE PROTECTION ASSOCIATION
Battery March Park
Quincy, MA 02269

PCA PORTLAND CEMENT ASSOCIATION
5420 Old Orchard Road
Skokie, IL 20076

PCI PRESTRESSED CONCRETE INSTITUTE
20 North Wacker Drive
Chicago, IL 60606

SMACNA SHEET METAL & AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
8224 Old Courthouse Road
Vienna, VA 22180

SDI STEEL DECK INSTITUTE
P.O. Box 25
Fox River Grove, IL 60021

SSPC STEEL STRUCTURES PAINTING COUNCIL
4400 Fifth Avenue
Pittsburgh, PA 15213

TCA TILE COUNCIL OF AMERICA, INC.
Box 326
Princeton, NJ 08540

UL UNDERWRITER'S LABORATORIES, INC.
333 Pfingston Road
Northbrook, IL 60062

16. QUALITY CONTROL REQUIREMENTS

Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
3. Specific test and inspection requirements are not specified in this Section.

Definitions:

1. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
2. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
3. Field Quality-Control Testing: Tests and inspections that are performed on site for installation of the Work and for completed work.
4. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
5. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
6. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
   a. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.
7. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

Conflicting Requirements:

1. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
2. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

Reports and Documents:

Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

a. Date of issue.
b. Project title and number.
c. Name, address, and telephone number of testing agency.
d. Dates and locations of samples and tests or inspections.
e. Names of individuals making tests and inspections.
f. Description of the Work and test and inspection method.
g. Identification of product and Specification Section.
h. Complete test or inspection data.
i. Test and inspection results and an interpretation of test results.
j. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
k. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
l. Name and signature of laboratory inspector.
m. Recommendations on retesting and reinspecting

Quality Assurance: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual specification sections may specify additional requirements.

1. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
2. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

3. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
4. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
   a. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
   b. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
5. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
6. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

Quality Control:

1. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
   a. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
   b. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
2. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
   a. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
   b. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
   c. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
   d. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
   e. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
3. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section "Submittal Procedures."
4. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
5. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
   a. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
   b. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
   c. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
   d. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
   e. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
   f. Do not perform any duties of Contractor.

6. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
   a. Access to the Work.
   b. Incidental labor and facilities necessary to facilitate tests and inspections.
   c. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
   d. Facilities for storage and field curing of test samples.
   e. Delivery of samples to testing agencies.
   f. Preliminary design mix proposed for use for material mixes that require control by testing agency.
   g. Security and protection for samples and for testing and inspecting equipment at Project site.
7. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
   a. Schedule times for tests, inspections, obtaining samples, and similar activities.

Testing and Inspection Log:

1. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
   a. Date test or inspection was conducted.
   b. Description of the Work tested or inspected.
   c. Date test or inspection results were transmitted to Architect and Construction Manager.
   d. Identification of testing agency or special inspector conducting test or inspection.

2. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Construction Manager's reference during normal working hours.

Repair and Protection: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with Cutting and Patching section. Protect construction exposed or for quality-control service activities. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

17. QUALITY ASSURANCE

Any installed material not meeting the specification requirements must be replaced with material that meets these specifications without additional cost to the City.

All products and materials used are to be new, undamaged, clean and in good condition. Existing products and materials are not to be reused unless specifically indicated.

Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the Contractor is responsible for all costs involved in integrating the equipment or accessories into the system and for obtaining the performance from the system into which these items are placed.

Welding procedures, welders, and welding operators for all building service piping to be in accordance with certified welding procedures of the National Certified Pipe Welding Bureau and Section 927.5 of ASME B31.9 Building Services Piping or AWS 10.9 Qualification of Welding Procedures and Welders for Piping and Tubing. Before any metallic welding is performed, Contractor to submit his Standard Welding Procedure Specification together with the Procedure Qualification Record as required by Section 927.6 of ASME B31.9 Building Services Piping. Before any metallic welding is performed, Contractor to submit his Standard Welding Procedure Specification together with the Procedure Qualification Record as required by Section IX of the ASME Boiler and Pressure Vessel Code and/or the National Certified Pipe Welding Bureau. Before any polyethylene fusion welding is performed, Contractor to submit certification that the welders to be used on this project have successfully demonstrated proper welding procedures in accordance with the Code of Federal Regulations, Title 49, Part 192, Section 192.285.

Contractor shall assume the responsibility for the protection of all finished construction under the Contract and shall repair and restore any and all damage of finished work to its original state. Wheeling of any loads over any type of floor, either with or without plank protection, will be permitted only in rubber-tired wheelbarrows, buggies, trucks or dollies. Where structural

concrete is also the finished surface, care must be taken to avoid marking or damaging those surfaces. All structures and equipment shall be constructed, installed and operated with guards, controls and other devices in place.

Contractor shall obtain complete data at the site and inspect surfaces that are to receive the Work before proceeding with fabricating, assembling, fitting or erecting any work under this contract. Contractor shall notify the City in writing in case of discrepancies between existing work and drawings, and of any defects in such surfaces that are to receive the Contractor's work. The City will evaluate the notice and direct what remedial action will be taken.

Starting of work implies acceptance of existing work or the work of others. Removal and replacement of work applied to defective surfaces, in order to correct defects, shall be done at the expense of the Contractor who applied work to defective surfaces.

The Contractor shall:

- Provide, erect and maintain all required planking, barricades, guard rails, temporary walkways, etc., of sufficient size and strength necessary for protection of stored material and equipment; paved surfaces, walks, curbs, gutters and drives; streets adjacent to or within project area; adjoining property and all project work to prevent accidents to the public and the workmen at the job site.
- Notify adjacent property owners if their property interferes with the work so that arrangements for proper protection can be made.
- Provide and maintain proper shoring and bracing. Provide temporary protection around openings.
- Provide protection against rain, snow, wind, ice, storms, or heat to maintain all work, materials, apparatus, and fixtures, incorporated in the work or stored on the site, free from injury or damage. At the end of the day's work, cover all new work likely to be damaged. Remove snow and ice as necessary for safety and proper execution of the work.
- Protect the building and foundations from damage at all times from rain, ground water and back up from drains or sewers. Provide all equipment and enclosures as necessary to provide this protection.
- Damaged property shall be repaired or replaced in order to return it to its original condition. Damaged lawns shall be replaced with sod.
- Protect materials, work and equipment, not normally covered by above protection, until construction proceeds to a point where the general building protection of the area where located, dispenses with the necessity therefore. Protect work outside of the building lines, as specified above.
- Take all necessary precautions to protect the City's property as well as adjacent property, including trees, shrubs, buildings, sanitary and storm sewers, water piping, gas piping, electric conduit or cable, etc., from any and all damage which may result due to work on this project.
- Repair work outside of property line in accordance with the requirements of the authority having jurisdiction.
- Repair any work, damaged by failure to provide proper and adequate protection, to its original state to the satisfaction of the City or remove and replace with new work at the Contractor's expense.
- Protect trees indicated on the drawings to remain and trees in locations that would not interfere with new construction, from all damage. Do not injure trunks, branches, or roots of trees that are to remain. Do cutting and trimming only as approved and as directed by the City.
- The value of trees destroyed or damaged will be charged against the account of the Contractor responsible for the damage in an amount equal to the expense of replacing the trees with those of similar kind and size. Note: Some trees and shrubs, indicated on the Drawings as required to be protected, are unique species and expensive, if not impossible, to replace.

The contractor shall be fully responsible for inspecting the work of its suppliers, and subcontractors to assure that the work complies with the standards for materials and workmanship required by the contract documents.

The Contractor shall:

- Monitor quality control over subcontractors, suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of the quality specified in the contract documents.
- Comply fully with manufacturer's instructions, including each step in sequence.
- Request clarification from the City before proceeding with work when manufacturers' instructions or reference standards conflict with Subcontract Documents.
- Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or manufactures instructions require more precise workmanship.
- Ensure that work is performed by persons specializing in the specific trade and class of work required, and qualified to produce workmanship of specified quality.

- Secure products in place with positive anchorage devices designed and sized to withstand seismic, static and dynamic loading, vibration, physical distortion or disfigurement.
- Secure stockpiled material against theft.

If reference standards or manufacturers' instructions contain provisions that would alter or are at variance with relationships between the parties to the contract set forth in the contract Documents, the provisions in the contract Documents shall take precedence.

When required by individual Specification sections, Contractor shall provide the following services from a manufacturer's representative:

- Review of Specifications and design and concurrence or suggestions for modification.
- Site observation of conditions of use and substrate.
- Observation of the installation work in progress and on completion.
- Instruction to the City in operation and maintenance.
- Provide written signed report by manufacturer's representative documenting services provided and any comments or recommendations.

The work will be inspected by City inspectors and/or independent inspection service personnel under coordination of the City. All work is subject to inspection and shall remain accessible and exposed until it has been inspected by the City. Any work covered up or made inaccessible before such inspection shall be uncovered and made accessible without additional expense to the City. The City can request inspection of delivered material to confirm meeting of standards and specifications. An installation under supervision of the City can be requested to check proper installation. Contractor is to grant access to all material and finished and unfinished work at any time upon request. At least 3 business days notice has to be given to the City prior to arrival of material and equipment to be inspected.

Inspection or testing performed by the City Engineer or his designee shall not relieve the Contractor from responsibility for performing his own quality control and for complying with the requirements of the contract Documents. The City will not be responsible for the Contractor's failure to carry out work in accordance with the contract Documents.

Cooperate and arrange meetings with City or designee. Fill out and submit all documents required. Checklists need to be filled out truthfully at the time indicated. This includes but is not limited to delivery checklist (at time of delivery), and installation checklist (at time of installation).
Commissioning involves among other things:

- Inspection of material arriving at site regarding right type, number and undamaged package and proper storage.
- Inspection of installation
- Test of proper function
- Review of Training and submitted O&M material
- Test of proper function before end of warranty period

18. CODES AND PERMITS

Applicable provisions of Public Law, the Constitution and Laws and Statutes of the State of Wisconsin and the codes and regulations of the Department of Energy are hereby referred to and made a part of this contract and all work performed shall be in accordance with such laws, regulations and the latest edition or supplement or amendment thereto in effect at the time of submittal of bid shall be considered to be the issue in effect (unless shown otherwise) of all applicable codes including, but not limited to:

1. Wisconsin Building Code
2. Wisconsin Electrical Code
3. Wisconsin Mechanical Code
4. Wisconsin Plumbing Code
5. Wisconsin Energy Code
6. Wisconsin Fire Code
7. NFPA 70 National Electrical Code
8. General Services Administration 41 CFR Part 101-19
9. Americans with Disabilities Act (ADA)
10. Energy Conservation Performance Standards
11. Local Codes and Ordinances

Contractor is expected to know or to ascertain, in general and in detail, the requirements of all codes and ordinances, and all rulings and interpretations of code requirements being made by all authorities having jurisdiction over the work performed by them, applicable to the construction and operation of systems covered by this contract. Where codes or standard specifications other than those listed in this paragraph are referred to in the different Divisions of these specifications, it is understood that they apply as fully as if cited here. Where differences exist between codes affecting this work, the code affording the greatest protection to the City shall govern.

Maintenance clearances shall be maintained around equipment as required by the Codes and Standards, and as recommended by the equipment manufacturers. The maintenance envelope and equipment access shall be kept clear of any obstruction. It is Contractor's responsibility to enforce these requirements with all the Contractors. The Contractor shall be responsible for correcting any infringement on this requirement at no cost to the City.

All cost for items and procedures necessary to satisfy requirements of all applicable codes, ordinances and authorities, whether or not these are specifically covered by drawings or specifications. All cases of serious conflict or omission between the drawings, specifications, and codes shall be brought to the City's attention as herein before specified. The Contractor shall carry out work and complete construction as required by applicable codes and ordinances and in such a manner as to obtain approval of all authorities whose approval is required.

Contractor is responsible for obtaining permits at its own cost including expenses for supporting documents. Deliver original permits to the City before work starts. Obtain and pay for all required installation inspections except those provided by the City. Deliver originals of these certificates to the City. Include copies of the certificates in the Operating and Maintenance Instructions. Contractor shall arrange all required inspections and correct all deficiencies at no cost to the City.

The Contractor must maintain all licenses required for the work performed and required by authorities. In addition all licenses and certificates required elsewhere have to be maintained. If a Contractor loses a license for whatever reason he must inform the City immediately after learning about that himself. The Contractor must submit proof of holding the license or certificate upon request.

19. SUBMITTALS

Documents have to be submitted in electronic form (PDF) as described elsewhere in addition to hardcopies no later than 3 business days after start work letter is issued. The City or designee will review, and process shop drawings and other required submittals with reasonable promptness. No delay will be allowed in the progress of the job attributable to Contractor's failure to supply submittals in time.

The Contractor shall submit three (3) prints of all shop drawings, submittal data consisting of brochures, catalogs, material lists, wiring diagrams, Material Safety Data Sheets (MSDS), samples, erection drawings, and equipment layouts for review by the City Engineer or his designee. General catalog sheets showing a series of the same device is not acceptable unless the specific model is clearly marked. Submittals shall be processed with such promptness as not to cause delay to the work or to that of any other Contractor. Each submittal shall be provided together with a transmittal letter or form. Each original transmittal shall be assigned a transmittal number. The number shall begin with the first initial of the name of the Contractor's firm followed by a serial number. The re-submittals shall indicate the same number with numerical suffix in sequence. Each transmittal shall itemize the enclosures and indicate the distribution of the transmittal and the enclosures. The following information shall be included on all submitted documents: Agency/Location/Address obtained, project number, building name, project name. Submittals shall be grouped to include complete submittals of related systems, products, and accessories in a single submittal. Mark dimensions and values in units to match those specified.

Submit all original documents providing information regarding sustainability requirements including but not limited to recycled content, VOC, certified wood, disposal certificates and transportation distance. Contractor is required to prove that material and methods used meet all requirements specified elsewhere.

The City or designee will return the marked and stamped drawings together with transmittal letter or form to Contractor. If re-submittal is required, the City Engineer or designee will so note and Contractor shall make another submission for review after correction resolving the review comments on the prior submittals. The above procedure shall be repeated until the City Engineer or designee favorably reviews the submittal. The submittals must be approved before material is ordered and fabrication is authorized.

The City Engineer's or designee's favorable review of shop drawings and other submittals shall not relieve the Contractor of responsibility for deviations from drawings or specifications, unless the Contractor has in writing called the City Engineer's or

designee's attention to such deviations at the time of submission, and the City Engineer or designee has acknowledged in writing such deviations; nor shall it relieve the Contractor from responsibility for errors of any sort in such drawings. If deviations, discrepancies, or conflicts between shop drawing submittals and the drawings and specifications are discovered either prior to or after the shop drawing submittals are reviewed by the City Engineer or designee, the drawings and specifications shall control and shall be followed. The Contractor shall be responsible for and shall check the correctness of all documents including those subcontractors prior to submitting them to the City for review.

The Contractor shall furnish prints of the favorably reviewed final shop drawings, erection drawings, equipment layouts and vendor data to subcontractors and suppliers for the proper coordination of their work. The Contractor shall keep one (1) complete set of the above documents at the job site for the use of the City.

After the completion of the project, and prior to final payment, submit:

- One (1) copy of the Waste Manifest Records to the The City, if required in accordance with "Safety and Environment" Requirements Article "HAZARDOUS SUBSTANCES".
- The original and one (1) copy of all guarantee/warranty documents.

20. DRAWINGS AND SPECIFICATIONS

Drawings indicate approximate locations of the various items. These items are shown approximately to scale and attempt to show how these items should be integrated with building construction. Locate all the various items on-the-job measurements in conformance with code and cooperation with other trades.

Before locating items, confer with the City as to desired location in the various areas. In no case items shall be located by scaling drawings. Contractor must relocate items and bear cost of redoing work or other trades' work necessitated by failure to comply with this requirement.

If electrical items are to be relocated within 10 feet of location shown on drawings and Contractor is informed before work is begun on this portion of the job, the relocation shall be at Contractor's expense.

Standard Specifications: Standard Specifications such as ANSI, AASHO, AWWA, AISC, Commercial Standards, Federal Specifications, NEMA, UL, and the like incorporated in the requirements by reference shall be those of the latest edition at time of receiving bids, unless otherwise specified. The manufacturers, producers and their agents of required materials shall have such specifications available for reference and are fully familiar with their requirements as pertains to their product or material.

Contract Drawings and Specifications on the Job: contract drawings shall be kept on the job by the Contractor shall include at least one copy of Drawings and Specifications, all approved shop and erection drawings and schedules, lists of materials and equipment, as-built drawings, addenda and bulletins, documents relevant to the work.

Maintain a complete, precise, accurate dimensioned record of actual locations of the work, including concealed and embedded work, size and type of equipment, and every change or deviation from original contract drawings at the site. Keep this record legible and correct weekly as the job progresses on black or blue-line prints. Keep Record Drawings available for inspection at all times. Drawings will be inspected before approval of requests for payment.

It shall be the responsibility of the Contractor to submit to the City within ten (10) days after final inspection, one complete marked-up set of contract drawings fully illustrating all revisions made by all the crafts in the course of the work. This shall include all field changes, adjustments, variances, substitutions and deletions, whether covered by Change Order or not. Underground utility installations must be located precisely on the marked-up drawings.

The Contractor shall not take advantage of any apparent error or omission in the plans or specifications, and the City shall be permitted to make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the plans and specifications.

In addition to verifying at the site all measurements shown on the Drawings, Contractor shall consult the Drawings and Specifications of related work or existing construction that may in any manner affect the work of this contract. Contractor shall promptly report to the City, in writing, any errors, omissions, violations, or inconsistencies that may be discovered as a result of such verifications; otherwise, it shall be understood that Contractor accepts all such related data and conditions without reservations.

Layout of existing piping, conduits, and locations of equipment are shown as exactly as could be determined during design of the facilities; but their accuracy, particularly when such layouts and drawings are schematic, cannot be guaranteed. Contractor shall check all Specifications including the Drawings for possible interference with electrical, mechanical, and structural details, as well as interference with existing building or equipment, and shall notify the City of the interference for resolution of the interference before commencing work. Any completed work that interferes shall be corrected by Contractor at Contractor expense so that the original design can be followed.

21. OPERATION AND MAINTENANCE DATA

Submit data bound in 8-1/2 x 11 inch (A4) text pages, Use three D side rings if necessary and binders with durable plastic covers. Submit all documents in electronic form as well as in hardcopy. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project and subject matter of binder when multiple binders are required.

Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 20-pound white paper, in three parts as follows:

- Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, subcontractors, and major equipment suppliers.

- Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of subcontractors and suppliers. Identify the following:
    1. Significant design criteria.
    2. List of equipment (including assigned equipment numbers).
    3. A description of recommended replacement parts and materials, which the City should stock.
    4. Parts list for each component.
    5. A summary of equipment vendors, or location where replacement parts can be purchased.
    6. List indicating types and grades of oil and/or grease, packing materials, normal and abnormal tolerances for devices, and method of equipment adjustment.
    7. Copies of all approved submittals.
    8. Operating instructions.
    9. Maintenance instructions for equipment and systems, Preventive maintenance recommendations.
    10. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
    11. Manufacturer's wiring diagrams for electrically powered equipment, if any.
    12. A complete set of record control drawings.
    13. Additional information as indicated in the technical specification sections

- Part 3: Project documents and certificates, including the following:
    1. Product data.
    2. Air and water balance reports if applicable.
    3. Certificates.
    4. Photocopies of warranties.
    5. Name, address, and telephone number of the person or office to contact for service during the warranty period.
    6. Name, address, and telephone number of the person or service organization to be contacted for service after the warranty period.

Submit 1 draft copy of completed volumes 15 [fifteen] days after approval of applicable submittal or receipt of the product. Revise content of all document sets as required prior to final submission. Submit 2 [two] sets of revised final volumes, within 10 [ten] days after final inspection.

22. SAFEGUARDS - EXISTING EQUIPMENT, UNDERGROUND UTILITIES AND ARTIFACTS

Existing utilities, including those listed as abandoned, shall not be moved or otherwise disturbed without written verification by the City that the utility is abandoned.

When altering existing facilities, the Contractor shall take every precaution to preserve and protect existing facilities, both those to be altered and those to remain unaltered that are within the limits of the work.

The Contractor shall notify the City of structural members, piping, conduit, or equipment not indicated for removal that may cause interference with the work. Work shall not proceed in the affected area until instructions have been issued. Do not drill or penetrate existing structures without prior permission. The removal of existing work shall be by methods that will not jeopardize the integrity of structures or systems that are to remain.

Existing utilities, including but not limited to roof drainage systems, underground cables, ducts, roadways, manholes, building fire alarm, public address or telecommunications wiring shall not be moved or otherwise disturbed, nor electrical circuits or switches operated or taken in or out of service, without prior consent of the City. Contractor shall compensate loss to the City resulting from damage to utilities.

If bones or artifacts are encountered during digging, the City requires that the Contractor stop work within a 50-foot radius of the find and immediately notify the City. Work may continue only with approval from the City.

23. SLEEVES AND OPENINGS

The Contractor requiring sleeved openings shall furnish and install all sleeves required for their penetrations. Contractors furnishing sleeves to others for installation shall do this in a timely manner so as not to impede the project schedule.

Openings that are required and are not shown on the structural and/or architectural drawings shall be the responsibility of the Contractor requiring the openings. The Contractor shall install sleeves for these openings or cut openings as needed (including floor openings within chases).

The Contractor shall be responsible for coordinating locations of their sleeves with work of other trades. The Contractor who requires sleeves and/or openings shall submit through the Contractor, to the City for review and approval, layout drawings of all such required sleeves and/or openings. Sleeve and opening layout drawings shall be received by the City a minimum of two weeks prior to installation of the sleeves and openings. Sleeve and opening sizes and locations shall be dimensioned from column lines and floor elevations or from a point of reference approved by the City.

Provide galvanized sheet metal sleeves for pipe and conduit penetrations through interior and exterior walls to provide a backing for sealant or firestopping. Patch wall around sleeve to match adjacent wall construction and finish. Grout area around sleeve in masonry construction. In finished spaces where pipe penetration through wall is exposed to view, sheet metal sleeve shall be installed flush with face of wall. Pipe sleeves in new poured concrete construction shall be schedule 40 steel pipe (sized to allow insulated pipe to run through sleeve), cast in place.

In all piping floor penetrations, fire rated and non-fire rated, top of sleeve shall extend 2 inches above the adjacent finished floor. In existing floor penetrations, core drill sleeve opening large enough to insert schedule 40 sleeve and grout area around sleeve with hydraulic setting, non-shrink grout. If the pipe penetrating the sleeve is supported by a pipe clamp resting on the sleeve, weld a collar or struts to the sleeve that will transfer weight to existing floor structure.

For floor penetrations through existing floors in mechanical, food service areas, parking ramps, sanitary pumping stations, swimming pool equipment rooms, chemical storage and hazardous waste storage rooms and other wet locations or locations that can get wet by accident or failure of a component, core drill opening and provide a sleeve fastened to floor surrounding the penetration or group of penetrations to prevent water from entering the penetration. Top of sleeve shall be 4 inches above the adjacent floor. Provide urethane caulk between angles and floor and fasten angles to floor a minimum of 8" on center. Seal corners water tight with urethane caulk. Or, core drill sleeve openings large enough to insert schedule 40 sleeve and grout area around sleeve with hydraulic setting non-shrink grout/cement. Size sleeve to allow insulated pipe to pass through sleeve and paint the sleeve.

Pipe sleeves for conduits 6" in diameter and smaller, in new poured concrete construction, shall be schedule 40 steel pipe, plastic removable sleeve or sheet metal sleeve, all cast in place.

24. LOOSE AND DETACHABLE PARTS

Contractor shall retain all loose and small detachable parts of apparatus and equipment furnished under this Contract, until completion of the work and shall turn them over to the City to receive them.

Furnish one can of touch-up paint for each different color factory finish furnished by the Contractor. Deliver touch-up paint with other "loose and detachable parts".

25. STAIRS, SCAFFOLDS, HOISTS, ELEVATORS OR CRANES

The Contractor shall furnish and maintain equipment such as temporary stairs, fixed ladders, ramps, chutes, runways and the like as required for proper execution of work by all trades, and shall remove them on completion of the work. Provide stairs with temporary treads, handrails, and shaft protection. Subcontractors requiring scaffolds shall make arrangements with the Contractor, or shall provide their own and remove them on completion of the work. Underlay interior scaffolds with planking to prevent uprights from resting directly on the floor construction.

Contractor shall provide and pay for its own hoist/crane or other apparatus necessary for unloading/setting or moving their equipment and materials. Installation and removal of equipment for this activity must be accounted for in the Project Schedule. Equipment and operations for this activity shall comply with applicable Department of Commerce and OSHA requirements. No material hoist may be used to transport personnel unless it meets Department of Commerce and OSHA requirements for that purpose.

PART 2 – PRODUCTS

1. SPECIFIED ITEMS - SUBSTITUTES

Wherever catalog numbers and specific or trade names are used in conjunction with a designated material, product, thing, or service mentioned in these Specifications, they are used to establish the standards of quality, utility, and appearance required. Substitutions, which are equal in quality, utility, and appearance to those specified, will be approved, subject to the following provisions:

All Substitutions must be accepted by the City Engineer or designee in writing. The City Engineer or designee will accept, in writing, such proposed substitutions as are in his or her opinion, equal in quality, utility, and appearance to the items or materials specified. Such acceptance shall not relieve the Contractor from complying with the requirements of the drawings and specifications, and the Contractor shall be responsible at Contractor's own expense for any changes resulting from Contractor proposed substitutions which affect the other parts of Contractor's own work or the work of others.

The manufacturer shall be a company specializing in the manufacture of the specified equipment and accessories with minimum five years documented experience.

Failure of the Contractor to submit proposed substitutions for approval in the manner described above and within the time prescribed shall be sufficient cause for disapproval by the City Engineer or designee of any substitutions otherwise proposed.

2. APPROVED TESTING LABORATORIES

The following laboratories are approved for providing electrical product safety testing and listing services as required in these specifications:

- Underwriters Laboratories Inc.
- Electrical Testing Laboratories, Inc.

3. TEMPORARY FENCING

Contractor shall rent, or otherwise provide, three (3) types of temporary fencing as follows:

- Chain Link Fencing: 6' tall by 12' long moveable construction panels, with wraparound "privacy plus" fabric and self-supporting stanchions, in quantities required for enclosing construction areas associated with the various phases of reroofing activities. Include driven posts as required for wind, and gates as required.
- Chain Link Security Fencing: 6' tall by lengths indicated in the Drawings, with 3-strand barbed wire tops, on driven posts, as required for temporary construction staging and storage area. Include gates as required.
- Snow Fence: 4' tall by lengths required to properly protect trees and shrubs indicated in the Drawings, to be protected from damage by construction activities. Include drive posts as required.

4. SECURITY CAMERAS

Contractor shall provide at least two (2) temporary security cameras designed to observe and record the chain link security fencing-enclosed, temporary staging and storage area. Include wiring and data connection as required for connection to Contractor's DVR for full (minimum 8-day) surveillance of stockpiled material and recyclables. Such cameras shall be coordinated with site lighting for surveillance after dark. Contractor shall provide motion detector system within the temporary staging and storage area. Contractor shall provide 110-V. electrical service to system alarm in the staging and storage area.

PART 3 – EXECUTION

1. INSTALLATION

Install in accordance with manufacturer's instructions and all code requirements. Provide the City or designee with copy of manufacturer's instructions prior to installation. Coordinate equipment location with piping, ductwork, conduit and equipment of other trades to allow sufficient clearances. Locate equipment to provide access space for servicing all components. Install in accordance with recognized industry practices. The manufacturer's latest recommendations at the time of bidding shall be used.

Startup and test equipment and adjust operating and safety controls for proper operation.

Contractor shall coordinate work with existing equipment so that all systems, equipment and other components will fit the available space, and will allow proper service and repair. Each location needs to be approved by the City or designee. This also applies to existing equipment if newly installed equipment interferes with its accessibility. Location of equipment has to fit into existing panels, decoration or finish. The City can request minor position changes of equipment before the work has begun.

The Contractor shall cooperate in reducing objectionable noise or vibration. If noise or vibration is a result of improper material or installation, these conditions shall be corrected at no cost to the City. Abnormal buzzing in equipment is not acceptable.

Carpentry, Cutting, Patching, and Core Drilling:
Provide carpentry, cutting, patching, and core drilling required for installation of material and equipment specified in the scope of work. Do not cut, core, or drill structural members without consent of the The City.

Waterproof Construction:
Maintain waterproof integrity of penetrations of materials intended to be waterproof. Provide flashings at exterior roof penetrations. Caulk penetrations of foundation walls and floors watertight. Provide membrane clamps at penetrations of waterproof membranes. Provide waterproof NEMA 3R enclosures for all equipment or devices mounted outside or otherwise exposed to the weather.

Workmanship:
Install using procedures defined in NECA Standard of Installation and shall be conform with all codes and regulations. Materials and equipment of the types for which there are National Board of Fire Underwriters' Laboratories (UL) listing and label service shall be so labeled and shall be used by Contractor.

Modifications to existing construction and Alterations:
Alter, extend and reconnect existing conduit as necessary. Reconnect existing conduits, which were reused, cut or exposed because of construction as quickly as possible. Where wiring is involved, new wires shall be "pulled in" between the nearest available accessible reused outlets to the extent allowed by the governing code. Furnish and install new conduits for wires if they cannot be "pulled in" to existing conduits. All new conduits, wiring, and electrical items shall be connected to the existing systems so as to function as a complete unit. Where existing electrical equipment, devices, fixtures, electrically operated items, etc., interfere with any remodeling work, they shall be removed and reinstalled in another location to avoid such interferences. all existing and relocated equipment shall be left in good operating condition. Include in bid removal from service of existing electrical material and equipment as specified hereinafter, as noted on the drawings, or as needed by field conditions.

Painting of Equipment and Hardware:
Provide moisture resistant paint for all exterior painting. Colors shall be as shown on the drawings unless specified. Refer to individual Sections and construction drawings for painting requirements.

2. DELIVERY, STORAGE AND HANDLING OF MATERIALS

Contractor or the Contractor's authorized representative must be present to accept delivery of all equipment and material shipments. The City will not knowingly accept, unload or store anything delivered to the site for the Contractor's use. Inadvertent acceptance of delivered items by any or employee of the City shall not constitute acceptance or responsibility for any of the materials or equipment. It is the Contractor's responsibility to assume liability for equipment or material delivered to the job site.

Secure storage or shipping containers shall be used for stockpiled materials, to prevent theft.

Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays. Materials and equipment shall be delivered to the site in adequate time to ensure uninterrupted progress of the work and inspection of

material by the City. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Care shall be taken to prevent damage to materials and equipment during loading, transporting and unloading. Packaged materials and equipment shall be delivered to the site in original, undamaged containers bearing manufacturer's name, with seals unbroken. Packaged units shall be delivered in their original crates. Store in a clean and dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic. Promptly inspect shipments to insure that the material is undamaged and complies with specifications. Materials or equipment, which do not conform to the Specifications or are damaged shall not be incorporated in the work and shall be immediately removed from the site.

Arrange for the necessary openings in the building to allow for admittance of all apparatus. When the building access was not previously arranged and must be provided by this Contractor, restore any opening to its original condition after the apparatus has been brought into the building.

Contractor shall confine equipment, apparatus, storage of materials and operations to limits indicated on the drawings or by specific direction of the City. The storage of materials on the grounds and within the building shall be in strict accordance with the instructions of the City. Storage of materials within the building shall at no time exceed the design carrying capacity of the structural system. The City assumes no responsibility for materials stored in building or on the site. The Contractor assumes full responsibility for damage due to the storage of materials. Repairing of areas used for placing of sheds, offices, and for storage of materials shall be done by the Contractor.

Material shall be stored according to manufacturer's recommendations as a minimum. Provide and maintain watertight storage sheds on the premises where directed, for storage of materials that might be damaged by weather. Materials, construction sheds, and earth stockpiles shall be located so as not to interfere with the installation of the utilities nor cause damage to existing lines. Should it be necessary at any time to move material sheds or storage platforms, the Contractor shall move it at the Contractor's expense, when directed by the City. All materials affected by moisture shall be stored on platforms and protected from the weather. In addition, material must be stored in a location protected from theft, vandalism and weather. If material is stored outside, it must be covered with opaque plastic or canvas with provision for ventilation to prevent condensation and for protection from weather. If necessary, material will be stored off site at the Contractor's expense. Offsite storage agreements will not relieve the Contractor from using proper storage techniques. Storage and protection methods must allow inspection to verify products.

All materials shall be stored in a manner that prevents release of hazardous material to the environment. All hazardous materials, including motor fuels, shall be properly handled and contained to prevent spills or other releases. The Contractor shall develop and maintain a contingency plan to provide emergency response, containment, and cleanup of spills of hazardous materials resulting from contract activities. All spills and releases shall be reported to the City as soon as possible. Please note that the Standard Specifications Section 107.4(f) must be followed and overrides any provision in these specifications.

Cover pipes and ducts to prevent corrosion or deterioration while allowing sufficient ventilation to avoid condensation. Do not store materials directly on grade. Protect pipe, duct, tube, and fitting ends so they are not damaged. Where end caps are provided or specified, take precautions so the caps remain in place. Protect fittings, flanges, and unions by storage inside or by durable, waterproof, above ground packaging.

Store materials in upright position, off ground, under cover and protected from sunlight, weather and construction activities.

3. DEMOLITION

Perform all demolition as indicated on the drawings to accomplish new work. Demolition Drawings are based on casual field observation and/or existing record documents. Verify field measurements and circuiting arrangements as shown on Drawings, verify that abandoned wiring, piping, ducting and equipment serve only abandoned facilities. Report discrepancies to the City before disturbing existing installation. Beginning of demolition means installer accepts existing conditions.

Where demolition work is to be performed adjacent to existing work that remains in an occupied area, construct temporary dust partition to minimize the amount of contamination of the occupied space. Where pipe or duct is removed and not reconnected with new work, cap ends of existing services as if they were new work. Coordinate work with the City to minimize disruption to the existing building occupants.

All pipe, wiring and associated conduit, insulation, ductwork, and similar items demolished, abandoned, or deactivated are to be removed from the site by the Contractor. Maintain the condition of material and/or equipment that is indicated to be reused equal to that existing before work began.

Patch holes and openings caused by removal of material and equipment, or formerly covered by such, with like material and texture of surrounding surface. Painting is not necessary unless noted otherwise.

Approval of all legal institutions shall be obtained prior to disposal of any equipment and materials. All disposal has to be in compliance with all local, county, state and nationwide regulations.

Don't demolish equipment and material that is to stay in place. Replace and repair any equipment and installations that get damaged during demolition.

4. CUTTING, PATCHING AND PAINTING

Cutting and patching required to access work in existing walls, in chases, above inaccessible ceilings, below floors, etc., shall be by the Contractor who requires the access, unless shown on the bid documents otherwise or noted otherwise.

The Contractor shall do all cutting, or fitting of the work as required to make its several parts fit together, or to receive the work of others, as shown or reasonably implied by the drawings or specifications, or as may be directed by the City. Holes cut in exterior walls and/or roofs shall be waterproofed.

The Contractor who cuts shall also be responsible for patching. Where cutting and patching is required, the Contractor shall hire individuals skilled in such work to do cutting and patching. The Contractor who removes or relocates building components which leaves a remaining opening shall be responsible for patching the opening.

Patching includes repairing openings to match adjacent construction and painting the surface to match existing surface including texture.

Painting means covering the entire wall where patching is to be done to nearest break point or corner unless indicated to be done by other trades. All painting will require patching. This includes all painting included in other sections.

Contractor shall not endanger any work by cutting, digging or otherwise and shall not cut or alter the work of others without their consent.

Do not pierce beams or columns without permission of the City and then only as directed in writing. If any ductwork, piping, conduit, etc. is required through walls or floors where no sleeve has been provided, use a core drill or saw cut to prevent damage and structural weakening.

Wherever any material, finish, or equipment, is damaged, the skilled trade shall accomplish the repair or replacement, in that particular work and the cost shall be charged to the party responsible for the damage. The City reserves the right to disallow any means and/or methods that, in the opinion of the City, are harmful to and/or not in the best interest of preserving the improvements receiving the work.

5. CONCRETE WORK

Not applicable.

6. EXCAVATION, BACKFILL, AND SURFACE RESTORATION

The Contractor shall take all measures necessary to become acquainted with the location of underground service, utilities, structures, etc., which may be encountered or be affected by the Contractor's work, and shall be responsible for damage caused by neglect to provide proper precautions or protection. As a minimum to become acquainted with such underground appurtenances, the Contractor shall: 1) Observe existing conditions visible at the site immediately prior to commencement of work; 2) Review available site plans incorporated in the contract documents and/or provided by the City; 3) Final check with the City for additions to or changes from conditions indicated on site plans for the facility.

Before excavation in areas with utilities nearby, a ground-penetrating radar or ground radar scan needs to be performed to detect any subsurface obstacles. This work shall be performed at least a week before demolition starts to give A/E the opportunity to resolve any issues by utilities or other obstacles in unexpected locations. Drawings with existing utilities may not be correct and shall not be relied on.

Verify the locations of any water, drainage, gas, sewer, electric, telephone or steam lines which may be encountered in the excavation. Underpin and support all lines. Cut off service connections encountered which are to be removed at the limits of the excavation and cap. Existing pipes, electrical work, and all other utilities encountered, which may interfere with new work, shall be re-routed, capped, cut off, or replaced by the Contractor.

Completely restore the surface of all disturbed areas as described below to a like condition of the surface prior to the work. Level off all waste disposal areas and clean up all areas used for the storage of materials. Remove all surplus material, tools and equipment. Topsoil shall be spread upon order from the City, typically right before any planting to avoid disturbance of topsoil by construction activities.

Lawns: Topsoil with 4" of clean, friable, fertile topsoil conforming to D.O.T. Section 625, free from debris, lumps, rocks, roots, plants and seeds. Grade surfaces to match adjacent elevations. Rake smooth, free of lumps and debris. Sod with good quality nursery sod conforming to D.O.T. Section 631, be uniform, dense, free from weeds and consist of approximately 60% Kentucky blue grass and the balance perennial rye, fescue and white clover. Place sod with joints staggered and abutting. Maintain lawn areas for one month after installation. Department will be responsible for necessary watering and mowing. Contractor needs to inform Department about watering needs. Do necessary weeding, repair, reseeding or resodding until uniform catch is obtained.

7. DEWATERING, WEATHER PROTECTION

Temporary pumps required for pumping water from building excavation or from building proper shall be provided by the Contractor, including temporary connections. The Contractor shall remove temporary pumps and connections when approved by the City.

Provide temporary enclosures as required for complete weather protection at all times.

8. SEALING AND FIRESTOPPING

The Contractor penetrating a fire rated wall/floor/ceiling is responsible for sealing this opening to the same rating as the wall/floor/ceiling is rated.

Sealing and firestopping of sleeves/openings between conduits, cable trays, wire ways, troughs, cablebus, busduct, pipes, ducts etc. and the structural or partition opening shall be the responsibility of the Contractor whose work penetrates the opening. The Contractor responsible shall hire individuals skilled in such work to do the sealing and firestopping. These individuals hired shall normally and routinely be employed in the sealing and fireproofing occupation.

FIRE AND/OR SMOKE RATED PENETRATIONS:

Install approved product in accordance with the manufacturer's instructions where an installation penetrates a fire/smoke rated surface. When pipe is insulated, use a product, which maintains the integrity of the insulation and vapor barrier.

Where firestop mortar is used to infill large fire-rated floor openings that could be required to support weight, provide permanent structural forming. Firestop mortar alone is not adequate to support substantial weight.

Whenever possible, avoid penetrations of fire and smoke rated partitions. When they cannot be avoided, verify that sufficient space is available for the penetration to be effectively fire and smoke stopped. All firestopping systems shall be by the same manufacturer. Firestop systems shall be UL listed or tested by an independent testing laboratory approved by the Department of Commerce. The Contractor will be responsible for selecting the appropriate UL tested fire stop system for each application required on the project and will submit this to the City or designee for review. Each firestop manufacturer has specific details for different applications they have tested.

Manufacturers: 3M, STI/SpecSeal, Tremco, Hilti or approved equal.

Submittals: Contractor shall submit product data for each firestop system. Submittals shall include product characteristics, performance and limitation criteria, test data, MSDS sheets, installation details and procedures for each method of installation applicable to this project. For non-standard conditions where no UL tested system exists, submit manufacturer's drawings for UL system with known performance for which an engineering judgment can be based upon. Use a product that has a rating not less than the rating of the wall or floor being penetrated. Reference architectural drawings for identification of fire and/or smoke rated walls and floors.

Contractor shall use firestop putty, caulk sealant, intumescent wrapstrips, intumescent firestop collars, firestop mortar or a combination of these products to provide a UL listed system for each application required for this project. Provide mineral wool backing where specified in manufacturer's application detail.

NON-RATED PENETRATIONS:
At all interior partitions and exterior walls, pipe penetrations are required to be sealed. Apply sealant to both sides of the penetration in such a manner that the annular space between the pipe sleeve or cored opening and the pipe or insulation is completely blocked.

9. CLEANING

The Contractor shall clean up and remove from the premises, on a daily basis accumulation of surplus materials, rubbish, debris and scrap and shall repair all damage to new and existing equipment resulting from its work. When job is complete, this Contractor shall remove all tools, excess material and equipment, etc., from the site.

All installed items shall be cleaned at time of installation, and all lens exteriors shall be cleaned just prior to final inspection. Equipment shall be thoroughly cleaned of all stains, paint, spots, dirt and dust. All temporary labels not used for instruction or operation shall be removed. Dust, dirt and other foreign matter shall be removed completely from all internal surfaces of all mechanical and electrical units, cabinets, ducts, pipes, etc. Dirt, soil, fingerprints, stains and the like, shall be completely removed from all exposed finished surfaces.

In addition to the above, the Contractor shall be responsible for the general "broom" cleaning of the premises and for expediting all of the cleaning, washing, and polishing required within the technical sections of the specifications governing work under this Contract. The Contractor shall also perform "final" cleaning of all exposed surfaces to remove all foreign matter, spots, soil, construction dust, etc., so as to put the project in a complete and finished condition ready for acceptance and use intended.

If rubbish and debris is not removed, or if surfaces are not cleaned as specified above, the City reserves the right to have said work done by others and the related cost(s) will be deducted from monies due the Contractor.

10. CONTINUITY OF SERVICE AND SHUTDOWN

Contractor shall provide and maintain continuous service (power, controls, alarms, communication, HVAC, roads etc.) during the entire construction period. No outages shall be permitted on existing systems except at the time and during the interval specified by the City. Any outage must be scheduled when the interruption causes the least interference with normal institutional schedules and business routines and might be scheduled during after-hours if regular business hours are not acceptable to the City. No extra costs will be paid to the Contractor for such outages, which must occur outside of regular weekly working hours. Cost to the utility is paid by Contractor. The Contractor shall provide temporary utility services and bypasses for any disruptions not completed within this period. The Contractor shall restore any circuit interrupted as a result of this work to proper operation as soon as possible.

If the building is occupied and continues operation during construction, retrofit or demolition, Contractor must maintain ventilation and air conditioning for as large parts of the building as technically feasible. Spreading of dirt, dust and other construction related material must be kept to a minimum. Occupied and work areas must be separated by seals. All work affecting air conditioning and ventilation must be coordinated with the daily work in the building and approved by the supervisor or department head at the building. If air conditioning, heating and ventilation has to be taken out of service for longer periods of time in parts of the building and work would be affected negatively, the Contractor shall provide temporary sufficient air conditioning, heating and ventilation in coordination with the department. All such taking out of service has to be coordinated and approved by the supervisor or department head at the building.

If the shutdown involves the interface with, or modification of, existing building energy system(s), the Contractor shall be required to show the reviewed submittal and shop drawings of the proposed modifications. Shutdown schedules shall have been reviewed and approved by the City at least 72 hours prior to date of shutdown. Postponement by the City of scheduled shutdowns shall not constitute a basis for additional charges to the City.

Prior to the shutdown of any building energy system(s) the Contractor shall provide the following:

- Proof of receipt of all materials required for the shutdown or a written commitment from the responsible suppliers that the required materials will be available at the time of the shutdown.
- A list of the qualified Contractor personnel assigned to perform the work.
- Analysis of any affect on the utility or building energy system(s) and the estimated duration of the shutdown.

- Work plan for the shutdown
- A twenty-four-hour emergency callback phone number to be used by the City in the event of any problems or concerns with the modifications made to the building system(s) after the Contractor has left the site.

The startup of electrical and mechanical utility systems by Contractor shall be performed by Contractor in coordination with the City.

11. PROJECT MEETINGS

Project meetings will be held at the time designated by the City. If the principal of the firm does not attend meetings, a responsible representative of the Contractor who can bind the Contractor to a decision at the meetings shall attend. The City or designee will write a report covering all items discussed and decisions reached and copy of such report distributed to all parties involved.

During construction, weekly project meetings may be held at the discretion of the City. The minutes of these meetings will be prepared by the Contractor and one copy issued as expeditiously as possible to the each party. Involved in the project the Contractor will submit, in writing, questions and/or answers (previously obtained verbally) to be confirmed at each meeting. Additional "on-call" meetings may be called at the City's sole discretion.

12. TEMPORARY CONSTRUCTION

Temporary construction shall conform to all requirements and laws of state and local authorities, which pertain to operation, safety, and fire hazards. Contractor shall furnish and install all items necessary for conformance with such requirements, whether called for under separate sections of these Specifications or not. Contractor shall provide, maintain, and remove upon completion of his work:

- Temporary crossovers and bypass to utilities, electrical connections, traffic and footbridges, and walkways used to maintain services or communications, which cannot be interrupted or curtailed.
- Temporary rigging, scaffolding, shoring, hoisting equipment, and all other temporary work as required for this project.
- Temporary barricades around openings and excavations for this project.

Temporary lighting, if necessary during the period of construction, shall be supplied and maintained by the Contractor at Contractor expense so that construction work can be safely performed. The temporary lighting system shall be sufficient to enable all trades to safely complete their work and to enable the City to check all work as it is being done. Illumination shall be 5 foot-candles minimum in all areas and, in addition, shall meet or exceed the requirements of 29 CFR 1926.56 Illumination (OSHA regulations). In accordance with the latest issue of the National Electrical Code, all temporary electrical circuits for construction purposes shall be equipped with combination ground fault interrupter and circuit breakers meeting the requirements of UL for Class A, Group 1 devices. The ground fault interrupter portion shall be solid-state type, insulated and isolated from the breaker mechanism. A test button shall be provided for checking the device. The breaker mechanism shall provide overload and short circuit protection and shall be operated by a toggle switch with over center switching mechanism so that contact cannot be held closed.

TEMPORARY ELECTRICAL SERVICE

The Contractor shall make all arrangements with the local utility company for metered electrical service, pay for the installation of all temporary service to utility point of termination shown on drawings, and upon completion of project, pay for removal of temporary service. The Contractor shall patch surfaces and structure after services have been removed. The Contractor shall pay for all electrical energy consumed for construction purposes for all trades including temporary offices, for operation of ventilating equipment, for heating of building, and for testing and operating of all equipment. The Contractor shall continue to pay for energy used until substantial completion even though equipment has been connected to the permanent wiring.

Contractor shall provide and maintain 200 ampere electrical services in single phase or multiphase as required by equipment to be used. Provide at multiple services to ensure service to run at less than 75% of its capacity at all times and to enable short cable runs of less than 300 ft to equipment to be used.

The Contractor shall provide meter base and wiring to point of utility termination, provide main fused service switch, and breaker distribution panel(s). The Contractor shall also provide, at no cost to others, all lamps, wiring, switches, sockets and similar equipment required for temporary system until substantial completion. Upon completion of the project, the Contractor shall remove the temporary system.

All temporary wiring and electrical installations shall be in accordance with applicable codes. Any power outage occasioned by tying into the existing electrical system for temporary or permanent use shall be coordinated with the City. The City does not

guarantee the quantities or quality of power or water available for Contractor's use, nor will it be responsible in any manner for interruptions in service or for the effects of interruptions.

All Trades shall furnish their extension cords and lamps other than those furnished for general lighting. All Trades and other separate Contractors shall be allowed to use the service provided for general lighting and fractional horsepower hand tools at no cost.

If a Contractor contemplates the use of equipment that requires a different voltage or greater capacity than that specified, then that Contractor must arrange with Utility for this additional service and pay for installation of the service and the necessary additional switches and wiring required. The meter shall be taken out in the Contractor's name.

TEMPORARY WATER, SEWER AND PUMPS
The Contractor shall supply all water required for construction and other purposes such as drinking water.

TOILETS
The Contractor shall provide and maintain sanitary temporary toilets, located where directed by the City, in sufficient number required for the force employed. The toilets shall comply with International Building Code Chapter 29 on Plumbing Systems. Toilets shall be self-contained chemical type.

The Contractor shall maintain the temporary toilets in a sanitary condition at all times and shall supply toilet paper until completion of the job.

FIELD OFFICES
The Contractor shall provide, maintain and remove upon completion a temporary watertight office where directed for use by the Contractor and Trades. The office shall be equipped with a plan rack, a suitable table for examination of plans and shall have adequate equipment for document files and space for job meetings. Exterior of offices shall be of neat appearance, and if deemed necessary by the City, shall be painted to achieve such appearance; heat offices during cold weather; provide each office with at least one glazed movable window and one door with a cylinder lock and latch set. Provide and maintain artificial light, minimum of 40 foot-candles, air conditioning, and two duplex outlets where directed.

13. IDENTIFICATION
Not applicable.

14. LUBRICATION
Not applicable.

15. PUNCH LIST
Contractor's supervisor at site shall acknowledge receipt of punch list.

Multiple punch lists can be submitted.

If Contractor fails to perform required corrective work in less than 30 days upon receipt of punch list by Contractor, the City can perform corrections himself and charge the Contractor.

Contractor shall advice the City or designee that the necessary work has been performed. If the City or designee verify if punch list items were not resolved and the work was not performed in less than 30 days upon receipt of punch list by Contractor, the Contractor shall be required to compensate the for additional site visits at a rate of $ 100/hour plus mileage with the amount paid to the City or designee prior to processing the final payment.

16. TESTS AND FINAL ACCEPTANCE
The complete installation consisting of the several parts and systems and all equipment installed according to the requirements of the Contract Documents, shall be ready in all respects for use by the City and shall be subjected to a test at full operating conditions and pressures for normal conditions of use. Roofs, gutters and downspouts are subject to water testing by Contractor; no leaks are permitted.

Proper notice has to be given to enable the City or designee to attend all tests. Failure to give proper notice can result in repeated tests to be paid for by the Contractor. Tests are acceptable on properly working equipment only and have to be

repeated as often as required by the City at no cost to the City. If tests have to be repeated by an City-hired Contractor due to equipment not installed or working properly, the Contractor shall reimburse the City for additional testing expenses.

Contractor shall make all necessary adjustments and replacements affecting the work, which is necessary to fulfill the City's requirements and to comply with the directions and recommendations of the manufacturer of the several pieces of equipment, and to comply with all codes and regulations, which may apply to the entire installation. Contractor shall also make all required adjustments to comply with all provisions of the drawings and specifications.

Prior to acceptance, all elements of operating equipment, including those of mechanical nature and those that slide, swing, turn, or are intended to move in any way and those of an electrical nature, shall be given an operating test to assure to the satisfaction of the City that such equipment operates as required. Contractor shall make all adjustments, replacements, and such other modifications as needed. If it is necessary to run equipment in order to complete the work, for periods that exceed the manufacturer's recommended maintenance interval, the Contractor will provide such required maintenance at no additional cost to the City.

Notice that the work is ready for final inspection and acceptance shall consist of a written notice issued to the City by the Contractor stating that the Contractor has carefully inspected all portions of the work, has reviewed in detail the drawings and specifications, and that to the best of the Contractor's knowledge all conditions of the contract documents have been fulfilled. Upon receipt of this notice, the City and the Contractor shall make a joint inspection of the work. After deficiencies, if any, have been corrected or accounted for, and after all work is satisfactorily complete, the City will accept the work; and Notice of Completion will be filed by the City.

Prior to final acceptance, filing of the Notice of Completion or processing of final payment, the following shall be done and submitted reviewed and accepted by the City:

- Certificates of compliance and guarantees required under various Sections
- Operating and maintenance manuals
- Instruction to City personnel, as required
- Test reports (TAB, fire alarm, elevator etc.), if applicable
- Certifications and registrations (boiler etc.), if applicable
- All keys, if applicable
- Replacement material as required in specifications
- All required operations tests
- All documents required by commissioning, LEED certification and other project related documents, if applicable
- Satisfy all commissioning requirements, if applicable
- As –built documents
- All punch list items resolved
- All training provided (except deferred seasonal training)
- All warranty issues brought to Contractor's attention so far resolved
- Warranty documents signed by representative of manufacturer, guarantee documents, roofing agreement and other warranty related documents

No official closeout and final payment will be made before all requirements are met.

17. TRAINING AND DEMONSTRATION

The City's facility staff (and occupants and service Contractors as needed), shall receive orientation and training on features, systems and equipment in this facility requisite with the complexity and criticality of the system and the City's needs.

Additional training requirements may be found in specific equipment sections. The City may videotape all training sessions.

Only training on equipment that works as designed is acceptable.

The Contractor shall be responsible for training coordination and scheduling and ultimately for ensuring that training is completed per the Specifications. Unless otherwise required or approved, the training shall be given during regular business hours during a regular work week.

The City or designee will be responsible for coordinating and approving the content and adequacy of the training of the City personnel. The City or designee will develop an overall training plan after meeting with the City and appropriate facility staff to determine needs and areas of emphasis for this project. The City or designee will develop criteria for determining that the

training was satisfactorily completed, including attending some of the training, etc. The City or designee recommends approval of the training to the City.

Training shall consist of, as needed and at the discretion of the City or designee, the installing technician, installing Contractor and the appropriate trade or manufacturer's representative.

18. ROADWAY

The Contractor may build a temporary roadway and tracking pad for delivery of materials at the Contractor's own expense and maintain it until completion of construction or until service drives are installed. Where possible, build temporary roadway within the confines of the new roadway and allow others to use it at no cost.

19. FENCE

The Contractor shall provide a neat appearing protective fence where indicated on the drawing, constructed of standard materials of sufficient length for line posts and spaced not to exceed 8'-0" apart. Corner posts and gate posts are to be galvanized steel pipe of not less than 2 1/2" o.d. and shall be properly braced. A 4-foot high snow fence shall be securely fastened to the supports. The snow fence shall project 4" above the fence posts. Provide gates, properly constructed and braced, complete with hinges, hasps, and padlocks in number and location required for proper control, delivery and distribution of material and equipment. Gateposts shall be adequately back tied and anchored to insure a rigid installation. All protective fencing shall be maintained in an upright, orderly fashion throughout the construction schedule. In areas where existing trees are to be protected, the area inside the protective fencing shall not be used for any purpose related to construction activities, such as material storage, vehicle parking, portable toilets, or other disruptive activities that would result in damage of any kind to the site inside the fence.

20. SIGNS

Contractor shall furnish and install temporary signs, located as directed by the City. The signs shall be readily legible to the general public, subcontractors, material men, and truck drivers approaching the site.

The Contractor shall order, paint and erect the sign. The sign shall be placed on the property where directed and shall be maintained for the duration of the construction period. Temporary, moveable signs will also be required, as directed by the City; such signs as, for example, "Pardon Our Dust," "Construction Zone – Do Not Enter," and "Hard Hat Area" will be placed and relocated by Contractor during construction.

No individual advertising signs, plaques or credits, temporary or permanent, will be permitted on the building or premises, except the name of the Contractor on Contractor's office or material shed.

END OF SECTION

SECTION 05 1200 – STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes structural steel and grout.

B. Related sections include the following:
1. Division 07 Section "Steel Decking."

1.2 DEFINITIONS

A. Structural Steel: elements of structural-steel frame, as classified by AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.3 PERFORMANCE REQUIREMENTS

A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand ASD-service loads indicated and comply with other information and restrictions indicated.

1. Select and complete connections using AISC's "Manual of Steel Construction, Allowable Stress Design," Part 4.

1.4 SUBMITTALS

A. Shop Drawings: Show fabrication of structural-steel components.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified fabricator who participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.

B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.

C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."

D. Comply with applicable provisions of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

E. Preinstallation Conference: Conduct conference at Project site.

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

B. W-Shapes: ASTM A 572/A 572M, Grade 50 (345).

C. Channels, Angles: ASTM A 36/A 36M.

D. Plate and Bar: ASTM A 36/A 36M.

E. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B, structural tubing.

F. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.

G. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, heavy hex steel structural bolts; ASTM A 563 (ASTM A 563M) heavy hex carbon-steel nuts; and ASTM F 436 (ASTM F 436M) hardened carbon-steel washers.

2.3 PRIMER

A. Primer: SSPC-Paint 25, Type II, iron oxide, zinc oxide, raw linseed oil, and alkyd.

B. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

2.4 GROUT

A. Metallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, metallic aggregate grout, mixed with water to consistency suitable for application and a 30-minute working time.

B. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.5 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC's "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design."

2.6 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.

2.7 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches (50 mm).
2. Surfaces to be field welded.

B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."

C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a dry film thickness of not less than 1.5 mils (0.038 mm). Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

2.8 SOURCE QUALITY CONTROL

A. Owner may engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

C. Welded Connections: In addition to visual inspection, shop-welded connections will be tested and inspected according to requirements in AWS D1.1 for stud welding.

PART 3 - EXECUTION

3.1 ERECTION

A. Examination: Verify elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments, with steel erector present, for compliance with requirements.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Set structural steel accurately in locations and to elevations indicated and according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design."

C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.2 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
   1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.
   1. Comply with AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design" for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

3.3 FIELD QUALITY CONTROL

A. Testing Agency: General Contractor will engage a qualified independent testing and inspecting agency to inspect field welds.

B. Bolted Connections: Shop-bolted connections will be inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

C. Welded Connections: Field welds will be visually inspected according to AWS D1.1.

   1. In addition to visual inspection, field welds may be tested according to AWS D1.1 and the following inspection procedures, at testing agency's option:

      a. Liquid Penetrant Inspection: ASTM E 165.
      b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
      c. Ultrasonic Inspection: ASTM E 164.
      d. Radiographic Inspection: ASTM E 94.

D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

END OF SECTION 05 1200

SECTION 05 3100 -- STEEL DECKING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Noncomposite form deck.

B. Related Sections include the following:

   1. Division 5 Section "Structural Steel Framing" for shop- and field-welded shear connectors.
   2. Division 5 Section "Metal Fabrications" for framing deck openings with miscellaneous steel shapes.

1.2 SUBMITTALS

A. Shop Drawings: Show layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

B. Welding Certificates.

C. Product Certificates.

D. Evaluation Reports.

E. Field Quality-Control Reports.

1.3 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

B. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

C. FMG Listing: Provide steel roof deck evaluated by FMG and listed in its "Approval Guide, Building Materials" for Class 1 fire rating and Class 1-90 windstorm ratings.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Steel Deck:

   a. Nucor Corp.; Vulcraft Division or equivalent.

2.2 NONCOMPOSITE FORM DECK

A. Noncomposite Steel Form Deck: Fabricate ribbed-steel-sheet noncomposite form-deck panels to comply with "SDI Specifications and Commentary for Noncomposite Steel Form Deck," in SDI Publication No. 31, with the minimum section properties indicated, and with the following:

1. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 33 minimum, with underside surface shop primed with manufacturer's standard baked-on, rust-inhibitive primer.

   a. Color: Manufacturer's standard.

2.3 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Galvanizing Repair Paint: ASTM A 780.

G. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

3.2 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.

B. Install temporary shoring before placing deck panels, if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

3.3 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Field welds will be subject to inspection.

C. Testing agency will report inspection results promptly and in writing to Contractor and Architect.

D. Remove and replace work that does not comply with specified requirements.

E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.4 PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation, and apply repair paint.

END OF SECTION 05 3100

SECTION 054000 – COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior non-load-bearing wall framing.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of cold-formed steel framing product and accessory.

B. Shop Drawings:

1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Welding certificates.

C. Product test reports.

D. Research reports.

1.4 QUALITY ASSURANCE

A. Product Tests: Mill certificates or data from a qualified independent testing agency.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

C. Comply with AISI S230 "Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. AISI Specifications and Standards: Unless more stringent requirements are indicated, comply with AISI S100 and AISI S200.

B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 COLD-FORMED STEEL FRAMING, GENERAL

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

B. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:

1. Grade: As required by structural performance.
2. Coating: G60 (Z180).

C. Steel Sheet for Vertical Deflection Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:

1. Grade: 33 (230).
2. Coating: G60 (Z180).

2.3 EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm).
2. Flange Width: 1-3/8 inches (35 mm).
3. Section Properties: As required by structural performance.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and matching minimum base-metal thickness of steel studs.

C. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

2.4 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration.

2.5 ANCHORS, CLIPS, AND FASTENERS

A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.

B. Anchor Bolts: ASTM F 1554, Grade 36, threaded carbon-steel hex-headed bolts and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.

C. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing per ASTM E 488 conducted by a qualified testing agency.

D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.

E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.

1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

2.6 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: SSPC-Paint 20 or MIL-P-21035B.

B. Cement Grout: Portland cement, ASTM C 150, Type I; and clean, natural sand, ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

C. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, Portland cement, shrinkage-compensating agents, and plasticizing and water-reducing agents, complying with ASTM C 1107/C 1107M, with fluid consistency and 30-minute working time.

D. Shims: Load bearing, high-density multimonomer plastic, and nonleaching; or of cold-formed steel of same grade and coating as framing members supported by shims.

E. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

PART 3 - EXECUTION

3.1 PREPARATION

A. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

3.2 INSTALLATION, GENERAL

A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.

B. Install cold-formed steel framing according to AISI S200 and to manufacturer's written instructions unless more stringent requirements are indicated.

C. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.

D. Install framing members in one-piece lengths.

E. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

F. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.

G. Install insulation, specified in Section 07 2100 "Thermal Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.

H. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

I. Erection Tolerances: Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:

1. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.3 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.

B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:

1. Stud Spacing: 16 inches (406 mm).

C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

D. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.4 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Field and shop welds will be subject to testing and inspecting.

C. Testing agency will report test results promptly and in writing to Contractor and Architect.

D. Remove and replace work where test results indicate that it does not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.5 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05 4000

SECTION 05 5000 – METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Miscellaneous steel framing and supports.

1.2 SUBMITTALS

A. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
2. Provide templates for anchors and bolts specified for installation under other Sections.

1.3 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."

1.4 COORDINATION

A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.2 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Steel Tubing: ASTM A 500, cold-formed steel tubing.

2.3 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

B. Slotted Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches (41 by 22 mm) by length indicated with anchor straps or studs not less than 3 inches (75 mm) long at not more than 8 inches (200 mm) o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B 633, Class Fe/Zn 5, as needed for fastening to inserts.

C. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

D. Plain Washers: Round, ASME B18.22.1.

E. Lock Washers: Helical, spring type, ASME B18.21.1.

2.4 MISCELLANEOUS MATERIALS

A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

B. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.

1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

2.7 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

C. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

3.3 ADJUSTING AND CLEANING

A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780.

B. Touch-Up Painting of Steel Items: Immediately after erection, clean field welds, bolted connections, abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touch-up of field painted surfaces.
   1. Apply by brush or spray to provide a minimum dry film thickness of 3.0 mils

END OF SECTION 05 5000

SECTION 06 1000 – ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Wood furring.
2. Blocking.
3. Fascia board.

1.2 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA UC2 for interior construction not in contact with the ground; UC3b for exterior construction not in contact with the ground; UC4a for items in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Cants.
4. Furring.
5. Grounds.

B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.
2. Eastern softwoods, No. 2 Common grade; NeLMA.
3. Northern species, No. 2 Common grade; NLGA.
4. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 56 hex nuts and, where indicated, flat washers.

2.5 MISCELLANEOUS MATERIALS

A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.

3.2 PROTECTION

A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 1000

SECTION 06 1600 – SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Roof sheathing.
2. Wall sheathing.
3. Exterior gypsum board sheathing.
4. Building wrap.
5. Flexible flashing at openings in sheathing.
6. Sheathing joint-and-penetration treatment.

1.2 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment and fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers between each bundle to provide air circulation. Store panels in clean, dry areas off the ground; if possible, store indoors. If stored outside, cover with plastic sheets or tarps. Keep cover open and away from the sides and bottoms of panels to allow for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 FIRE RETARDANT-TREATED PLYWOOD

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Use Interior Type A, High Temperature (HT) for roof sheathing and where indicated.
3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use unless otherwise indicated.

C. Kiln-dry material after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated plywood with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.

E. Application: Treat plywood indicated on Drawings.

1. Roof Sheathing within 48 inches of fire walls.

2.2 ROOF SHEATHING

A. Plywood Roof Sheathing: Exposure 1, Structural I sheathing.

2.3 WALL SHEATHING

A. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177/1177M.

1. Product: Subject to compliance with requirements, provide "Dens-Glass Gold" by G-P Gypsum, or approved equal.
2. Core: 5/8 inch, unless otherwise indicated.
3. Type X.
4. In locations indicated on Drawings.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated.

1. For wall and roof sheathing panels, provide fasteners with corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.

2.5 WEATHER-BARRIER MEMBRANE (BUILDING WRAP)

A. Basis-of-Design: Spunbonded polyolefin, non-woven, non-perforated, weather barrier is based upon DuPont™ Tyvek® CommercialWrap® and related assembly components.

B. Performance Characteristics:

1. Air Penetration: 0.001 cfm/ft² at 75 Pa, when tested in accordance with ASTM E2178. Type I per ASTM E1677. ≤0.04 cfm/ft² at 75 Pa, when tested in accordance with ASTM E2357.
2. Water Vapor Transmission: 28 perms, when tested in accordance with ASTM E96, Method B.
3. Water Penetration Resistance: 280 cm when tested in accordance with AATCC Test Method 127.
4. Basis Weight: 2.7 oz/yd², when tested in accordance with TAPPI Test Method T-410.
5. Air Resistance: Air infiltration at >1500 seconds, when tested in accordance with TAPPI Test Method T-460.
6. Tensile Strength: 38/35 lbs/in., when tested in accordance with ASTM D882, Method A.
7. Tear Resistance: 12/10 lbs., when tested in accordance with ASTM D1117.

8. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E 84. Flame Spread: 10, Smoke Developed: 10.

C. Building Wrap Accessories:

1. Seam Tape: 3 inch wide, DuPont™ Tyvek® Tape for commercial applications, or as recommended by the building wrap manufacturer.
2. Flashings: Flexible membrane flashing material for window and door openings as recommended by the Building Wrap manufacturer.
3. Fasteners: Plastic capped nails or screws as recommended by the manufacturer for the specific substrate.

2.6 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

A. Sealant for Glass-Mat Gypsum Sheathing: Elastomeric silicone joint sealant recommended by sheathing manufacturer.

B. Sheathing Tape for Glass-Mat Gypsum Sheathing Board: Self-adhering, glass-fiber tape, of type recommended by sheathing and tape manufacturers.

2.7 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use indicated by manufacturers of both adhesives and panels.

1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Flexible Flashing: Self-adhesive, rubberized-asphalt compound, bonded to a high-density, polyethylene film to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair the quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."

D. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that exclude exterior moisture.

E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the work day when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial."

1. Comply with "Code Plus" installation provisions in guide referenced in paragraph above.

B. Fastening Methods: Fasten panels as indicated below:

1. Wall and Roof Sheathing: Nail to wood framing. Apply a continuous bead of glue to framing members at edges of wall sheathing panels.

3.3 GYPSUM SHEATHING INSTALLATION

A. Comply with GA-253 and with manufacturer's written instructions.

1. Fasten gypsum sheathing to wood framing with nails or screws.
2. Fasten gypsum sheathing to cold-formed metal framing with screws.
3. Install boards with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
4. Install boards with a 1/4-inch gap where they abut masonry or similar materials.

B. Apply fasteners so heads bear tightly against face of sheathing boards but do not cut into facing.

C. Horizontal Installation: Abut ends of boards over centers of studs, and stagger end joints of adjacent boards not less than one stud spacing. Attach boards at perimeter and within field of board to each steel stud.

1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.

D. Vertical Installation: Install board vertical edges centered over studs. Abut ends and edges of each board with those of adjacent boards. Attach boards at perimeter and within field of board to each stud.

1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.

E. Protect sheathing by covering exposed exterior surface of weather-barrier membrane.

3.4 WEATHER-BARRIER MEMBRANE (BUILDING WRAP) INSTALLATION

A. Install weather barrier over exterior face of exterior wall substrate in accordance with manufacturer recommendations.

B. Start weather barrier installation at a building corner, leaving 6-12 inches of weather barrier extended beyond corner to overlap.

C. Install weather barrier in a horizontal manner starting at the lower portion of the wall surface with subsequent layers installed in a shingling manner to overlap lower layers. Maintain weather barrier plumb and level.

D. Sill Plate Interface: Extend lower edge of weather barrier over sill plate interface 3-6 inches. Secure to foundation with elastomeric sealant as recommended by weather barrier manufacturer.

E. Window and Door Openings:

1. Extend weather barrier completely over openings and then cut openings per manufacturer's instructions.
2. Provide flashings at head, jamb and window sills to complete weather barrier into rough opening.

F. Overlap weather barrier:
1. Exterior corners: minimum 12 inches.
2. Seams: minimum 6 inches.

G. Weather Barrier Attachment: Attach weather barrier to studs through exterior sheathing. Secure using weather barrier manufacturer recommended fasteners, space 12 -18 inches vertically on center along stud line, and 24 inch on center, maximum horizontally.

H. Seaming: Seal seams of weather barrier with seam tape at all vertical and horizontal overlapping seams.

1. Seal any tears or cuts as recommended by weather barrier manufacturer.

I. Protection of Building Wrap: Protect installed weather barrier from damage.

3.5 SHEATHING JOINT-AND-PENETRATION TREATMENT

A. Seal sheathing joints according to sheathing manufacturer's written instructions.

1. Apply elastomeric sealant to joints and fasteners and trowel flat. Seal other penetrations and openings.
2. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing board joints, and apply and trowel silicone emulsion sealant to embed tape in sealant. Apply sealant to exposed fasteners. Seal other penetrations and openings.
3. Apply sheathing tape to joints between foam-plastic sheathing panels and at items penetrating sheathing. Apply at upstanding flashing to overlap both flashing and sheathing.

3.6 FLEXIBLE FLASHING INSTALLATION

A. Apply flexible flashing where indicated to comply with manufacturers written instructions.

1. Lap seams and junctures with other materials at least 4 inches, except that at flashing flanges of other construction, laps need not exceed flange width.
2. Lap flashing over weather-resistant building paper at bottom and sides of openings.
3. Lap weather-resistant building paper over flashing at heads of openings.
4. After flashing has been applied, roll surfaces with a hard rubber or metal roller.

END OF SECTION 06 1600

SECTION 07 2100 – THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Foam-plastic board insulation.
2. Glass-fiber blanket insulation.
3. Sprayed mineral-wool (rock wool) insulation.
4. Polyisocyanurate board insulation.
5. Spray polyurethane foam insulation.
6. Ventilated roof insulation.
7. Vapor barriers.

B. Related Sections Include:

1. Division 07 Section "EPDM Roofing" for rigid insulation that is part of roofing system.

1.2 PERFORMANCE REQUIREMENTS

A. Materials of this section shall provide continuity of thermal barrier at building enclosure elements.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1. For the ventilated roof insulation also provide:
   a. Installation instructions.
   b. A sample with the edge profile specified and large enough to show the actual lateral spacing of the vent space supports.
   c. A manufacturer's dimensioned drawing showing how the 50% lateral ventilation is achieved.
   d. Calculations of spacer block percentage of panel area and the Net Free Area per Lineal Foot of insulation after deducting for spacers.

B. Product test reports.

C. Research/evaluation reports.

1.4 QUALITY ASSURANCE

A. Retain ASTM test method below based on product and kind of fire-resistance characteristic specified for each product in Part 2. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84 for surface-burning characteristics, by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

B. Recycled Content: Provide glass-fiber insulation with recycled content so postconsumer recycled content plus one-half of preconsumer recycled content constitutes a minimum of 25 percent by weight.

PART 2 - PRODUCTS

2.1 FOAM-PLASTIC BOARD INSULATION

A. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, 1.60 lb/cu. ft., with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. DiversiFoam Products.
   b. Dow Chemical Company (The).
   c. AmoFoam
   d. Owens Corning.
   e. U.C. Industries.
   f. Minnesota Diversified.

2.2 GLASS-FIBER BLANKET INSULATION

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. CertainTeed Corporation.
2. Johns Manville.
3. Owens Corning.

B. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent by weight.

C. Unfaced, Glass-Fiber Blanket Insulation: ASTM C665, Type I (blankets without membrane facing): consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

D. Foil-faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III, Class B; consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

2.3 SPRAYED MINERAL-WOOL (ROCKWOOL) INSULATION

A. Basis-of-Design: Subject to compliance with requirements, spray-applied rock wool insulation shall be FiresStop TB closed cell spray foam manufactured by U. S. Fireproofing:

1. If adhesive is required, ROCK-Tight Adhesive shall be used with FireStop TB; substitutions are not allowed.
2. R-Value: As indicated on Drawings.
3. Fire Hazard Classification: ASTM E84
   a. Flame Spread = 5
   b. Smoke Developed = 0
   c. Fuel Contribution = 0
4. Non-Combustibility: ASTM E-136; pass.
5. Air Erosion: ASTM E859 = .01 gram loss over 24 hour period.

6. Moisture Absorption: ASTM E-553 = pass.
7. Thermal Conductivity: ASTM C-518 = R-Value/inch 3.8 (loose), 4.2 (low density), 4.5 (high density).
8. Noise Reduction Coefficient: ASTM C-423; NRC=.85, 1.5" on solid backing; NRC = 1.1, 3" on solid backing.
9. Mold and Fungus Resistance: ASTM 1338 = Pass.

2.4 POLYISOCYANURATE BOARD INSULATION

A. ASTM C 1289, Type II, Class 1, with maximum flame-spread and smoke-developed indexes of 75 and 450 respectively, based on test performed on unfaced core on thicknesses up to 4 inches.

1. Manufacturers:
   a. Atlas Roofing Corporation.
   b. Dow Chemical Corporation.
   c. Rmax, Inc.
   d. Approved Equal.

2. R-Value: As indicated on Drawings.

2.5 SPRAY POLYURETHANE FOAM INSULATION

A. Closed-Cell Polyurethane Foam Insulation: ASTM C 1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. BASF Corporation.
   b. BaySystems NorthAmerica, LLC.
   c. Dow Chemical Company (The).
   d. Approved Equal.

2. Minimum density of 1.5 lb/cu. ft., thermal resistivity of 6.2 deg F x h x sq. ft./Btu x in. at 75 deg F.
3. Use zero-depleting spray system.
4. Follow manufacturer's written application instructions to achieve depth specified on Drawings.

2.6 VENTILATED ROOF INSULATION

A. Description:
1. The ventilated roof insulation shall be a preassembled panel consisting of one layer of 7/16" fire retardant plywood, built-in ventilation space maintained by 1" wood spacer blocks, with isocyanurate insulation on the bottom.
2. Wood panel edges shall be rabbeted to allow the foam edges to fit together while providing clearance between the wood sheathing on adjoining panels.
3. Foam sides and ends shall have a machined tongue and groove profile to reduce heat loss at the joints.
4. Long Term Thermal Resistance R-Value: See Drawings.
5. Vapor Barrier: Install vapor barrier in locations as noted on Drawings.

B. Performance Requirements:
1. The wood spacer blocks shall not exceed 8% of the panel area and shall leave 50% open for lateral (across the slope) ventilation. Spacer blocks shall not be over 12" apart in either direction.
2. The vent space shall provide a minimum of 10 sq. in. of Net Free Area per lineal foot of insulation along the 8' edge after deducting for the spacer blocks.

3. The foam insulation shall have a Flame Spread Rating of 40-60.
4. The ventilated insulation shall be classified by Underwriters Laboratories Inc. as a shingle decking accessory for use with any Class A, B or C asphalt glass mat or asphalt organic shingle. Each bundle of ventilated panels shall bear an Underwriter Laboratory label.

C. Erection of the ventilated insulation shall be coordinated with the roofing subcontractor so the roofing is applied as soon as possible after insulation is in place.

D. Basis-of-Design Product: Subject to compliance with requirements, provide Vent-Top ThermaCal 1 with Cornell SIP fasteners as required per the appropriate fastener pattern, manufactured by Cornell Corporation, Cornell, Wisconsin. Telephone: 715.239.6411; Fax: 800.267.8368; Website: www.cornellcorporation.com

1. Storage: Vent-Top ThermaCal 1 is shipped covered with a plastic bag which is intended to temporarily protect the material while in transit only. On the jobsite the piles should be covered with a breathable waterproof tarpaulin and the plastic bag should be removed if moisture accumulates inside it.

2.7 VAPOR BARIERS

A. Polyethylene Vapor Barriers: ASTM D 4397, 10 mils thick, with maximum permeance rating of 0.10 perm.

2.8 AUXILIARY INSULATING MATERIALS

A. Vapor-Barrier Tape: Pressure-sensitive tape of type recommended by insulation manufacturers for sealing joints and penetrations in vapor-retarder facings.

B. Vapor-Barrier Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.

C. Single-Component Nonsag Urethane Sealant: ASTM C 920, Type I, Grade NS, Class 25, Use NT related to exposure, and Use O related to vapor-barrier-related substrates.

D. Adhesive for Vapor Barriers: Product recommended by vapor-retarder manufacturer and with demonstrated capability to bond vapor retarders securely to substrates indicated.

E. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 INSTALLATION OF INSULATION

A. Comply with insulation manufacturer's written instructions applicable to products and applications indicated.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

E. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

F. Seal joints between foam-plastic insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

G. Foam-Plastic Board Insulation: Seal joints between units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

H. Ventilated Roof Insulation:

1. The structural roof deck shall be smooth and level and free of water or debris before the ventilated insulation is installed.
2. Fasten with Cornell SIP fasteners to the supporting roof deck shown in the plans.
3. Protect ventilated insulation work from exposure to moisture damage and deterioration, primarily by prompt installation of the roofing, sheet metal, and waterproofing work.

3.2 INSTALLATION OF VAPOR BARRIERS

A. General: Extend vapor barrier to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

B. Seal vertical joints in vapor barriers over framing by lapping not less than two wall studs. Fasten vapor barriers to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches o.c.

C. Before installing vapor barrier, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor barriers with vapor-barrier tape according to vapor-barrier manufacturer's written instructions. Seal butt joints with vapor-barrier tape. Locate all joints over framing members or other solid substrates.

D. Firmly attach vapor barriers to metal framing and solid substrates with vapor-barrier fasteners as recommended by vapor-barrier manufacturer.

E. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-barrier tape to create an airtight seal between penetrating objects and vapor barrier.

F. Repair tears or punctures in vapor barriers immediately before concealment by other work. Cover with vapor-barrier tape or another layer of vapor barrier.

END OF SECTION 07 2100

SECTION 07 4213 – PREFORMED METAL WALL PANELS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. This section covers the pre-finished, pre-fabricated Architectural metal wall panel system. All metal trim, accessories, fasteners, insulation and sealants indicated on the drawings as part of this section.

1.2 SUMMARY

A. Section Includes
    1. 1. Factory formed metal wall panels

1.3 DEFINITIONS

A. Metal Wall Panel Assembly: Metal wall panels, attachment system components, miscellaneous metal framing, thermal, and accessories necessary for a complete weathertight system.

1.4 QUALITY ASSURANCE

A. Products establish a minimum of quality required.
B. Manufacturer and erector shall demonstrate experience of a minimum of five (5) years in this type of project.
C. Sheet Metal Industry Standard: Comply with Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Architectural Sheet Metal Manual.
D. Panels shall be factory-produced only. No portable, installer-owned or installer-rented machines will be permitted.

1.5 SUBSTITUTIONS

A. The material, products and equipment specified in this section establish a standard for required function, dimension, appearance and quality to be met by any proposed substitution.

1.6 SYSTEM DESCRIPTION

A. Material to comply with:
    1. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

1.7 ROOF SYSTEM PERFORMANCE TESTING

A. General Performance: Metal wall panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation or other defects in construction.
B. Panels to meet:
    1. Metal Wall shall be designed to meet applicable Local Building Code.

1.8 WARRANTIES

A. Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal wall panels that show evidence of deterioration of factory-applied finish within specified warranty period.
    1. Exposed Panels Finish - deterioration includes the following:
        a. Color fading more than 5 hunter units when tested according to ASTM D 2244
        b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214
        c. Cracking, checking, peeling or failure of a paint to adhere to a bare metal.

2. Warranty Period: 20 Years from the date of substantial completion

B. Applicator shall furnish written warranty for a two (2) year period from date of substantial completion of building covering repairs required to maintain roof and flashings in watertight condition

1.9 SUBMITTALS

A. Furnish detailed drawings showing profile and gauge of exterior sheets, location and type of fasteners, location, gauges, shape and method of attachment of all trim locations and types of sealants, and any other details as may be required for a weather-tight installation.
B. Provide finish samples of all colors specified.
C. Shop drawings: Show fabrication and installation layouts of metal wall panels or metal soffit panels, details of edge conditions, panel profiles, corners, anchorages, trim, flashings, closures and accessories, and special details. Distinguish between factory and field-assembled work

1.10 DELIVERY, STORAGE AND HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
B. Deliver components, sheets, metal wall panels and other manufactured items so as not to be damaged or deformed. Package metal wall panels for protection during transportation and handling.
C. Unload, store and erect metal wall panels in a manner to prevent bending, warping, twisting and surface damage.
D. Stack metal wall panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal wall panels to ensure dryness. Do not store metal wall panels in contact with other materials that might cause staining, denting or other surface damage.
E. Protect strippable protective coating on any metal coated product from exposure to sunlight and high humidity, except to the extent necessary for material installation.

1.11 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit metal wall panel work to be performed.
B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PANEL DESIGN

A. General: Provide factory-formed metal wall panels designed for wall applications where a flush or flat appearance is desired. A round interlock leg and concealed fastening system act to improve the flush appearance while providing additional strength.
B. Wall panels shall be Flush in 7" widths with 1" height.
C. Panels to be produced Smooth - Factory Standard.
D. Forming: Use continuous end rolling method. No end laps on panels. No portable rollforming machines will be permitted on this project, no installer-owned or installer-rented machines will be permitted. It is the intent of the Architect to provide Factory-Manufactured panel systems only for this project.

2.2 ACCEPTABLE MANUFACTURERS

A. This project is detailed around the metal wall product of PAC-CLAD, Flush Wall Panel.

2.3 MATERIALS AND FINISHES

A. Preformed metal panels shall be fabricated of 0.032 Aluminum, and shall be Herr-Voss corrective leveled for flat appearance.
B. Color to match louvers.
C. Finish shall be Kynar 500 or Hylar 5000 Fluorocarbon coating with a top side film thickness of 0.70 to 0.90 mil over a 0.25 to 0.3 mil prime coat to provide a total dry film thickness of 0.95 to 1.25 mil, to meet AAMA 621. Bottom side shall be coated with a primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesions, flexibility and longevity as specified by Kynar 500 or Hylar 5000 finish supplier.
D. If Strippable coating to be applied on the pre-finished panels to the top side to protect the finish during fabrication, shipping and handling, film shall be removed before installation.
E. Trim: Trim shall be fabricated of the same material and finish to match the profile, and will be press broken in lengths of 10 to 12 feet. Trim shall be formed only by the manufacturer of their approved dealer. Trim to be erected in overlapped condition. Use lap strips only as indicated on drawings. Miter conditions shall be factory welded material to match the sheeting.
F. Accessories/Fasteners: Fasteners shall be of type, material, size, corrosion resistance, holding power and other properties required to fasten miscellaneous framing members to substrates. Accessories and their fasteners shall be capable of resisting the specified design wind uplift forces and shall allow for thermal movement of the wall panel system. Exposed fasteners shall not restrict free movement of the roof panel system resulting from thermal forces, except at designed points of roof panel fixity
G. Underlayment
    1. On all surfaces to be covered with metal wall panels, furnish and install a 40 mil "Peel & Stick membrane", required as outlined by metal panel manufacturer. Membrane to be a minimum of 40 mil thickness, smooth, non-granular, by one of the following manufacturers:
        a. W.R Grace "Ice & Water Shield"
        b. Cetco Strongseal
        c. Carlisle CCW WIP 300HT
        d. Interwrap Titanium PSU
        e. MFM Corp "Wind & Water Shield"
        f. Polyguard Deck Guard HT of Polyglas HT
        g. Tamko TW Tile and Metal Underlayment
H. Sealants
    1. Provide two-part polysulfide class B non-sag type for vertical and horizontal joints or
    2. One part polysulfide not containing pitch or phenolic extenders or
    3. Exterior grade silicone sealant recommended by roofing manufacturer or
    4. One part non-sag, gun grade exterior type polyurethane recommended by the roofing manufacturer.

2.4 FABRICATION

A. Comply with dimensions, profile limitations, gauges and fabrication details shown and if not shown, provide manufacturer's standard product fabrication.
    1. Max panel length is 25'.
B. Fabricate components of the system in factory, ready for field assembly.
C. Fabricate components and assemble units to comply with fire performance requirements specified.
D. Apply specified finishes in conformance with manufacturer's standard, and according to manufacturer's instructions.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine alignment of structural steel and related supports, primary and secondary roof framing, solid roof sheathing, prior to installation.
B. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of the Work.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FASTENERS

A. Secure units to supports
B. Place fasteners as indicated in manufacturer's standards.

3.3 INSTALLATION

A. Compliance: Comply with manufacturer's product data, recommendations and installation instructions for substrate verification, preparation requirements and installation.
B. Panels shall be installed plumb and true in a proper alignment and in relation to the structural framing. The erector must have at least five years successful experience with similar applications.
C. Install metal panels, fasteners, trim and related sealants in accordance with approved shop drawings and as may be required for a weather-tight installation.
D. Provide uniform, neat seams.
E. Fasteners: Conceal fasteners where possible in exposed work. Cover and seal fasteners and anchors for watertight and leakproof installation.
F. Remove all strippable coating and provide a dry-wipe down cleaning of the panels as they are erected.

3.4 DAMAGED MATERIAL

A. Upon determination of responsibility, repair or replace damaged metal panels and trim to the satisfaction of the Architect and Owner.

3.5 CLEANING

A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damage installed products. Clean installed products in accordance with manufacturer's instruction prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

END OF SECTION 07 4213

SECTION 07 5323 - EPDM MEMBRANE ROOFING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Adhered EPDM membrane roofing systems.
   2. Tapered roof insulation.
   3. Roof tear-off and re-roofing.

1.2 PERFORMANCE REQUIREMENTS

A. Energy Performance: Provide roofing system that is listed on the DOE's Energy Star® "Roof Products Qualified Product List" for low-slope roof products.

B. General: Install sheet membrane roofing and base flashing that are watertight; will not permit the passage of liquid water and will withstand wind loads, thermally induced movement and exposure to weather without failure.

C. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

D. Provide sheet membrane, base flashings and component materials that meet requirement of FM 4450 AND FM 4470 as part of a roofing system and that are listed in FM's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM markings.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated, including research/evaluation reports.

B. Shop Drawings: For roofing and insulation system include plans, elevations, sections, details, and attachments to other work.

C. Maintenance Data: For roofing system to include in maintenance manuals.

D. Warranties: Special warranties specified in this Section.

E. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by membrane roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

B. Source Limitations: Obtain components for membrane roofing system from same manufacturer as membrane roofing.

C. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.6 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation and reroofing operations only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements, and to permit the Work to proceed without water entering into the existing roofing system or building.

B. Roof tear-off and reroofing: Conduct reroofing so Owner's occupancy of the building will not be disrupted. Provide Owner with not less than 48 hours notice of activities that may affect the Owner's operations.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 EPDM MEMBRANE ROOFING

A. EPDM Roofing Membrane: ASTM D 4637, Type I, non-reinforced, uniform, flexible EPDM sheet and as follows:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified:

    a. Carlisle SynTec Incorporated.
    b. Firestone Building Products.
    c. GenFlex Roofing Systems.
    d. Johns Manville.
    e. Mule-Hide Products Co., Inc.
    f. Versico Incorporated.

2. Thickness: 60 mils nominal.
3. Exposed Face Color: Black.
4. Grade and class: Grade 1 and Class U, unreinforced.

2.2 AUXILIARY MATERIALS

A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

    a. Plastic Foam Adhesives: 50 g/L.
    b. Gypsum Board and Panel Adhesives: 50 g/L.
    c. Multipurpose Construction Adhesives: 70 g/L.
    d. Fiberglass Adhesives: 80 g/L.
    e. Contact Adhesive: 80 g/L.
    f. Single-Ply Roof Membrane Sealants: 450 g/L.
    g. Nonmembrane Roof Sealants: 300 g/L.
    h. Sealant Primers for Nonporous Substrates: 250 g/L.
    i. Sealant Primers for Porous Substrates: 775 g/L.
    j. Other Adhesives and Sealants: 250 g/L.

B. Sheet Flashing: 60-mil-thick EPDM, partially cured or cured, according to application.

C. Protection Sheet: Epichlorohydrin or neoprene non-reinforced flexible sheet 55- to 60-mil thick, recommended by EPDM manufacturer for resistance to hydrocarbons, non-aromatic solvents, grease and oil.

D. Bonding Adhesive: Manufacturer's standard bonding adhesive.

E. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer and 3-inch- wide minimum, butyl splice tape with release film.

F. Lap Sealant: Manufacturer's standard single-component sealant, color to match roofing membrane.

G. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

H. Roof Expansion Joints: Manufacturer's standard expansion joints as indicated on drawings at connections to existing buildings.

I. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

J. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to roofing system manufacturer.

K. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.3 ROOF INSULATION

A. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, felt or glass-fiber mat facer on both major surfaces. Roof assembly must pass FM 440 or UL 1256.

B. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.

C. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.4 INSULATION ACCESSORIES

A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Insulation manufacturer's recommended cold-applied adhesive formulated to attach roof insulation to substrate or to another insulation layer.

D. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, as necessary to meet Class A requirements.

1. Product: Subject to compliance with requirements, provided "Dens-Deck" manufactured by Georgia-Pacific Corporation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Proceed with installation only after unsatisfactory conditions have been corrected.
4. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 TEAR-OFF AND REROOFING

A. Maintain roof drains in functioning condition to ensure roof drainage at the end of each workday. Prevent debris from entering or blocking roof drains and conductors.

B. Notify Owner each day of extent of roof tear-off proposed for that day.

C. Existing Mechanical Equipment on Roof: Coordinate with Owner the removal and replacement of existing mechanical equipment on roof.

D. Roof Tear-off: Remove existing roofing membrane and roofing system components down to the concrete deck. Remove cover boards, insulation, substrate boards, unadhered bitumen and felts, wet felts and any fasteners from the deck.

E. Inspect the deck after the tear-off. Verify that the concrete substrate is visibly dry and free of moisture. If the deck surface is not suitable for receiving new roofing or if the structural integrity of the deck is suspect, immediately notify the Architect. Do not proceed with installation until directed by the Architect.

F. Remove existing base flashings around parapets, curbs, walls and penetrations.

G. Clean substrates of contaminants such as asphalt, sheet materials, dirt and debris.

H. Do not damage counter flashings that are to remain. Replace damaged metal counterflashings with new counterflashings as specified in Division 7 Section "Copper Flashing and Trim."

I. Disposal: Collect and place demolished materials in containers, remove from roof and site. Do not allow demolished materials to accumulate on site. Transport and legally dispose of demolished materials off the Owner's property.

3.4 SUBSTRATE BOARD

A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes and with end joints staggered between rows. Tightly butt substrate boards together.

3.5 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Install tapered insulation saddles under area of roofing to conform to slopes indicated.

D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.

E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.

1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.

3.6 ADHERED MEMBRANE ROOFING INSTALLATION

A. Adhere membrane roofing over area to receive roofing according to roofing system manufacturer's written instructions. Unroll membrane roofing and allow to relax before installing.

B. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

C. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeters.

D. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement, and firmly roll side and end laps of overlapping membrane roofing according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal edges of membrane roofing terminations.

E. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping membrane roofing according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of membrane roofing terminations.

F. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

3.7 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified independent testing agency to perform inspections.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.

1. Notify Architect or Owner 48 hours in advance of date and time of inspection.

C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

A. Do not permit foot or vehicular traffic on unprotected membrane.

B. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

C. Protect installed board insulation from damage due to UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

D. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

E. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 07 5323

SECTION 07 6100 – SHEET METAL (COPPER) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Flat-locked and soldered roofing.
2. Standing-seam copper roofing.
3. Batten-seam copper roofing.
4. Ice and water shield underlayment.

B. Related Requirements:

1. Division 07, Section "Thermal Insulation" for roof insulation.
2. Division 07, Section "Copper" Flashing and Trim."
3. Division 07, Section "Cooper Gutters and Downspouts."
4. Division 07, Section "Joint Sealants" for field-applied joint sealants adjoining sheet metal (copper) roofing.

1.2 COORDINATION

A. Coordinate copper roofing with rain drainage work, flashing, gutters, downspouts, trim and construction of decks, parapets, walls, and other adjoining work to provide permanently watertight, secure, and noncorrosive installation.

1.3 PREINSTALLATION MEETING

A. Preinstallation Conference: Conduct conference at Project site.

1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review structural loading limitations of substrates during and after roofing installation.
3. Review flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affect sheet metal (copper) roofing.
4. Review roof observation and repair procedures after sheet metal (copper) roofing installation.

1.4 PERFORMANCE REQUIREMENTS

A. Installation Requirements: Fabricator is responsible for installing system, including anchorage to substrate and necessary modifications to meet specified and drawn requirements and maintain visual design concepts in accordance with Contract Documents and following installation methods as stipulated in the "Copper in Architecture' handbook published by the Copper Development Association, Inc. (CDA).
1. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
2. Make modifications only to meet field conditions and to ensure fitting of system components.
3. Obtain Architect's approval of modifications.
4. Provide concealed fastening wherever possible.
5. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between units and building structure or between components themselves.

6. Obtain Architect's approval for connections to building elements at locations other than indicated in Drawings.
7. Accommodate building structure deflections in system connections to structure.

B. Performance Requirements:
1. System shall accommodate movement of components without buckling, failure of joint seals, undue stress on fasteners, or other detrimental effects when subjected to seasonal temperature changes and live loads.
2. Design system capable of withstanding building code requirements for negative wind pressure.

C. Interface With Adjacent Systems:
1. Integrate design and connections with adjacent construction.
2. Accommodate allowable tolerances and deflections for structural members in installation.

1.5 SUBMITTALS

A. Product data, including metal manufacturer's specifications, installation instructions, and general recommendations for roofing applications. Include certification or other data substantiating that materials comply with requirements.

B. Shop drawings showing manner of forming, joining, and securing copper roofing, and pattern of seams. Show expansion joint details and waterproof connections to adjoining work and at obstructions and penetrations.

C. Samples consisting of 6-inch or 12-inch square specimens of specified copper roofing material.

D. Certificates: Fabricator's certification that products furnished for Project meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

A. Fabricator's Qualifications: Company specializing in copper sheet metal roofing work with three (3) years of experience in similar size and type of installations.

B. Installer: A firm with five (5) years of successful experience with installation of copper roofing of type and scope equivalent to Work of this Section.

C. Industry Standard: Except as otherwise shown or specified, comply with applicable recommendations and details of the "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA). Conform to dimensions and profiles shown.

D. Wind Uplift: Provide roof assemblies meeting wind uplift ratings as required by code.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading: Protect finish panel faces.

B. Acceptance at Site: Examine each panel and accessory as delivered and confirm that finish is undamaged. Do not accept or install damaged panels.

C. Storage and Protection:
1. Stack pre-formed material to prevent twisting, bending, and abrasions.
2. Provide ventilation.
3. Prevent contact with materials which may cause discoloration or staining.

1.8 WARRANTY

A. Warrant installed system and components to be free from defects in material and workmanship for period of ten (10) years.

B. Include coverage against leakage and damages to finishes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide materials by one of the following:
1. Hussey Copper, Ltd.
2. Luvata, Inc.
3. PMX Industries, Inc.
4. Revere Copper Products, Inc.
5. Approved Equal.

2.2 MATERIALS

A. Copper Roofing Sheets: Cold-rolled copper sheet complying with ASTM B 370 temper H00, unless otherwise indicated, and as follows:

1. Weight: 16 oz. per sq. ft. (0.0216-inch thick) unless otherwise indicated.

B. Roof Ventilation System: Provide Cor-A-Vent V-600 by Cor-A-Vent, Inc.

1. Color: Black.
2. Net Free Area: 20 sq. in. per lineal foot.
3. Dimensions: See Drawings.

C. Miscellaneous Materials: Provide materials and types of fasteners, solder, protective coatings, separators, sealants, and accessory items as recommended by copper sheet manufacturer for copper roofing work, except as otherwise indicated.

D. Accessories: Except as indicated as work of another specification Section, provide components required for a complete roof system, including trim, copings, fascias, ridge closures, cleats, seam covers, battens, flashings, louvers, sealants, gaskets, and closure strips. Match materials and finishes of roof.

1. Sealing Tape: Pressure-sensitive 100 percent solids polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
2. Joint Sealant: One-part, copper compatible elastomeric polyurethane, polysulfide, butyl or silicone rubber sealant as tested by sealant manufacturer for copper substrates. Refer to Division 07.
3. Cleats:
   a. Concealed type as indicated in the "Copper in Architecture" handbook published by the CDA for flat seam, flat lock seam and standing seam, spaced on 12-inch centers.
   b. Fabricate cleats to allow thermal movement of copper roof panels while preventing copper panel distortion due to wind uplift forces.

4. Trim, Closure Pieces, and Accessories:

   a. Same material, thickness, and finish as adjacent copper roof panels, brake formed to required profiles.

b. Comply with standards conforming to recognized industry standard sheet metal practice.

E. Bituminous Coating: SSPC-Paint 12, Cold-Applied Asphalt Mastic (Extra Thick Film), nominally free of sulfur, compounded for 15-mil dry film thickness per coat.

F. Roofing Felt Underlayment: Synthetic felt.

1. Basis-of-Design: Subject to compliance with requirements, provide Deck Armor manufactured by GAF.
2. Other approved manufacturers:
   a. Feltex.
   b. Rex.

G. Paper Slip Sheet: Minimum 4-lb red rosin-sized building paper.

H. Ice and Water Shield: Self-adhering, polyethylene-faced sheet; ASTM D 1970, 40 mils (1.0 mm) thick minimum, consisting of slip-resisting polyethylene-film reinforcing and top surface laminated to SBS-modified asphalt adhesive, with release-paper backing; cold applied.

I. Nails for Wood Substrates: Passivated stainless steel (300 series), 0.109-inch minimum not less than 7/8 inch long barbed with large head.

J. Screws & Bolts: Copper, bronze, brass, or passivated stainless steel (300 Series) of sufficient size and length to sustain imposed stresses.

K. Cleats: 16 or 20 oz cold rolled copper, as required to sustain loads 2-inch wide x 3-inch long.

L. Solder: ASTM B32; Provide 50-50 tin/lead or lead free alternative of similar or greater strength solder. Killed acid flux.

M. Flux: Muriatic acid neutralized with zinc or approved brand of soldering flux.

N. Rivets:
1. Pop Rivets: 1/8-inch to 3/16-inch diameter, with solid brass mandrels.
2. Provide solid copper rivet (tinner's rivets) where structural integrity is required.

2.3 FABRICATION

A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of the "Copper in Architecture" handbook published by the CDA and other recognized industry practices. Fabricate for waterproof and weather-resistant performance with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrate. Comply with material manufacturer's instructions and recommendations for forming material. Form exposed copper work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

1. Fabricate to allow for adjustments in field for proper anchoring and joining.
2. Form sections true to shape, accurate in size, square, free from distortion and defects.
3. Cleats: Fabricate cleats and starter strips of same material as sheet, interlockable with sheet in accordance with CDA recommendations.
4. Tine edges of copper sheets and cleats at soldered joints for flat lock and soldered system.
5. Flat Locked Panel Seams:

   a. Fabricate flat seams for solid soldered sealant in joints.
   b. Fabricate seams for panels to be installed in overlapped, interlocking shingle manner for locked down engaged seams.

c. Fold two adjacent edges over 180 degrees for width of 3/4 inch and other two adjacent edges under 3/4 inch. Refer to CDA "Copper in Architecture Handbook."
d. Fabricate flat seam roofing from pans 18 inches by 24 inches in size.

6. Standing Seam Panels:
   a. Fabricate pans to interlock standing seam with center to center seam spacing as indicated on Drawings.
   b. Fabricate interlocking seams to heights and patterns indicated.
   c. Form overlapping and interlocking transverse joints.

B. Seams: Fabricate nonmoving seams in copper sheet with flat-lock seams. Tin edges and cleats to be soldered, form seams, and solder.

C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with mastic sealant, concealed within joints.

D. Sealant Joints: Where movable, non-expansion-type joints are indicated or required for proper performance of work, form copper to provide for proper installation of elastomeric sealant, in compliance with the "Copper in Architecture" handbook published by the CDA.

E. Separations: Provide for separation of copper from noncompatible metal or corrosive substrate by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

F. Solder:

1. Solder and seal non-moving copper joints on slopes up to 3:12, except those indicated or required to be expansive type joints.
2. After soldering, remove flux. Wipe and wash solder joints clean. Refer to CLEANING Article in PART 3.

2.4 FINISHES

A. Natural weathering mill finished copper. No applied finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. General: Examine conditions and proceed with work when substrates are ready.

B. Confirm that substrate system is even, smooth, sound, clean, dry, and free from defects.

C. Verify roof openings, pipes, sleeves, ducts, and vents through roof are solidly set, can strips and reglets in place, and nailing strips located.

3.2 PREPARATION

A. Clean surfaces to receive copper roofing. Substrate to be smooth and free of defects. Drive all projecting nails or other fasteners flush with substrate.

3.3 INSTALLATION

A. Manufacturer's Recommendations: Except as otherwise shown or specified, comply with recommendations and instructions of manufacturer of copper being fabricated and installed.

B. General:

1. Separate dissimilar metals by painting each metal surface in area of contact with a bituminous coating, by applying rubberized asphalt or butyl underlayment to each metal surface, or by other permanent separation as recommended by manufacturers of dissimilar metals.

2. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of copper roofing to profiles, patterns, and drainage arrangements shown and as required for permanently leakproof construction. Provide for thermal expansion and contraction of the work, as indicated. Seal joints as shown and as required for leakproof construction. Shop-fabricate materials to greatest extent possible.

3. Sealant-Type Joints: Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to conceal sealant completely. When ambient temperature is moderate at time of installation, 40 degrees to 70 degrees F, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher or lower ambient temperatures. Do not install sealant-type joints at temperatures below 40 degrees F. Comply with requirements of Division 07 "Joint Sealant" Section for handling and installing sealants.

4. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder, and sealant. Except as otherwise shown, fold back sheet metal to form a hem on concealed side of exposed edges.
5. Conceal fasteners and expansion provisions where possible in exposed work, and locate so as to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

6. Tin uncoated copper surfaces and cleats at edges of sheets to be soldered, for a width of 1-1/2 inches, using solder recommended for copper work.

7. Roofing Ventilation System: Install Cor-A-Vent V-600 system as specified by manufacturer and in accordance with Drawings.

C. Flat Lock Seam Roofing:

1. Install copper work in accordance with CDA's "Copper in Architecture Handbook."
2. Flat Seam Metal Roof Panels: Fasten system to substrate with concealed metal cleats and screws at spacings required by fabricator to resist code required wind uplift.
3. Align, level, and plumb system with structure.
4. Fasten cleats or nails using cleats mated to folded flat seams and fastener pattern to resist design loads with screws or barbed nails of sufficient length to penetrate substrate.
5. Fully seat adjacent panel to on two sides to achieve continuous engagement of seam joint.
6. Mallet or dress down engaged seams.
7. Apply flux and fully sweat seams with solder to achieve watertight installation.
8. Install expansion battens at 25 to 30 feet in both directions.

D. Standing Seam Roofing:

1. Fold lower end of each pan under 3/4 inch. Slit fold 1-inch away from corner to form tab where pan turns up to make standing seam. Fold upper end of each pan over 2-inches. Hook fold on lower end of upper pan into fold on upper end of underlying pan.

2. Apply pans beginning at eaves. Loose lock pans to valley flashing and edge strips at eaves and gable rakes.

3. Finish standing seams 1-1/2 inch high. Bend up one side edge 2 inches and other side edge 1-3/4 inch. Make first fold 1/4-inch wide single fold and second fold 1/2-inch wide, providing locked portion of standing seam with 5 plies in thickness. Fold lower ends of seams at eaves over at 45 degree angle. Terminate standing seams at ridge and hips by turning down in tapered fold.

4. Form valleys of sheets not exceeding 10'-0" in length. Lap joints 8-inches in direction of drainage. Extend valley sheet minimum 6-inches under roofing sheets. At valley, double fold valley and roofing sheets and secure with cleats spaced 12-inch centers.

E. Underlayment Installation:

1. Install flashings to cover underlayment to comply with requirements specified in Division 7 "Copper Flashing and Trim."
2. Ice and Water Shield: Install self-adhering sheet underlayment, wrinkle free, on roof sheathing under copper panels. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply at locations indicated on Drawings, in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.
3. Apply slip sheet over underlayment before installing copper roof panels.

F. Roofing Felt Underlayment:
1. Install underlayment over solid substrates with horizontal overlaps and ends staggered.
2. Lay parallel to ridge line with 2-1/2-inch sidelaps and 6-inch endlaps.
3. Start application at low point, working up deck laying plies in shingle fashion.
4. Fasten underlayment with copper roofing nails spaced on 12-inch centers maximum.

G. Install underlayment and paper slip on substrate under copper roofing to greatest extent possible unless otherwise recommended by manufacturer of sheet metal. Paper slip sheets must be installed over the underlayment. Use adhesive for temporary anchorage, where possible, to minimize use of mechanical fasteners under copper roofing. Lap joints 2 inches minimum.

3.4 CLEANING

A. Remove protective film (if any) from exposed surfaces of copper roofing promptly upon installation.

B. Upon completion of each area of soldering, carefully remove flux and other residue from surfaces. Neutralize acid flux by washing with baking soda solution, and then flushing with clear water rinse. Use special care to neutralize and clean crevices.

C. Clean exposed metal surfaces of substances that would interfere with uniform oxidation and weathering.

3.5 PROTECTION

A. Provide final protection in a manner acceptable to installer that ensures that copper roofing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 07 6100

SECTION 07 6215 – COPPER FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Counterflashing and base flashing.
2. Wall flashing.
3. Gravel stops.
4. Copings.
5. Valley flashing.
6. Exposed trim/fascia units.
7. Miscellaneous accessories.

B. Related Sections Include:

1. Division 07, "Sheet Metal (Copper) Roofing."
2. Division 07, "Copper Gutters and Downspouts."
3. Division 07, "Joint Sealants."

1.2 COORDINATION

A. Coordinate work of this section with interfacing and adjacent work for proper sequencing. Ensure weather resistance and durability of work and protection of materials and finishes.

1.3 PERFORMANCE REQUIREMENTS

A. Installation Requirements: Fabricator is responsible for installing system, including anchorage to substrate and necessary modifications to meet specified and drawn requirements and maintain visual design concepts in accordance with the Contract Documents and following installation methods as stipulated in "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA).

1. Drawings are diagrammatic and are intended to establish basic dimensions of units, sight lines, and profiles of units.
2. Make modifications only to meet field conditions and to ensure fitting of system components.
3. Obtain Architect's approval of modifications.
4. Provide concealed fastening wherever possible.
5. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between units and building structure or between components themselves.
6. Obtain Architect's approval for connections to building elements at locations other than indicated in Drawings.
7. Accommodate building structure deflections in system connections to structure.

B. Performance Requirements:

1. System shall accommodate movement of components without buckling, failure of joint seals, undue stress on fasteners, or other detrimental effects when subjected to seasonal temperature changes and live loads.

2. Design system capable of withstanding building code requirements for negative wind pressure.

1.4 SUBMITTALS

A. Product Data for Flashing, Metal, and Accessories: Manufacturer's technical product data, installation instructions and general recommendations for each specified sheet material and fabricated product.

B. Shop drawings showing layout, profiles, methods of joining, and anchorage details, including major counterflashings, copings, trim/fascia units, and gravel stop systems. Provide layouts at 1/4-inch scale and details at 3-inch scale.

C. Samples of the following flashing, sheet metal, and accessory items:

1. 6-inch or 12-inch square samples of specified sheet materials to be exposed as finished surfaces.
2. 6-inch or 12-inch long samples of fabricated products exposed as finish work. Provide complete with specified finish.

1.5 QUALITY ASSURANCE

A. Fabricator's Qualifications: Company specializing in copper flashing and trim work with three (3) years of experience in similar size and type of installations.

B. Installer: A firm with five (5) years of successful experience with installation of copper flashing and trim work of type and scope equivalent to Work of this Section.

C. Industry Standard: Except as otherwise shown or specified, comply with applicable recommendations and details of the "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA). Conform to dimensions and profiles shown.

D. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading: Protect finish metal faces.

B. Acceptance at Site: Examine each component and accessory as delivered and confirm that material and finish is undamaged. Do not accept or install damaged materials.

C. Storage and Protection:

1. Stack preformed material to prevent twisting, bending, and abrasions.
2. Provide ventilation.
3. Prevent contact with materials which may cause discoloration or staining.

1.7 WARRANTY

A. Warrant installed flashing, copings, gravel stops, and trim components to be free from defects in material and workmanship for a period of ten (10) years.

B. Include coverage against leakage and damages to finishes.

PART 2 - PRODUCTS

2.1 FLASHING AND TRIM MATERIALS

A. Copper: ASTM B 370; temper H00 (cold-rolled) except where temper 060 is required for forming.

1. 16 oz. per sq. ft. (0.0216-inch thick) except as otherwise noted.

2.2 ACCESSORIES

A. Solder: ASTM B 32; Provide 50-50 tin/lead or lead free alternative of similar or greater strength solder.

B. Flux: Muriatic acid neutralized with zinc or approved brand of soldering flux.

C. Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.

D. Bituminous Coating: SSPC-Paint 12, Cold-Applied Asphalt Mastic (Extra Thick Film), nominally free of sulfur, compounded for 15-mil dry film thickness per coat.

E. Joint Sealant: Refer to Division 07, "Joint Sealants."

F. Adhesives: Type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of and compatibility with flashing sheet.

G. Roofing Felt Underlayment: Synthetic felt.

1. Basis-of-Design: Subject to compliance with requirements, provide Deck Armor manufactured by GAF.
2. Other approved manufacturers:
   a. Feltex.
   b. Rex.

H. Paper Slip Sheet: Minimum 4-lb. red rosin-sized building paper.

I. Metal Accessories: Provide cleats, straps, anchoring devices, and similar accessory units as required for installation of work, noncorrosive, size and gauge required for performance.

J. Roofing Cement: ASTM D 2822, asphaltic.

K. Rivets:

1. Pop Rivets: 1/8-inch to 3/16-inch diameter, with solid brass mandrels
2. Provide solid copper rivet (tinner's rivets) where structural integrity of seam is required.

2.3 FABRICATION

A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of the CDA "Copper in Architecture" handbook and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer's instructions and recommendations for forming material. Form exposed copper work without

excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

1. Fabricate to allow for adjustments in field for proper anchoring and joining.
2. Form sections true to shape, accurate in size, square, free from distortion and defects.
3. Cleats: Fabricate cleats of same material as sheet, interlockable with sheet in accordance with CDA recommendations.
4. Fabricate corners form one piece with minimum 18-inch long legs; solder for rigidity if required; seal non-soldered weather joints with sealant.

B. Seams: Fabricate nonmoving seams with flat-lock seams where possible. Tin edges and cleats to be seamed, form seams, and solder. Where soldered flat-lock seams are not possible, use soldered riveted lap seam joints for additional strength.

C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with mastic sealant concealed within joints.

D. Sealant Joints: Where movable, non-expansion-type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with CDA standards.

E. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

F. Solder:

1. Solder and seal metal joints, except those indicated or required to be expansive type joints.
2. Tin edges of copper sheets and cleats at soldered joints.
3. After soldering, carefully remove flux and other residue from surfaces. Neutralize acid flux by washing with baking soda solution, and then flushing with a clear water rinse. Wipe and wash solder joints clean.

G. Seams: Provide the following seam types unless noted or detailed otherwise.

1. Flat: Flat lock.
2. Corner: Double lock corner.
3. Standing: Double lock standing lap seam.

H. Copper Thickness: Comply with CDA recommendations for copper size and shape.

I. Flashing and Counterflashing:

1. Fabricate as indicated on Drawings and in accordance with the CDA "Copper in Architecture" handbook.
2. Hem exposed flashings on underside 1/2-inch; miter and seam corners.
3. Fabricate vertical faces with bottom edge formed outward 1/4-inch and hemmed to form drip.
4. Fabricate flashings to allow toe to extend minimum 2-inches over wall surfaces.

J. Coping: As indicated on Drawings and in accordance with the CDA "Cooper in Architecture" handbook.

K. Fascia/Gravel Stop: As indicated on Drawings and in accordance with the CDA "Copper in Architecture" handbook.

L. Valley Flashing:

1. Fabricate valley flashing according to details and specified requirements.
2. Fabricate metal flashings at open valleys with a minimum 1-inch high standing rib at center of valley to break force of water flow.

2.4 FINISHES

A. Natural weathering mill finished copper. No applied finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. General: Examine conditions and proceed with work when substrates are ready.

B. Confirm that substrate system is even, smooth, sound, clean, dry, and free from defects.

3.2 INSTALLATION

A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations and with the "Copper in Architecture" handbook published by the CDA. Anchor units of work securely in place by methods indicated, providing for thermal expansion of units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.

1. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction.
2. Apply asphalt mastic on copper surfaces of units in contact with dissimilar metals.
3. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
4. Miter, lap seam and close corner joints with solder. Seal seams and joints watertight.
5. Install expansion joints at frequency recommended by the CDA. Do not fasten moving seams such that movement is restricted.
6. Coordinate with installation of roofing system and roofing accessories.

B. Underlayment: Install red rosin paper slip sheet over layer of synthetic felt.

C. Counterflashings and Reglets:

1. Fabricate counterflashings and reglets as 2 piece assemblies to permit installation of counterflashing after base flashings are in place.
2. Fabricate reglets of same metal and thickness as counterflashings.
3. Install bottom edge tight against base flashing.
4. Lap seam vertical joints 3 inches minimum and apply sealant.

D. Install counterflashing in reglets, either by snap-in seal arrangement, lock seal in accordance with the "Copper in Architecture" handbook published by the CDA, or by soldering in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.

E. Fashion flashing to curb nailers at maximum spacing of 3 inches O.C. Fabricate seams at joints between units with minimum 4-inch overlap, to form continuous waterproof system in accordance with the "Copper in Architecture" handbook published by the CDA.

F. Coping and Fascia/Gravel Stops:

1. Space seams 10'0" o.c. maximum.

2. Lock exterior edges over continuous cleats to secure to substrate.
3. Lock interior edges to substrate with cleats spaced at 12-inch centers.
4. Provide drainage system at seams to prevent water infiltration.

G. Valley Flashing:

1. Extend metal flashing a minimum of 12-inches onto roof deck on each side of valley.
2. If valley length exceeds 12-feet, increase width of valley flashing by 1-inch on each side per 96 inches of valley length.

3.3 CLEANING

A. Remove protective film (if any) from exposed surfaces of copper promptly upon installation. Strip with care to avoid damage to finishes.

B. Clean exposed copper surfaces, removing substances that might cause abnormal discoloration of metal.

C. Upon completion of each area of soldering, carefully remove flux and other residue from surfaces. Neutralize acid flux by washing with baking soda solution, and then flushing with clear water rinse. Use special care to neutralize and clean crevices.

D. Clean exposed metal surfaces of substances that would interfere with normal oxidation and weathering.

3.4 PROTECTION

A. Advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction to ensure that work will be without damage or deterioration other than natural weathering at time of Substantial Completion.

END OF SECTION 07 6215

SECTION 07 6220 – COPPER GUTTERS AND DOWNSPOUTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes shop and field formed copper roofing accessories and trim:

1. Hung gutters.
2. Downspouts (rain drainage).
3. Miscellaneous accessories.

B. Related Sections Include:

1. Division 07, "Sheet Metal (Copper) Roofing."
2. Division 07, "Joint Sealants."

1.2 COORDINATION

A. Coordinate work of this section with interfacing and adjacent work for proper sequencing. Ensure weather resistance and durability of work and protection of materials and finishes.

1.3 PERFORMANCE REQUIREMENTS

A. Installation Requirements: Fabricator is responsible for installing system, including anchorage to substrate and necessary modifications to meet specified and drawn requirements and maintain visual design concepts in accordance with the Contract Documents and following installation methods as stipulated in the "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA).

1. Drawings are diagrammatic and are intended to establish basic dimensions of units, sight lines, and profiles of units.
2. Make modifications only to meet field conditions and to ensure fitting of system components.
3. Obtain Architect's approval of modifications.
4. Provide concealed fastening wherever possible.
5. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between units and building structure or between components themselves.
6. Obtain Architect's approval for connections to building elements at locations other than indicated in Drawings.
7. Accommodate building structure deflections in system connections to structure.

B. Performance Requirements:

1. System shall accommodate movement of components without buckling, failure of joint seals, undue stress on fasteners, or other detrimental effects when subjected to seasonal temperature changes and live loads.
2. Design system capable of withstanding building code requirements for negative wind pressure.

1.4 SUBMITTALS

A. Product Data for Gutters, Downspouts, and Accessories: Manufacturer's technical product data, installation instructions and general recommendations for each specified sheet material and fabricated product.

B. Shop drawings showing layout, profiles, expansion provisions, gutter slopes, methods of joining, and anchorage details, including downspout strainers. Provide layouts at 1/4-inch scale and details at 3-inch scale.

C. Samples of the following flashing, sheet metal, and accessory items:

1. 6-inch or 12-inch square samples of specified sheet materials to be exposed as finished surfaces.
2. 6-inch or 12-inch long samples of fabricated products exposed as finished work. Provide complete with specified finish.

1.5 QUALITY ASSURANCE

A. Fabricator's Qualifications: Company specializing in copper gutter and downspout work with three (3) years of experience in similar size and type of installations.

B. Installer: A firm with three (3) years of successful experience with installation of copper gutter and downspout work of type and scope equivalent to Work of this Section.

C. Industry Standard: Except as otherwise shown or specified, comply with applicable recommendations and details of the "Copper in Architecture" handbook published by the Copper Development Association Inc. (CDA). Conform to dimensions and profiles shown.

D. Mock-Up: Provide mock-up of sufficient size and scope to show typical pattern of seams, fastening details, edge construction, and finish texture and color.

E. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading: Protect finish metal faces.

B. Acceptance at Site: Examine each component and accessory as delivered and confirm that material and finish is undamaged. Do not accept or install damaged materials.

C. Storage and Protection:

1. Stack preformed material to prevent twisting, bending, and abrasions.
2. Provide ventilation.
3. Prevent contact with materials which may cause discoloration or staining.

1.7 WARRANTY

A. Warrant installed gutters, downspouts, and trim components to be free from defects in material and workmanship for a period of five (5) years.

B. Include coverage against leakage and damages to finishes.

PART 2 - PRODUCTS

2.1 FLASHING AND TRIM MATERIALS

A. Copper: ASTM B 370; temper H00 (cold-rolled) except where temper 060 is required for forming.

1. Hung Gutters and Downspouts: 20 oz. per sq. ft. half-hard, except as otherwise noted.

B. Bronze wire ball downspout strainer meeting the CDA details.

2.2 ACCESSORIES

A. Solder: ASTM B 32; Provide 50-50 tin/lead or lead free alternative of similar or greater strength solder. Killed acid flux.

B. Flux: Muriatic acid neutralized with zinc or approved brand of soldering flux.

C. Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.

D. Bituminous Coating: SSPC-Paint 12, Cold-Applied Asphalt Mastic (Extra Thick Film), nominally free of sulfur, compounded for 15-mil dry film thickness per coat.

E. Joint Sealant: See Division 07, "Joint Sealants."

F. Metal Accessories: Provide cleats, straps, hangers, anchoring devices, and similar accessory units as required for installation of work, noncorrosive, size, and gage required for performance.

G. Rivets:

1. Pop Rivets: 1/8-inch to 3/16-inch diameter, with solid brass mandrels
2. Provide solid copper rivet (tinner's rivets) where structural integrity of seam is required.

2.3 FABRICATION

A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of the CDA "Copper in Architecture" handbook and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer's instructions and recommendations for forming material. Form exposed copper work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
1. Fabricate to allow for adjustments in field for proper anchoring and joining.
2. Form sections true to shape, accurate in size, square, free from distortion and defects.
3. Cleats, Spacers, Straps, and Hanger Brackets: Fabricate cleats of same material as gutters and downspouts, interlockable with sheet in accordance with CDA recommendations.
4. Fabricate corners form one piece with minimum 18-inch long returns; solder corners for rigidity.

B. Seams: Fabricate nonmoving seams with 1-inch lapped riveted and soldered seams. Tin edges to be seamed, lap seams, rivet seams, and solder.

C. Expansion Provisions: Follow the CDA "Copper in Architecture" handbook guidance and provisions to accommodate expansion and contraction of gutter systems.

D. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

E. Solder:

1. Solder metal joints, except those indicated or required to be movement type joints, in accordance with the "Copper in Architecture" handbook published by the CDA.
2. Tin edges of copper sheets and cleats at soldered joints.
3. After soldering, remove flux and other residue from surfaces. Wipe and wash solder joints clean with fresh water and baking soda to neutralize flux.

F. Copper Thickness: Comply with CDA recommendations for copper size and shape.

G. Gutters and Downspouts:

1. Fabricate as indicated on Drawings and in accordance with the CDA "Copper in Architecture" handbook.
2. Fabricate front edge at least 1 inch lower than back edge.
3. Transverse Seams in Gutter Liners: Lapped, riveted, and soldered for watertight gutter condition.
4. Provide spacers, hanger brackets and straps, and fasteners as indicated and recommended by the CDA.
5. Fabricate gutters and downspouts to sizes and profiles shown on Drawings.

2.4 FINISHES

A. Natural weathering mill finished copper. No applied finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. General: Examine conditions and proceed with work when substrates are ready.

B. Confirm that substrate system is even, smooth, sound, clean, dry, and free from defects.

3.2 INSTALLATION

A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations and with the "Copper in Architecture" handbook published by the CDA. Anchor units of work securely in place by methods indicated, providing for thermal expansion of units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.

1. Install units plumb, level, square, and free from warp or twist while maintaining dimensional tolerances and alignment with surrounding construction; except install gutters with required slope.
2. Apply asphalt mastic on copper surfaces of units in contact with dissimilar metals and cementitious materials.
3. Fit gutters to downspouts and flashings for watertight connections. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
4. Miter, lap seam and close corner joints with solder. Seal seams and joints watertight with solder.

5. Install expansion joints at frequency recommended by the CDA. Do not fasten moving seams such that movement is restricted.
6. Coordinate with installation of roofing system and roofing accessories.

B. Gutters and Downspouts:

1. Flash and seal gutter to downspout.
2. Slope gutters not less than 1/8 inch per foot (1:100).
3. Provide expansion joints at 40'-0" maximum, not more than 24 feet from corners.
4. Hang gutter with copper straps spaced 30-inches centers maximum. Closer spacing may be required to handle system loads.
5. Integrate gutter flashing conditions with requirements of adjacent roofing for watertight installation.

C. Install counterflashing as indicated to prevent water from migrating behind gutter system.

3.3 CLEANING

A. Remove protective film (if any) from exposed surfaces of copper promptly upon installation. Strip with care to avoid damage to finishes.

B. Clean exposed copper surfaces, removing substances that might cause abnormal discoloration of metal.

C. Upon completion of each area of soldering, carefully remove flux and other residue from surfaces. Neutralize acid flux by washing with baking soda solution, and then flushing with clear water rinse. Use special care to neutralize and clean crevices.

D. Clean exposed metal surfaces of substances that would interfere with normal oxidation and weathering.

3.4 PROTECTION

A. Advise Contractor of required procedures for surveillance and protection of work during construction to ensure that work will be without damage or deterioration other than natural weathering at time of Substantial Completion.

END OF SECTION 07 6220

SECTION 07 7253 – SNOW GUARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Snow guards for standing seam metal roofs.
2. Non-penetrating attachment system.

B. Related Sections:
1. Division 07 Section "Sheet Metal (Copper) Roofing."

1.2 REFERENCES

A. Copper Development Association (CDA) Handbook.

B. ASTM International (ASTM):
1. A581/A581M-95b (2004) - Standard Specification for Free-Machining Stainless Steel Wire and Wire Rods.
2. A582-05 - Standard Specification for Free-Machining Stainless Steel Bars.
3. E527-83(2003) - Standard Practice for Numbering Metals and Alloys.

1.3 SYSTEM DESCRIPTION

A. Attachment system to provide attachment to standing seam metal roofs:

1. With only minor dimpling of panel seams.
2. Without penetrations through roof seams or panels.
3. Without use of sealers or adhesives.
4. Without voiding roof warranty.

B. Factor of safety: Utilize a factor of safety ≥ 2 to determine allowable loads from ultimate tested clamp tensile load values.

1.4 SUBMITTALS

A. Submittals for Review:

1. Shop Drawings: Show locations of snow guards on roof and attachment spacing.
2. Product Data: Include product description and installation instructions.
3. Samples:
   a. Clamp samples.
   b. 24 inch long cross member samples including coupler and other hardware.

B. Quality Control Submittals:

1. Test Results: Results of product load testing, issued by a recognized independent testing laboratory, showing load-to-failure value of attachment.

C. Closeout Submittals:

1. Certification: Installer's certification that snow guard system was installed in accordance with manufacturer's instructions and approved Shop Drawings.

1.5 QUALITY ASSURANCE

A. Mockup:
1. Size: Minimum 8 feet long.
2. Show: Snow guard attachment, cross members, and accessories.
3. Locate where directed.
4. Approved mockup may remain as part of the Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide SnoRail and SnoFence systems manufactured by Metal Roof Innovations, Ltd.

B. Substitutions: Not permitted

2.2 COMPONENTS

A. Clamps:

1. Manufactured from red brass, Copper UNS Alloy No. C23000.
2. Clamp model: No. S-5-B B and S-5-BE.
3. Set screws: 300 Series stainless steel, 18-8 alloy, 3/8 inch diameter, with round nose point.

B. Cross Members and Posts:

1. Manufactured from red brass, Copper UNS Alloy No. C23000.
2. Provide coupler ensuring alignment and structural continuity at end joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to beginning installation, verify that:

1. Panel seaming is complete.
2. Panel attachment is sufficient to withstand loads applied by snow guard system.
3. Installation will not impede roof drainage.

3.2 PREPARATION

A. Clean areas to receive attachments; remove loose and foreign matter that could interfere with installation or performance.

3.3 INSTALLATION OF SNORAIL SYSTEM

A. Install system in accordance with manufacturer's instructions and approved Shop Drawings.

B. Place clamps at maximum 24 inches on center or as required by in-service loads.

C. Place clamps in straight, aligned rows.

D. Place both set screws on same side of clamp.

E. Tighten set screws to manufacturer's recommended torque.

F. Use S-5-BE clamps in lieu of standard clamp at each end of each assembly, and at a frequency and spacing of one for each 50 feet of assembly.

G. Install cross members through holes in clamps.

H. Install couplers at cross member end joints.

I. Tighten set screws against cross members at all "E" clamp locations.

J. Do not cantilever cross members more than 3 inches beyond last clamp at ends.

3.4 INSTALLATION OF SNOFENCE SYSTEM

A. Install system in accordance with manufacturer's instructions and approved Shop Drawings.

B. Place clamps at maximum 32 inches on center or as required by in-service loads.

C. Place clamps in straight, aligned rows.

D. Place both set screws on same side of clamp.

E. Tighten set screws to manufacturer's recommended torque.

F. Use S-5-BE clamps in lieu of standard clamp at each end of each assembly, and at a frequency and spacing of one for each 50 feet of assembly.

G. Install SnoPosts vertically in each clamp. Use SnoPost E at all (above) "E" clamp locations.

H. Install cross members through holes in clamps and posts.

I. Install coupler at cross member end joints.

J. Tighten set screws against cross members at all "E" clamp and post locations.

K. Do not cantilever cross members more than 3 inches beyond last clamp at ends.

END OF SECTION 07 7253

SECTION 07 9200 – JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section provides requirements for the repair, replacement or initial installation of sealant joints to provide a barrier against passage of air and moisture.

B. Related Sections include the following:

1. Division 07 Section "Sheet Metal (Copper) Roofing."
2. Division 07 Section "Copper Flashing & Trim."
3. Division 07 Section "Copper Gutters & Downspouts."

1.2 PERFORMANCE REQUIREMENTS

A. Provide joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

1.3 QUALITY ASSURANCE

A. The Owner reserves the right to cut open joints, to ensure compliance with the specifications, at random locations throughout the job. The Contractor shall be responsible for repairing the test areas:
1. Cut out section of sealant joint at an angle to form watershed surfaces at top and bottom of repair section. Take care not to cut the backer rod or bond breaker tape.
2. Install new sealant and tool to match shape of adjacent joint.

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. One part polyurethane, two parts polymer, or one part low-modulus silicone sealants at all exterior joints, except horizontal surfaces, in which case acceptable products are as follows:

1. Products:
   a. Sika "Sikaflex-1a".
   b. Sonneborn "Sololastic NP I or NP II".
   c. Tremco Manufacturing Company "Dymeric" or "Dymonic".
   d. Pecora "Dynatrol II".
   e. G.E. "Silpruf".
   f. Dow Corning "795".

2.4 JOINT BACKER ROD

A. Use only those materials which are specifically recommended by the manufacturer of the sealant used. Backer rod is to be used to control the depth of sealant and to prevent three-sided bond. Backer rod shall be:

1. Closed cell, non-gassing, expanded polyethylene, complying with ASTM C1330.
2. Non-absorbent and non-staining.
3. Forty (40) percent larger diameter than joint width to provide support during sealer application and tooling.

B. Polyethylene Backer Rod:

1. Ethafoam, by Dow Corning.
2. Sonofoam, by Sonneborn.

2.5 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners: Xylol, toluene or other commercial solvents as recommended by the sealant manufacturer for the specific joint surface and condition.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

D. Bond Breaker: Polyethylene tape, width equal to joint opening. Provide where backer material is not necessary for depth control, or where a type is used that does not have release properties.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Installer Shall:

1. Examine joint surfaces and backing, including their anchorage to the structure, and conditions under which joint sealer work is to be performed.
2. Verify that conditions are satisfactory for proper installation of the Work. Do not proceed until all unsatisfactory conditions have been corrected.

B. Weather Conditions:

1. Do not apply sealant if it is raining, misting, or if there is any evidence of moisture at the joint.
2. Proceed with the Work only when forecasted weather conditions are favorable for proper cure and development of high early-bond strength.
3. Where joint width is affected by ambient temperature variations, install elastomeric sealants only when temperatures are in the lower third of the manufacturer's recommended installation temperature range. Do not apply sealant if outdoor ambient air temperature is below 45°F.

3.2 PREPARATION

A. All joints to be caulked shall be cut or ground out to a depth which shall achieve a finished sealant thickness equal to one-half (1/2) of the joint width. The total thickness shall be maintained, to include the depth required to properly install the sealant backer rod.

B. The removal of existing mortar or sealant from joints shall be done with suitable tools, in such a manner as to avoid damaging the surface material or the edges of the joint.

C. After the joint has been properly prepared, remove all loose material by brush and/or compressed air.

D. Clean joint surfaces immediately before installation of sealant:
1. Remove dirt, insecure coatings, moisture, and other substances which would interfere with bond of sealant.
2. Use clean rages to wipe solvent, not brushes.

E. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

F. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF BACKER ROD, BOND BREAKER TAPE

A. Install the approved backer-rod or bond-backer tape in the joint cavity to prevent three-point bonding of the sealant, which might impair performance of the sealant.

1. Compress the backer rod material 25% to 50% to secure a positive and secure fit.
2. Take care to avoid twisting or braiding of the backer rod.

3. Take care to avoid lengthwise stretching of the backer rod.
4. Do not leave voids or gaps between ends of backer rod.

B. Install bond breaker strip where depth of joint does not permit the use of backer rod.

1. Take care to avoid twisting or braiding of the bond breaker tape.
2. Take care to avoid lengthwise stretching of the bond breaker tape.
3. Do not leave voids or gaps between ends of bond breaker tape.

3.4 INSTALLATION OF SEALANT

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Sealing materials specified herein shall be used in strict accordance with the manufacturer's printed instructions, and shall be applied only by workers specially trained or experienced in their use.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven installation techniques, which will ensure that sealants will be deposited in uniform, continuous ribbons without gaps or air pockets and with complete "wetting" of joint bond surfaces equally on opposite sides, and as follows:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
   a. Except as otherwise noted, fill sealant rabbet to a slightly concave surface, flush with adjoining surfaces.
   b. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
4. Apply at the same time backings are installed.
5. Install sealant to depths as recommended by sealant manufacturer, but within the following general limitations, measured at center (thin) section of bead:
   a. Fill joints to a depth equal to 50% of the joint width, but not more than 1/2-inch deep or less than 1/4-inch deep.

F. Apply sealant under pressure with hand or power-actuated gun or other appropriate means. Guns shall have nozzle of proper size and shall provide sufficient pressure to completed fill joints as designed.

G. Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be objectionable.

H. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

I. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Roof.
b. Flashing and Trim.
c. Gutters and Downspouts.
d. Other joints as indicated.

2. Joint Sealant: Elastomeric.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

3.6 CLEANING

A. Remove masking tape immediately after joints have been tooled.

B. Keep adjacent surfaces clean and free from sealant as the installation progresses. Use solvent or cleaning agent as recommended by the sealant manufacturer.

END OF SECTION 07 9200

SECTION 08 4523 – 2-/34" PRE-ENGINEERED INSULATED TRANSLUCENT FIBERGLASS SANDWICH PANEL CENTER RIDGE HIPPED END SKYLIGHT SYSTEM

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes the pre-engineered self-supporting insulated translucent sandwich panel skylight system and accessories as shown and specified. Work includes providing and installing:

1. Flat factory prefabricated structural insulated translucent sandwich panels
2. Aluminum installation system
3. Aluminum flashing attached to skylights

B. Related Sections:

1. Structural Steel Framing.
2. Rough Carpentry.
3. Sheet Metal (Copper) Roofing.
4. Copper Flashing and Trim.
5. Joint Sealants.

1.2 SUBMITTALS

A. Submit manufacturer's product data. Include construction details, material descriptions, profiles and finishes of skylight components.

B. Submit shop drawings. Include elevations and details.

C. Submit manufacturer's color charts showing the full range of colors available for factory-finished aluminum.

1. When requested, submit samples for each exposed finish required, in same thickness and material indicated for the work and in size indicated below. If finishes involve normal color variations, include sample sets consisting of two or more units showing the full range of variations expected.

a. Sandwich panels: 14" x 28" units
b. Factory finished aluminum: 5" long sections

D. Submit Installer Certificate, signed by installer, certifying compliance with project qualification requirements.

E. Submit product reports from a qualified independent testing agency indicating each type and class of panel system complies with the project performance requirements, based on comprehensive testing of current products. Previously completed reports will be acceptable if for current manufacturer and indicative of products used on this project.

1. Reports required are:

a. International Building Code Evaluation Report
b. Flame Spread and Smoke Developed (UL 723) – Submit UL Card
c. Burn Extent (ASTM D 635)
d. Color Difference (ASTM D 2244)
e. Impact Strength (UL 972)
f. Bond Tensile Strength (ASTM C 297 after aging by ASTM D 1037)
g. Bond Shear Strength (ASTM D 1002)
h. Beam Bending Strength (ASTM E 72)
i. Fall Through Resistance (ASTM E 661)

j. Insulation U-Factor (NFRC 100)
k. NFRC System U-Factor Certification (NFRC 700)
l. Solar Heat Gain Coefficient (NFRC or Calculations)
m. Condensation Resistance Factor (AAMA 1503)
n. Air Leakage (ASTM E 283)
o. Structural Performance (ASTM E 330)
p. Water Penetration (ASTM E 331)
q. Class A Roof Covering Burning Brand (ASTM E 108)

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications

1. Material and products shall be manufactured by a company continuously and regularly employed in the manufacture of specified materials for a period of at least ten consecutive years and which can show evidence of those materials being satisfactorily used on at least six projects of similar size, scope and location. At least three of the projects shall have been in successful use for ten years or longer.

2. Panel system must be listed by an ANSI accredited Evaluation Service, which requires quality control inspections and fire, structural and water infiltration testing of sandwich panel systems by an accredited agency.

3. Quality control inspections shall be conducted at least once each year and shall include manufacturing facilities, sandwich panel components and production sandwich panels for conformance with AC177 "Translucent Fiberglass Reinforced Plastic (FRP) Faced Panel Wall, Roof and Skylight Systems" as issued by the ICC-ES.

B. Installer's Qualifications: Installation shall be by an experienced installer, which has been in the business of installing specified skylight systems for at least two consecutive years and can show evidence of satisfactory completion of projects of similar size, scope and type.

1.4 PERFORMANCE REQUIREMENTS

A. The manufacturer shall be responsible for the configuration and fabrication of the complete skylight panel system.

1. When requested, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
2. Standard skylight system shall have less than 0.01 cfm/ft² air leakage by ASTM E 283 at 6.24 PSF (50 mph) and no water penetration by ASTM E 331 at 15 PSF; and structural testing by ASTM E 330.
3. Structural Loads; Provide skylight system capable of handling the following loads:

a. Live Load: 20 PSF
b. Snow Load: 30 PSF; Drift Load: 0 PSF
c. Wind Load: 25 PSF

1.5 DELIVERY STORAGE AND HANDLING

A. Deliver panel system, components and materials in manufacturer's standard protective packaging.

B. Store panels on the long edge; several inches above the ground, blocked and under cover in accordance with manufacturer's storage and handling instructions.

1.6 WARRANTY

A. Submit manufacturer's and installer's written warranty agreeing to repair or replace panel system work, which fails in materials or workmanship within ten (10) years of the date of delivery. Failure of materials or workmanship shall include leakage, excessive deflection, deterioration of finish on metal in excess of normal weathering and defects in accessories, insulated translucent sandwich panels and other components of the work.

B. Extended Warranty: Provide a 25 year limited warranty against reinforcing fiberbloom.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. The basis for this specification is for products manufactured by Kalwall Corporation. Other manufacturers may bid this project provided they comply with all of the performance requirements of this specification and submit evidence thereof. Listing other manufacturers' names in this specification does not constitute approval of their products or relieve them of compliance with all the performance requirements contained herein.

B. Kalwall Corporation, Tel: (800) 258-9777 – Fax: (603) 627-7905 – Email: info@kalwall.com

2.2 PANEL COMPONENTS

A. Face Sheets

1. Translucent faces: Manufactured from glass fiber reinforced thermoset resins, formulated specifically for architectural use.

    a. Thermoplastic (e.g. polycarbonate, acrylic) faces are not acceptable.
    b. Face sheets shall not deform, deflect or drip when subjected to fire or flame.

2. Interior face sheets:

    a. Flame spread: Underwriters Laboratories (UL) listed, which requires periodic unannounced retesting, with flame spread rating no greater than 25 and smoke developed no greater than 250 when tested in accordance with UL 723.
    b. Burn extent by ASTM D 635 shall be no greater than 1".

3. Exterior face sheets:

    a. Color stability: Full thickness of the exterior face sheet shall not change color more than 3 CIE Units DELTA E by ASTM D 2244 after 5 years outdoor South Florida weathering at 5° facing south, determined by the average of at least three white samples with and without a protective film or coating to ensure long-term color stability. Color stability shall be unaffected by abrasion or scratching.
    b. Strength: Exterior face sheet shall be uniform in strength, impenetrable by hand held pencil and repel an impact minimum of 70 ft. lbs. without fracture or tear when impacted by a 3-1/4" diameter, 5 lb. free-falling ball per UL 972.

4. Appearance:

    a. Exterior face sheets: Smooth, 0.070 thick and white in color.
    b. Interior face sheets: Smooth, 0.045 thick and white in color.
    c. Face sheets shall not vary more than ± 10% in thickness and be uniform in color.

B. Grid Core

1. Thermally broken composite I-beam grid core shall be of 6063-T6 or 6005-T5 alloy and temper with provisions for mechanical interlocking of muntin-mullion and perimeter. Width of I-beam shall be no less than 7/16".
2. I-beam Thermal break: Minimum 1", thermoset fiberglass composite.

C. Laminate Adhesive

1. Heat and pressure resin type adhesive engineered for structural sandwich panel use, with minimum 25-years field use. Adhesive shall pass testing requirements specified by the International Code Council "Acceptance Criteria for Sandwich Panel Adhesives".
2. Minimum tensile strength of 750 PSI when the panel assembly is tested by ASTM C 297 after two exposures to six cycles each of the aging conditions prescribed by ASTM D 1037.
3. Minimum shear strength of the panel adhesive by ASTM D 1002 after exposure to four separate conditions:

   a. 50% Relative Humidity at 68° F: 540 PSI
   b. 182° F: 100 PSI
   c. Accelerated Aging by ASTM D 1037 at room temperature: 800 PSI
   d. Accelerated Aging by ASTM D 1037 at 182° F: 250 PSI

2.3 PANEL CONSTRUCTION

A. Provide sandwich panels of flat fiberglass reinforced translucent face sheets laminated to a grid core of mechanically interlocking I-beams. The adhesive bonding line shall be straight, cover the entire width of the I-beam and have a neat, sharp edge.

1. Thickness: 2-3/4"
2. Light transmission: 15%
3. Solar heat gain coefficient 0.16.
4. Panel U-factor by NFRC certified laboratory: 2-3/4" thermally broken grid 0.23.
5. Complete insulated panel system shall have NFRC certified U-factor of 0.30.
6. Grid pattern: Nominal size 8 x 24; pattern shoji.

B. Standard panels shall deflect no more than 1.9" at 30 PSF in 10' 0" span without a supporting frame by ASTM E 72.

C. Standard panels shall withstand 1200° F fire for minimum one hour without collapse or exterior flaming.

D. Thermally broken panels: Minimum Condensation Resistance Factor of 80 by AAMA 1503 measured on the bond line.

E. Skylight System:

1. Skylight system shall pass Class A Roof Burning Brand Test By ASTM E 108.

F. Skylight System shall meet the fall through requirements of OSHA 1910.23 as demonstrated by testing in accordance with ASTM E 661, thereby not requiring supplemental screens or railings.

2.4 BATTENS AND PERIMETER CLOSURE SYSTEM

A. Closure system:

1. Extruded aluminum 6063-T6 and 6063-T5 alloy and temper clamp-tite screw type closure system.
2. Skylight perimeter closures at curbs shall be factory sealed to panels.

B. Sealing tape: Manufacturer's standard, pre-applied to closure system at the factory under controlled conditions.

C. Fasteners: 300 series stainless steel screws for aluminum closures, excluding final fasteners to the building.

D. Finish:

1. Manufacturer's factory applied finish, which meets the performance requirements of AAMA 2604. Color to be selected from manufacturer's standards.

2.5 STRUCTURAL SUPPORT FOR STANDARD MODELS

A. Center Ridge Skylights: Center Ridge Skylights to 22'-0" span shall have concealed support integral with the installation system. Options: exposed stiffeners as required by design loads. (Min. slope of 18.43°). Aluminum curb cap extrusions and flashing shall be supplied.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Installer shall examine substrates, supporting structure and installation conditions.

B. Do not proceed with panel installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete, masonry or pressure treated wood, protect against corrosion by painting contact surfaces with bituminous paint or method recommended by manufacturer.

3.3 INSTALLATION

A. Install the skylight system in accordance with the manufacturer's installation recommendations and approved shop drawings.

1. Anchor component parts securely in place by permanent mechanical attachment system.
2. Accommodate thermal and mechanical movements.
3. Set perimeter framing in a full bed of sealant compound, or with joint fillers or gaskets to provide weather-tight construction.

B. Install joint sealants at perimeter joints and within the panel system in accordance with manufacturer's installation instructions.

3.4 FIELD QUALITY CONTROL

A. Water Test: Installer to test skylights according to procedures in AAMA 501.2.

B. Repair or replace work that does not pass testing or that is damaged by testing and retest work.

3.5 CLEANING

A. Clean the skylight system inside and outside, immediately after installation.

B. Refer to manufacturer's written recommendations.

END OF SECTION 08 45 23

SECTION 08 9000 – LOUVERS AND VENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fixed, extruded-aluminum wall louvers.

1.2 PERFORMANCE REQUIREMENTS

A. Design: Design louvers, including comprehensive engineering analysis by a qualified engineer, using structural performance requirements and design criteria indicated.

B. Structural Performance: Louvers shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver blade rattle or flutter, or permanent damage to fasteners and anchors.

1. Wind Loads: Determine loads based on a uniform pressure 30 lb./sq. ft. (1435 Pa), acting inward or outward.

C. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width according to AMCA 500-L.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1. For louvers specified to bear AMCA seal, include printed catalog pages showing specified models with appropriate AMCA Certified Ratings Seals.

B. Shop Drawings: For louvers and accessories. Include plans, elevations, sections, details, and attachments to other work. Show frame profiles and blade profiles, angles, and spacing.

C. Samples: For each type of metal finish required.

D. Submittal: For louvers indicated to comply with structural performance requirements and design criteria indicated

E. Product Test Reports: Based on tests performed according to AMCA 500-L.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aluminum Extrusions: ASTM B 221M, Alloy 6063-T5.

B. Aluminum Sheet: ASTM B 209M, Alloy 5052 with temper as required for forming.

C. Fasteners: Use types and sizes to suit unit installation conditions.

1. For fastening aluminum, use aluminum or 300 series stainless-steel fasteners.

2.2 FABRICATION, GENERAL

A. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.

B. Join frame members to each other and to fixed louver blades with fillet welds concealed from view welds, threaded fasteners, or both, as standard with louver manufacturer unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.3 FIXED, EXTRUDED-ALUMINUM LOUVERS

A. Horizontal Drainable-Blade Louver:

1. Basis-of-Design Product: Architectural Louvers; Model E2DS, Cap "Z" Frame. Subject to compliance with requirements, provide the specified product or comparable product by one of the following:
   a. Manufacturers of equivalent products submitted and approved in accordance with 01 0002 General Requirements, Part 2 Products, Item 1 Specified Items-Substitutions.

2. Louver Depth: 2 inches (50 mm)
3. Blade Profile: Drainable blade with front gutter for water diversion to jambs
4. Frame and Blade Nominal Thickness: Not less than 0.063 inch (1.60 mm) for blades and frames.
5. Louver Performance Ratings:

   a. Free Area: Not less than 7.91 sq. ft. (0.73 sq. m) for 48-inch- (1220-mm-) wide by 48-inch- (1220-mm-) high louver.
   b. Point of Beginning Water Penetration: Not less than 889 fpm (4.5 m/s).
   c. Air Performance: Not more than 0.12-inch wg (30-Pa) static pressure drop at 800 fpm (4.1-m/s) free-area velocity.

6. AMCA Seal: Mark units with AMCA Certified Ratings Seal.

2.4 LOUVER SCREENS

A. General: Provide screen at each exterior louver.

B. Louver Screen Frames: Same kind and form of metal as indicated for louver to which screens are attached.

C. Louver Screening: Same kind of metal as indicated for louver.

1. Insect Screening: Aluminum, 16 x 18 square mesh, 0.011-inch (0.28-mm) wire.
2. Bird Screening: Flattened, expanded aluminum, 3/4 by 0.050 inch (19 by 1.27 mm) thick.

2.5 ALUMINUM FINISHES

A. High-Performance Organic Finish: 3-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

1. Color and Gloss: To match existing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate and place louvers and vents level, plumb, and at indicated alignment with adjacent work.

B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weather-tight connection.

C. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.

D. Repair damaged finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory and refinish entire unit or provide new units.

E. Protect galvanized and nonferrous-metal surfaces that will be in contact with concrete, masonry, or dissimilar metals from corrosion and galvanic action by applying a heavy coating of bituminous paint.

END OF SECTION 08 9000

SECTION 09 2900 – GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Interior gypsum board.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

PART 2 - PRODUCTS

2.1 GYPSUM BOARD, GENERAL

A. Recycled Content of Gypsum Panel Products: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25% percent.

2.2 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. American Gypsum.
2. CertainTeed Corp.
3. Georgia-Pacific Gypsum LLC.
4. Lafarge North America Inc.
5. National Gypsum Company.
6. PABCO Gypsum.
7. Temple-Inland.
8. USG Corporation.

C. Regular Type:

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, or rolled zinc.
2. Shapes:

a. Cornerbead.
b. Bullnose bead.
c. LC-Bead: J-shaped; exposed long flange receives joint compound.
d. U-Bead: J-shaped; exposed short flange does not receive joints compound. Expansion (control) joint.

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.

2.5 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

D. Thermal Insulation: As specified in Division 7 Section "Thermal Insulation."

E. Vapor Barrier: As specified in Division 7 "Thermal Insulation."

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch-wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

3.2 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Regular Type: As indicated on Drawings.

3.3 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners, unless otherwise indicated.
2. Bullnose Bead: Use at outside corners.
3. LC-Bead: Use where indicated.
4. U-Bead: Use where indicated.

3.4 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Gypsum Board Finish Levels: Gypsum board finish shall be a Level 1 finish.

3.5 INSTALLATION OF VAPOR BARRIERS

A. General: Extend vapor barrier to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

B. Seal vertical joints in vapor barriers over framing by lapping not less than two wall studs. Fasten vapor barriers to wood framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches o.c.

C. Before installing vapor barrier, apply urethane sealant to flanges of metal framing including runner tracks, metal studs, and framing around door and window openings. Seal overlapping joints in vapor barriers with vapor-barrier tape according to vapor-barrier manufacturer's written instructions. Seal butt joints with vapor-barrier tape. Locate all joints over framing members or other solid substrates.

D. Firmly attach vapor barriers to metal framing and solid substrates with vapor-barrier fasteners as recommended by vapor-barrier manufacturer.

E. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-barrier tape to create an airtight seal between penetrating objects and vapor barrier.

F. Repair tears or punctures in vapor barriers immediately before concealment by other work. Cover with vapor-barrier tape or another layer of vapor barrier.

3.6 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 2900

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City Engineering Division

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David A. Davis, R.L.S.

Financial Officer
Steven B. Danner-Rivers

Hydrogeologist
Brynn Bemis

NOTICE OF ADDENDUM

ADDENDUM NO. 1

CONTRACT NO. 6828
OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT

ISSUE DATE: January 07, 2013

FROM: Dimension IV – Madison Design Group, LLC
6515 Grand Teton Plaza, Suite 120
Madison, Wisconsin 53719
608.829.4444

Revise and amend the contract document(s) for the above project as stated in this addendum, otherwise, the original document shall remain in effect.

This addendum forms a part of the Contract Documents and modifies the original Contract Documents dated December 11, 2012. Acknowledge receipt of this Addendum by inserting the number and issue date of this addendum in the Bid/Proposal Form. Failure to do so may subject the Bidder to disqualification.

CHANGES TO PROJECT MANUAL:

1. Section 01 0002, Part 1 – General, line 2 Pre-Bid Information: Shop Drawings for the existing lobby skylight are attached (Attachment 1, Olbrich Existing Skylight Shop Drawing). Note: The contractor is responsible to verification of all project on-site dimension verification.

2. Section 07 2100 – THERMAL INSULATION
    a. Page 3, Article 2.6: Revise Paragraph A line 1: Change fire retardant plywood to 1/2".
    b. Page 4, Add 2.6, Paragraph E: Contractor may install the ventilated insulation in two layers. Overlap joints between layers. All insulation shall be matching product and be listed in U.L. Roof Construction No. 120 and 123.

CHANGES TO DRAWINGS:

1. Sheet D1.3 – Roof Demolition Plan
    a. Mechanical equipment at EPDM roof may be reinstalled on existing wood sleepers. Examine sleepers and notify architect if the sleepers are deteriorated and appear not to be in sound condition.

2. Sheet A1.1: First Floor Plan
    a. Add note: Excavate approximately 3' deep and repair broken joint in storm sewer system southeast of the Lobby. Fill and compact excavation and restore site to specified condition. Refer to Attachment II, Olbrich Gardens Roof Drains Storm Sewer Lines for location.

3. Sheet A8.0 – Details
    a. Add note to Details 3 and 4: Typical standing seams shall be double-lock type.

ATTACHMENTS:

Pre-Bid Meeting Sign-Up Sheet for information only. (Attachment III)

PREVAILING WAGE RATE DETERMINATION

Based on the City's review of the classification for Roofer and Waterproofer, Sheet Metal Worker and the response from DWD, it appears that the applicable classification would be Sheet Metal Worker for portions of this project. It is the contractor's responsibility however to verify that the contractor is paying the correct wage rate. Two relevant provisions that were taken from chapter DWD 290 that may be applicable follow:

(3) A laborer, worker, mechanic or truck driver that performs work in more than one occupational classification during a given work week shall be cross-classified and compensated for all work performed in each classification, unless work other than the primary classification is incidental work. Incidental work shall be compensated at the higher primary classification prevailing wage rate.

(10m) "Incidental work" means work performed in a classification other than an employee's primary classification that is paid a lower prevailing wage rate and performed for 15% or less of the employee's time spent working on a particular project of public works or a particular publicly funded private construction project during a given work week.

Please acknowledge this addendum on page E1 of the contract documents.

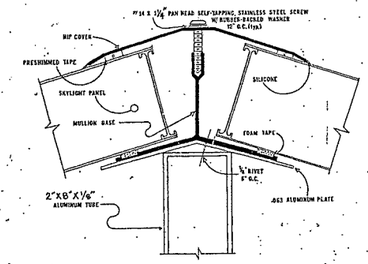
Electronic version of these documents can be found on the City of Madison web site at:

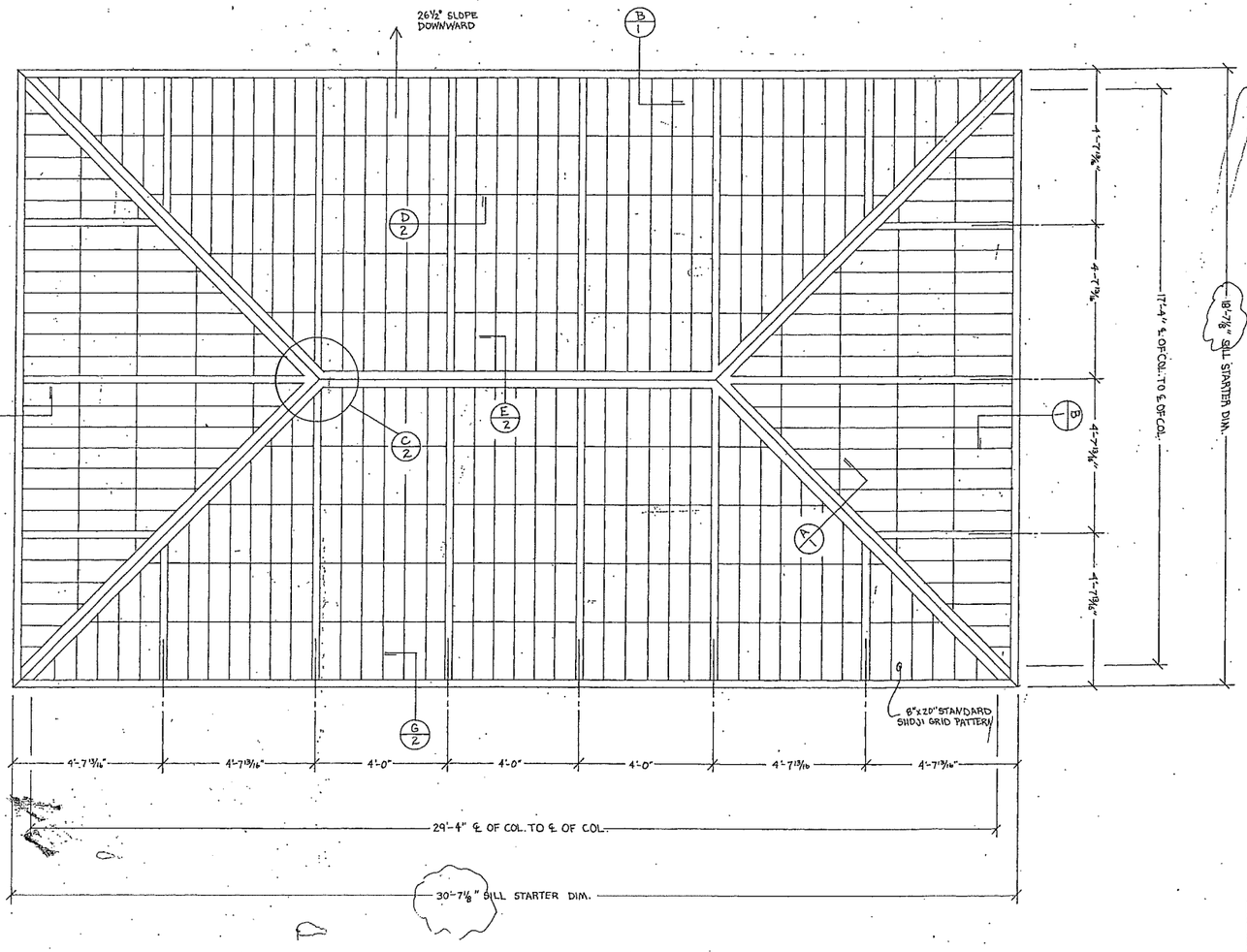
http://www.cityofmadison.com/business/PW/contracts/openforBid.cfm

If you are unable to download plan revisions associated with the addendum, please contact the Engineering office at 608-266-4751 receive the material by another route.

Robert F. Phillips, P.E.
City Engineer

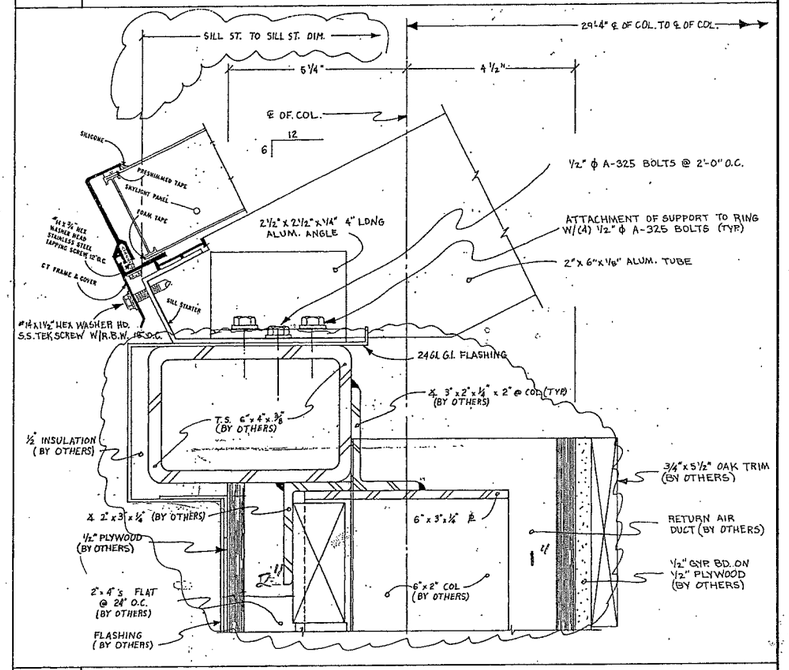
Attachment I- Olbrich Existing Skylight Shop Drawing
Page 1





HIP RIDGE SKYLIGHT (1 REQ'D)

DETAIL "A"



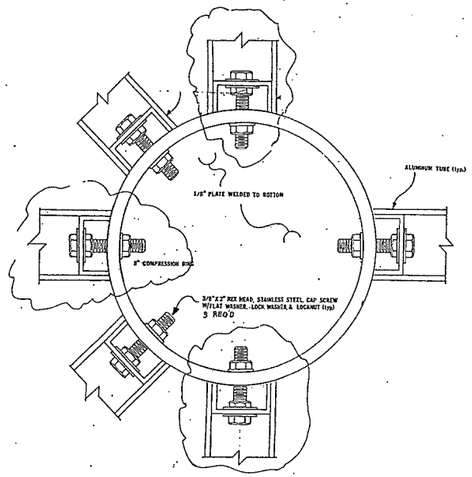
DETAIL "B"

THIS DOCUMENT REVIEWED BY J. H. FINDORFF & SON INC.
THE REVIEW OF THIS DOCUMENT IS FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS ONLY AND IN NO WAY RELIEVES THE SUB-CONTRACTOR OR SUPPLIER OF HIS RESPONSIBILITY TO FURNISH SPECIFIED MATERIALS AS REQUIRED TO COMPLETE THE CONTRACT WORK, UNLESS NOTED OTHERWISE, FIELD DIMENSIONS HAVE NOT BEEN VERIFIED AND ARE THE RESPONSIBILITY OF THE SUB-CONTRACTOR OR SUPPLIER.
REVIEWED BY E.J.M.H. DATE 7-21-89

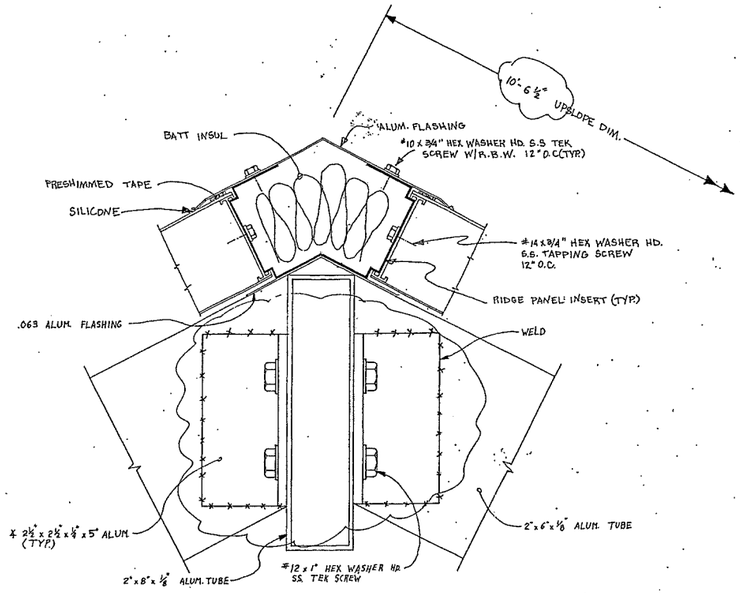
DRAWING REVIEW
Review is for general compliance with contract documents. No responsibility is assumed for correctness of dimensions or details. Contractor is responsible for approval of shop drawings and for complete compliance with the requirements of the contract documents.
☐ REVIEWED W/NO COMMENTS ☐ AMEND AND RESUBMIT
☒ REVIEWED W/COMMENTS AS NOTED ☐ REJECTED-SEE ATTACHED COMMENTS
STUART WILLIAM GALLAHER Architect, Inc.
By [signature] Date 7.27.89

SUBMIT STRUCTURAL CALCULATIONS FOR ALL MEMBERS & CONNECTIONS.

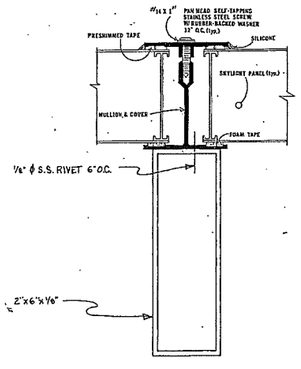
REVISIONS			SKYWALL, INC. 2311 EAST 24th STREET CHATTANOOGA, TN 37407 (615) 624-7527
NO.	DATE	BY	
1.	7/20/89	SFW	PROJECT: OLBRICH BOTANICAL COMPLEX
2.			LOCATION: MADISON, WI.
3.			
4.			DRAWN BY: TAH / SCALE: / DATE: 6-28-89
5.			CHK'D: SLJ / APP'D: SLJ SR / DWG #: 0945
INSTALLED BY:	S.O.#		



DETAIL "C"



DETAIL "E"



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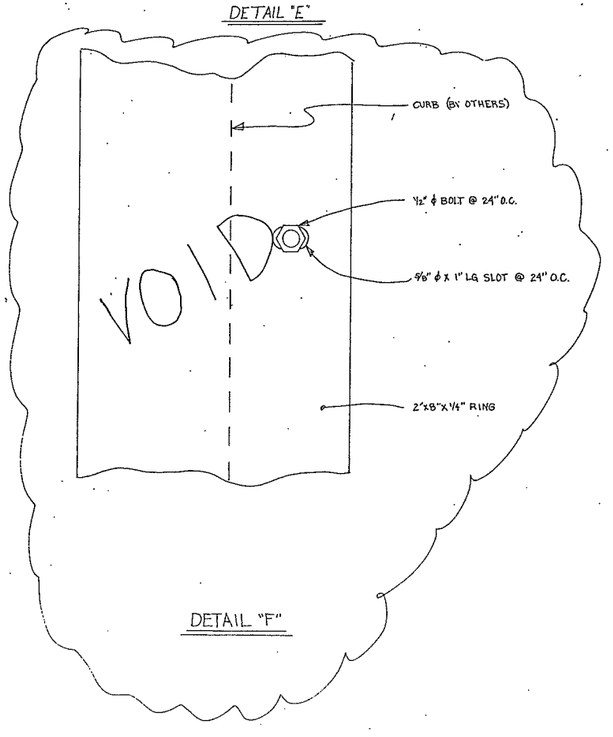
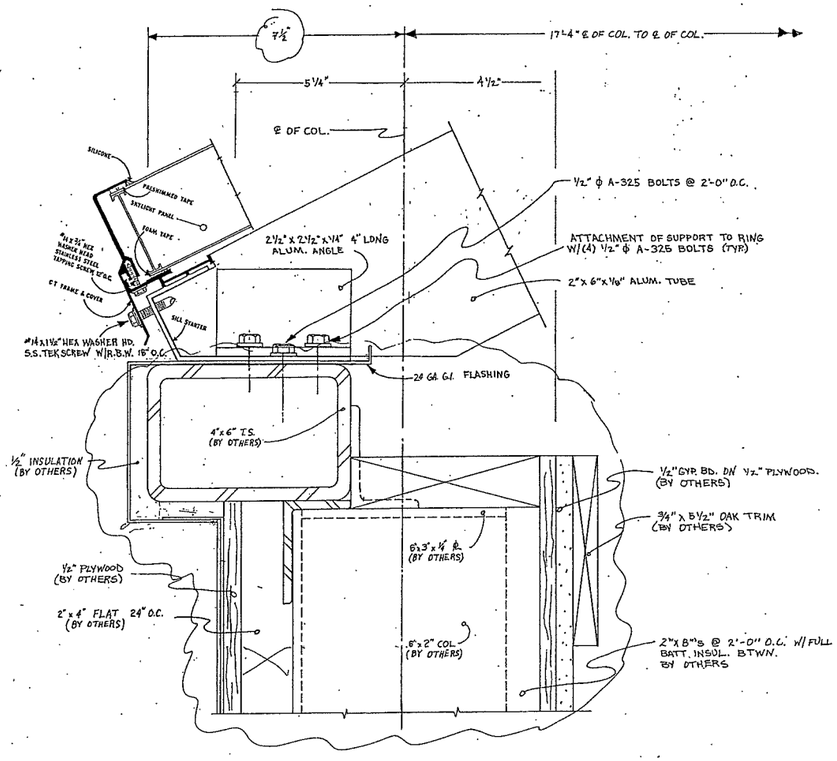


DETAIL "F"

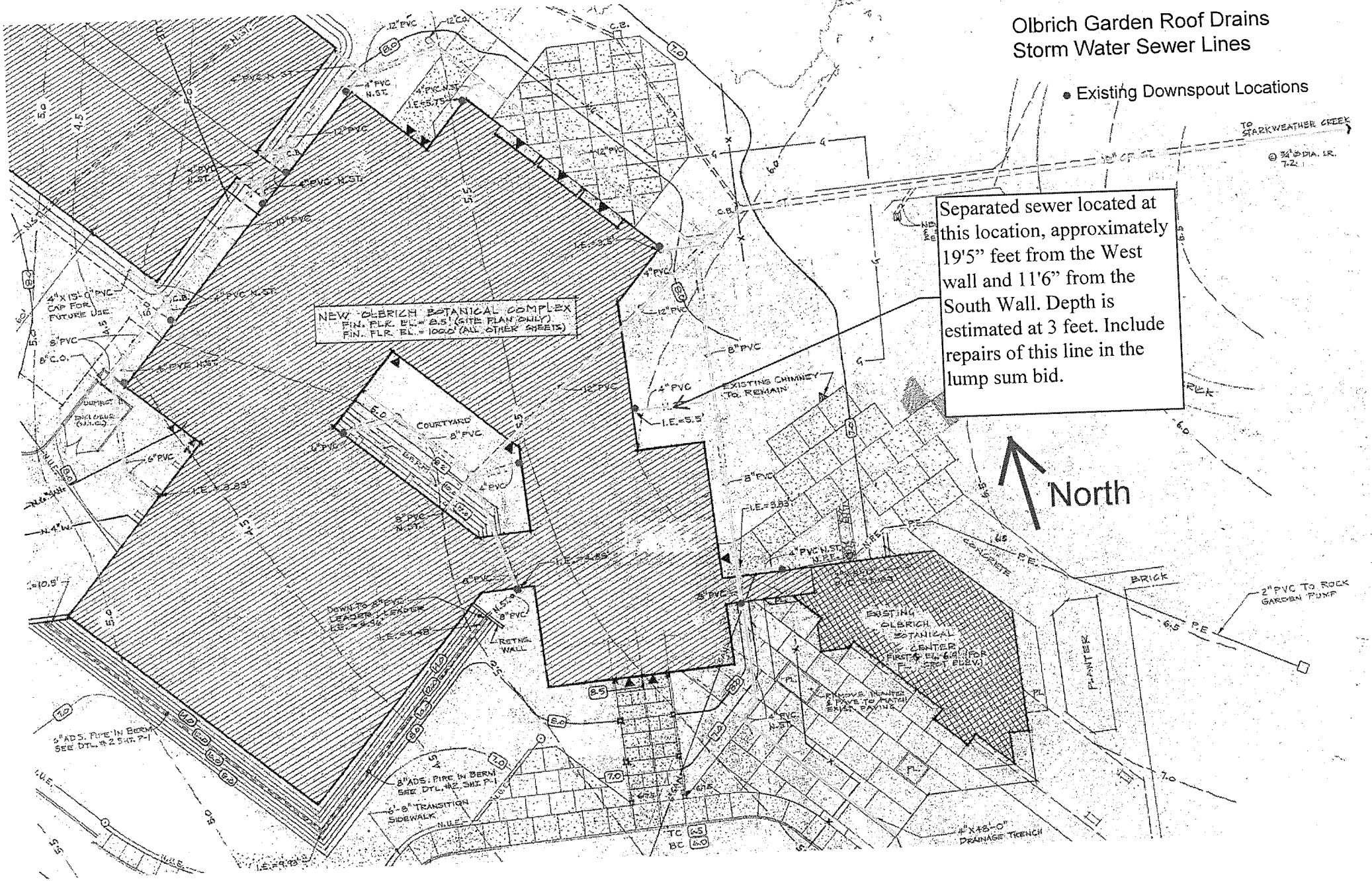


DETAIL "G"

REVISIONS			SKYWALL, INC.
NO.	DATE	BY	2331 EAST 28th STREET CHATTANOOGA, TN 37407 (615) 624-7527
1.	7-20-89	SFW	PROJECT: OLBRICH BOTANICAL COMPLEX
2.			LOCATION: MADISON, WI.
3.			
4.			DRAWN BY: TAH / SCALE: HALF / DATE: 6-30-89
5.			CHK'D: SLJ / APP'D: RMJ SF / DWG #: 1345

Attachment II

Olbrich Garden Roof Drains
Storm Water Sewer Lines



Attachment III

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT

SIGN UP SHEET

PAUL STAUFFER		608 266 4366	PSTAUFFER@CITYOFMADISON.com
Don Saunders	olbrich maint.	608 221 3027	dsaunders@cityofmadison.com
Ryan Ballweg	- Miron	920-969-7388	ryan.ballweg@miron-construction
Paul CRANDALL		414 333-1125	PCA[illegible]@[illegible]
Jim Lewis	Paul Crandall Associates	414-881-6301	Jlewispca@earthlink.net
Tim WAISdorf	WAISdorf Roofing co	920-894-2286	timw@waisdorfroofing.com
Dave Hamby	RENSCHLER	608-827-1162	DAVEH@RENSCHLER.com
RONALD A. RIEBOLDT		414-581-7427	ron@nbs-inc.net
Michael Pum	- Alois Roofing	(414) 727-6100	mpum@aloisroofing.com
Jim Fleming	Langer Roofing	414 476-5800	Jfleming@langer-roofing.com
Joe Schlough	Custom Copper Creations	2205405	[illegible]@[illegible]global.net
Bill Kirchstein	"	"	"
Glen Jensen	Custo Foam	608-847-7447	gjensen@custofoam.com
Heath Revels	custofoam	"	hrevels@custofoam.com
Justin Riley	Interstate Roofing	608-783-2106	justin@interstate-roofing.com
DEREK KASTEN	INTERSTATE ROOFING	608 783 2106	derek@interstate-roofing.com

SECTION E: PROPOSAL

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

Bidder must state a Unit Price and Total Bid for each item. The Total Bid for each item must be the product of quantity, by Unit Price. The Grand Total must be the sum of the Total Bids for the various items. In case of multiplication errors or addition errors, the Grand Total with corrected multiplication and/or addition shall determine the Grand Total bid for each contract. The Unit Price and Total Bid must be entered numerically in the spaces provided. All words and numbers shall be written in ink.

1. The undersigned having familiarized himself/herself with the Contract documents, including Advertisement for Bids, Instructions to Bidders, Form of Proposal, City of Madison Standard Specifications for Public Works Construction - 2013 Edition thereto, Form of Agreement, Form of Bond, and Addenda issued and attached to the plans and specifications on file in the office of the City Engineer, hereby proposes to provide and furnish all the labor, materials, tools, and expendable equipment necessary to perform and complete in a workmanlike manner the specified construction on this project for the City of Madison; all in accordance with the plans and specifications as prepared by the City Engineer, including Addenda to the Contract Nos. 1 through 1 issued thereto, at the prices for said work as contained in this proposal.
2. If awarded the Contract, we will initiate action within seven (7) days after notification or in accordance with the date specified in the contract to begin work and will proceed with diligence to bring the project to full completion within the number of work days allowed in the Contract or by the calendar date stated in the Contract.
3. The undersigned Bidder or Contractor certifies that he/she is not a party to any contract, combination in form of trust or otherwise, or conspiracy in restraint of trade or commerce or any other violation of the anti-trust laws of the State of Wisconsin or of the United States, with respect to this bid or contract or otherwise.
4. Accompanying this Proposal is ☐ Bid Bond or ☐ Certified Check in the amount of _____ Dollars ($_____)or ☒ a Certificate of Biennial Bid Bond as required by the Advertisement for Bids.
   (IF BID BOND IS USED, IT SHALL BE SUBMITTED ON THE FORMS PROVIDED BY THE CITY. FAILURE TO DO SO MAY RESULT IN REJECTION OF THE BID).
5. I hereby certify that all statements herein are made on behalf of Joe Daniels Construction Co., Inc. (name of corporation, partnership, or person submitting bid) a corporation organized and existing under the laws of the State of Wisconsin a partnership consisting of _____; an individual trading as _____; of the City of Madison; State of WI; that I have examined and carefully prepared this Proposal, from the plans and specifications and have checked the same in detail before submitting this Proposal; that I have fully authority to make such statements and submit this Proposal in (its, their) behalf; and that the said statements are true and correct.

Joseph A. Daniels
SIGNATURE

President
TITLE, IF ANY

Sworn and subscribed to before me this
11th day of January, 20 13
Kara L. Sainsbury
(Notary Public or other officer authorized to administer oaths)
My Commission Expires 07/17/2016

Bidders shall not add any conditions or qualifying statements to this Proposal.

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

Disclosure of Ownership

Notice required under Section 15.04(1)(m), Wisconsin Statutes. The statutory authority for the use of this form is prescribed in Sections 66.0903(12)(d) and 103.49(7)(d), Wisconsin Statutes. The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes. Personal information you provide may be used for secondary purposes.

(1) On the date a contractor submits a bid to or completes negotiations with a state agency or local governmental unit, on a project subject to Section 66.0903 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency or local governmental unit the name of any "other construction business", which the contractor, or a shareholder, officer or partner of the contractor, owns or has owned within the preceding three (3) years.

(2) The term "other construction business" means any business engaged in the erection, construction, remodeling, repairing, demolition, altering or painting and decorating of buildings, structures or facilities. It also means any business engaged in supplying mineral aggregate, or hauling excavated material or spoil as provided by Sections 66.0903(3), 103.49(2) and 103.50(2), Wisconsin Statutes.

(3) This form must ONLY be filed, with the state agency or local governmental unit that will be awarding the contract, if **both (A) and (B) are met.**

(A) The contractor, or a shareholder, officer or partner of the contractor:

(1) Owns at least a 25% interest in the "other construction business", indicated below, on the date the contractor submits a bid or completes negotiations.

(2) Or has owned at least a 25% interest in the "other construction business" at any time within the preceding three (3) years.

(B) The Wisconsin Department of Workforce Development (DWD) has determined that the "other construction business" has failed to pay the prevailing wage rate or time and one-half the required hourly basic rate of pay, for hours worked in excess of the prevailing hours of labor, to any employee at any time within the preceding three (3) years.

Other Construction Business

Name of Business			
NONE			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code

I hereby state under penalty of perjury that the information, contained in this document, is true and accurate according to my knowledge and belief.

Print the Name of Authorized Officer	
Joseph A. Daniels	
Signature of Authorized Officer	Date Signed
Joseph A. Daniels	January 11, 2013

Name of Corporation, Partnership or Sole Proprietorship			
Joe Daniels Construction Co., Inc.			
Street Address or P O Box	City	State	Zip Code
919 Applegate Road	Madison	WI	53713

If you have any questions call (608) 266-0028

ERD-7777-E (R. 09/2003)

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

Best Value Contracting

1. The Contractor shall indicate the non-apprenticeable trades used on this contract.

_____

_____

_____

_____

_____

_____

_____

2. Some Contractors are exempt due to the size of the work force. Apprenticeable trades are those trades considered apprenticeable by the State of Wisconsin.

☐ Check Here if the Contractor has a total skilled work force of four or less individuals in all apprenticeable trades combined. This contractor is exempt from Best Value Contracting.

3. The Contractor shall indicate on page E-4 which apprenticeable trades are to be used on this Contract and shall indicate by checking the appropriate box for the trades used, how the contractor will comply with Madison General Ordinance 33.07(7).

Legend

Number of Journeyworkers	The Contractor shall indicated for trades to be used on this Contract only, the number of journeyworkers that the Contractor has employed company wide.
W-ATT	The Contractor is an active trade trainer in the State of Wisconsin for the trade indicated.
US-ATT	The Contractor is an active trade trainer in an apprenticeship program approved by the U.S. Department of Labor or another state apprenticeship agency in the trade indicated.
SB-ATT	The Contractor shall become an active trade trainer prior to beginning work on the Contract in the trade indicated.

☐ The Contractor has reviewed the list on page E-4 and shall not use any apprenticeable trades on this project.

☒ The Contractor has reviewed this list on E-4 and has checked the appropriate box by each apprenticeable trade to be used on the project.

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

Apprenticeable Trades

Check the box in the column "Trade Used on This Project" for each apprenticeable trades used on this project. For those trades used on the project indicated the number of journeyworkers that are employed company wide and check a box to the right of the trade as to how the Contractor will comply MGO 33.07(7). Refer to the legend on page E-3 for the meaning associated with each heading. The Contractor must check one of the boxes on the right for each apprenticeable trade used and checked on the left.

Trade Used on Contract	Apprenticeable Trades	Number of Journeyworkers	W-ATT	US-ATT	SB-ATT
☐	Bricklayer		☐	☐	☐
☒	Carpenter		☒	☐	☐
☐	Cement Mason / Concrete Finisher		☐	☐	☐
☐	Cement Mason (Heavy Highway)		☐	☐	☐
☒	Construction Craft Laborer		☒	☐	☐
☐	Data Communication Installer		☐	☐	☐
☐	Electrician		☐	☐	☐
☐	Environmental Systems Technician / HVAC Service Tech/HVAC Install / Service		☐	☐	☐
☐	Glazier		☐	☐	☐
☐	Heavy Equipment Operator / Operating Engineer		☐	☐	☐
☐	Insulation Worker (Heat & Frost)		☐	☐	☐
☐	Iron Worker		☐	☐	☐
☐	Iron Worker (Assembler, Metal Bldgs)		☐	☐	☐
☐	Painter & Decorator		☐	☐	☐
☐	Plasterer		☐	☐	☐
☐	Plumber		☐	☐	☐
☐	Residential Electrician		☐	☐	☐
☐	Roofer & Waterproofer		☐	☐	☐
☐	Sheet Metal Worker		☐	☐	☐
☐	Sprinklerfitter		☐	☐	☐
☐	Steamfitter		☐	☐	☐
☐	Steamfitter (Refrigeration)		☐	☐	☐
☐	Steamfitter (Service)		☐	☐	☐
☐	Taper & Finisher		☐	☐	☐
☐	Telecommunications (Voice, Data & Video) Installer-Technician		☐	☐	☐
☐	Tile Setter		☐	☐	☐

PROPOSAL

Joe Daniels Construction Co., Inc.
NAME OF BIDDER

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT

CONTRACT NO. 6828

ACCOUNT NUMBER:CB53-58401-810714-00-53W1369

		TOTAL BID
1	LUMP SUM BID	1,060,000.00

Certificate of Biennial Bid Bond

TIME PERIOD - VALID (FROM/TO) 2/1/12 - 1/31/14
NAME OF SURETY Cincinnati Insurance Company
NAME OF CONTRACTOR Joe Daniels Construction Co., Inc.
CERTIFICATE HOLDER City of Madison, Wisconsin

This is to certify that a biennial bid bond issued by the above-named Surety is currently on file with the City of Madison.

This certificate is issued as a matter of information and conveys no rights upon the certificate holder and does not amend, extend or alter the coverage of the biennial bid bond.

Cancellation: Should the above policy be cancelled before the expiration date, the issuing Surety will give thirty (30) days written notice to the certificate holder indicated above.

Signature of Authorized Contractor Representative
Joseph A. Daniels - President

January 11, 2013
Date

Department of Public Works
City Engineering Division

Larry D. Nelson, P.E.
City Engineer

City-County Building, Room 115
210 Martin Luther King, Jr. Boulevard
Madison, Wisconsin 53703
608 264 9275 FAX
1 866 704 2315 Textnet

608 266 4751

Deputy City Engineer
Robert F Phillips, P.E.

Principal Engineers
Michael R. Dailey, P.E.
Christina M. Bachmann, P.E.
John S. Fahrney, P.E.
Gregory T Fries, P.E.

Facilities & Sustainability
Jeanne E. Hoffman, Manager
James C. Whitney, A.I.A.

Operations Supervisor
Kathleen M. Cryan

Hydrogeologist
Joseph L. DeMorett, P.G.

GIS Manager
David A. Davis, R.L.S.

Financial Officer
Steven B. Danner-Rivers

BIENNIAL BID BOND

Joe Daniels Construction Co., Inc.
(a corporation of the State of Wisconsin) (individual), (partnership), (hereinafter referred to as the "Principal") and Cincinnati Insurance Company, a corporation of the State of Ohio (hereinafter referred to as the "Surety") and licensed to do business in the State of Wisconsin, are held and firmly bound unto the City of Madison, Wisconsin (hereinafter referred to as the "City"), in the sum equal to the individual proposal guaranty amounts of the total bid or bids of the Principal herein accepted by the City, for the payment of which the Principal and the Surety hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is that the Principal has submitted to the City certain bids for projects from the time period of 2/1/12 through 1/31/14.

If the Principal is awarded the contract(s) by the City and, within the time and manner required by law after the prescribed forms are presented for its signature, the Principal enters into (a) written contract(s) in accordance with the bid(s), and files with the City its bond(s) guaranteeing faithful performance and payment for all labor and materials, as required by law, or if the City rejects all bids for the work described, then this obligation shall be null and void; otherwise , it shall remain in full force and effect.

In the event the Principal shall fail to execute and deliver the contract(s) or the performance and payment bond(s), all within the time specified or any extension thereof, the Principal and Surety agree jointly and severally to pay to the City within ten (10) calendar days of written demand a total equal to the sum of the individual proposal guaranty amounts of the total bid(s) as liquidated damages.

The Surety, for value received, hereby agrees that the obligations of it and its bond shall be in no way impaired or affected by any extension of time within which the City may accept a bid, and the Surety does hereby waive notice of any such extension.

This bond may be terminated by the Surety upon giving thirty (30) days written notice to the City of its intent to terminate this bond and to be released and discharged therefrom, but such termination shall not operate to relieve or discharge the Surety from any liability already accrued or which shall accrue before the expiration of such thirty (30) day period.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, on the day and year set forth below.

PRINCIPAL

Joe Daniels Construction Co., Inc.
COMPANY NAME

AFFIX SEAL (none)

January 3, 2012
DATE

By: Joseph A Daniels
SIGNATURE AND TITLE
Joseph A. Daniels - President

SURETY

Cincinnati Insurance Company
COMPANY NAME

AFFIX SEAL

January 3, 2012
DATE

By: Patrick A McKenna
SIGNATURE AND TITLE
Patrick A. McKenna - Attorney-in-Fact

This certifies that I have been duly licensed as an agent for the Surety in Wisconsin under License No. 2349196 for the year 2012, and appointed as attorney in fact with authority to execute this bid bond, which power of attorney has not been revoked.

January 3, 2012
DATE

Hausmann-Johnson Insurance, Inc.
Patrick A. McKenna
AGENT

700 Regent Street
ADDRESS

Madison, WI 53725
CITY, STATE AND ZIP CODE

608/252-9661
TELEPHONE NUMBER

Note to Surety and Principal: Any bid submitted which this bond guarantees may be rejected if the Power of Attorney form showing that the Agent of Surety is currently authorized to execute bonds on behalf of Surety is not attached to this bond.

THE CINCINNATI INSURANCE COMPANY

Fairfield, Ohio

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That THE CINCINNATI INSURANCE COMPANY, a corporation organized under the laws of the State of Ohio, and having its principal office in the City of Fairfield, Ohio, does hereby constitute and appoint

Tim Hausmann; Jeff Hausmann; Steven L. Squires; Sheila Dickey; Judith A. Walker; Patrick A. McKenna; Brooke L. Parker and/or Kelsey Jacobson

of Madison, Wisconsin its true and lawful Attorney(s)-in-Fact to sign, execute, seal and deliver on its behalf as Surety, and as its act and deed, any and all bonds, policies, undertakings, or other like instruments, as follows:

Any such obligations in the United States, up to Thirty Million and No/100 Dollars ($30,000,000.00).

This appointment is made under and by authority of the following resolution passed by the Board of Directors of said Company at a meeting held in the principal office of the Company, a quorum being present and voting, on the 6th day of December, 1958, which resolution is still in effect:

"RESOLVED, that the President or any Vice President be hereby authorized, and empowered to appoint Attorneys-in-Fact of the Company to execute any and all bonds, policies, undertakings, or other like instruments on behalf of the Corporation, and may authorize any officer or any such Attorney-in-Fact to affix the corporate seal; and may with or without cause modify or revoke any such appointment or authority. Any such writings so executed by such Attorneys-in-Fact shall be binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company."

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company at a meeting duly called and held on the 7th day of December, 1973.

"RESOLVED, that the signature of the President or a Vice President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Secretary or Assistant Secretary and the seal of the Company may be affixed by facsimile to any certificate of any such power and any such power of certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certified by certificate so executed and sealed shall, with respect to any bond or undertaking to which it is attached, continue to be valid and binding on the Company."

IN WITNESS WHEREOF, THE CINCINNATI INSURANCE COMPANY has caused these presents to be sealed with its corporate seal, duly attested by its Vice President this 10th day of October, 2008.

THE CINCINNATI INSURANCE COMPANY

Vice President

STATE OF OHIO) ss:
COUNTY OF BUTLER)

On this 10th day of October, 2008, before me came the above-named Vice President of THE CINCINNATI INSURANCE COMPANY, to me personally known to be the officer described herein, and acknowledged that the seal affixed to the preceding instrument is the corporate seal of said Company and the corporate seal and the signature of the officer were duly affixed and subscribed to said instrument by the authority and direction of said corporation.

MARK J. HULLER, Attorney at Law
NOTARY PUBLIC - STATE OF OHIO
My commission has no expiration date. Section 147.03 O.R.C.

I, the undersigned Secretary or Assistant Secretary of THE CINCINNATI INSURANCE COMPANY, hereby certify that the above is a true and correct copy of the Original Power of Attorney issued by said Company, and do hereby further certify that the said Power of Attorney is still in full force and effect.

GIVEN under my hand and seal of said Company at Fairfield, Ohio.
this 31st day of January, 2012.

Secretary

BN-1005 (10/08)

SECTION G: AGREEMENT

THIS AGREEMENT made this 6 day of February in the year Two Thousand and Thirteen between **JOE DANIELS CONSTRUCTION CO., INC.**, hereinafter called the Contractor, and the City of Madison, Wisconsin, hereinafter called the City.

WHEREAS, the Common Council of the said City of Madison under the provisions of a resolution adopted **FEBRUARY 5, 2013**, and by virtue of authority vested in the said Council, has awarded to the Contractor the work of performing certain construction.

NOW, THEREFORE, the Contractor and the City, for the consideration hereinafter named, agree as follows:

1. **Scope of Work.** The Contractor shall, perform the construction, execution and completion of the following listed complete work or improvement in full compliance with the Plans, Specifications, Standard Specifications, Supplemental Specifications, Special Provisions and contract; perform all items of work covered or stipulated in the proposal; perform all altered or extra work; and shall furnish, unless otherwise provided in the contract, all materials, implements, machinery, equipment, tools, supplies, transportation, and labor necessary to the prosecution and completion of the work or improvements:

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

2. **Completion Date/Contract Time.** Construction work must begin within seven (7) calendar days after the date appearing on mailed written notice to do so shall have been sent to the Contractor and shall be carried on at a rate so as to secure full completion SEE SPECIAL PROVISIONS, the rate of progress and the time of completion being essential conditions of this Agreement.

3. **Contract Price.** The City shall pay to the Contractor at the times, in the manner and on the conditions set forth in said specifications, the sum of **ONE MILLION, SIXTY THOUSAND DOLLARS AND ZERO CENTS ($1,060,000.00)** being the amount bid by such Contractor and which was awarded to him/her as provided by law.

4. **Wage Rates for Employees of Public Works Contractors**

   General and Authorization. The Contractor shall compensate its employees at the prevailing wage rate in accordance with section 66.0903, Wis. Stats., DWD 290 of the Wisconsin Administrative Code and as hereinafter provided.

   "Public Works" shall include building or work involving the erection, construction, remodeling, repairing or demolition of buildings, parking lots, highways, streets, bridges, sidewalks, street lighting, traffic signals, sanitary sewers, water mains and appurtenances, storm sewers, and the grading and landscaping of public lands.

   "Building or work" includes construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work, except for the delivery of mineral aggregate such as sand, gravel, bituminous asphaltic concrete or stone which is incorporated into the work under contract with the City by depositing the material directly in final place from transporting vehicle.

"Erection, construction, remodeling, repairing" means all types of work done on a particular building or work at the site thereof in the construction or development of the project, including without limitation, erecting, construction, remodeling, repairing, altering, painting, and decorating, the transporting of materials and supplies to or from the building or work done by the employees of the Contractor, Subcontractor, or Agent thereof, and the manufacturing or furnishing of materials, articles, supplies or equipment on the site of the building or work, by persons employed by the Contractor, Subcontractor, or Agent thereof.

"Employees working on the project" means laborers, workers, and mechanics employed directly upon the site of work.

"Laborers, Workers, and Mechanics" include preapprentices, helpers, trainees, learners and properly registered and indentured apprentices but exclude clerical, supervisory, and other personnel not performing manual labor.

Establishment of Wage Rates. The Department of Public Works shall periodically obtain a current schedule of prevailing wage rates from DWD. The schedule shall be used to establish the City of Madison Prevailing Wage Rate Schedule for Public Works Construction (prevailing wage rate). The Department of Public Works may include known increases to the prevailing wage rate which can be documented and are to occur on a future specific date. The prevailing wage rate shall be included in public works contracts subsequently negotiated or solicited by the City. Except for known increases contained within the schedule, the prevailing wage rate shall not change during the contract. The approved wage rate is attached hereto.

Workforce Profile. The Contractor shall, at the time of signature of the contract, notify the City Engineer in writing of the names and classifications of all the employees of the Contractor, Subcontractors, and Agents proposed for the work. In the alternative, the Contractor shall submit in writing the classifications of all the employees of the Contractor, Subcontractors and Agents and the total number of hours estimated in each classification for the work. This workforce profile(s) shall be reviewed by the City Engineer who may, within ten (10) days, object to the workforce profile(s) as not being reflective of that which would be required for the work. The Contractor may request that the workforce profile, or a portion of the workforce profile, be submitted after the signature of the contract but at least ten (10) days prior to the work commencing. Any costs or time loss resulting from modifications to the workforce profile as a result of the City Engineer's objections shall be the responsibility of the Contractor.

Payrolls and Records. The Contractor shall keep weekly payroll records setting forth the name, address, telephone number, classification, wage rate and fringe benefit package of all the employees who work on the contract, including the employees of the Contractor's subcontractors and agents. Such weekly payroll records must include the required information for all City contracts and all other contracts on which the employee worked during the week in which the employee worked on the contract. The Contractor shall also keep records of the individual time each employee worked on the project and for each day of the project. Such records shall also set forth the total number of hours of overtime credited to each such employee for each day and week and the amount of overtime pay received in that week. The records shall set forth the full weekly wages earned by each employee and the actual hourly wage paid to the employee.

The Contractor shall submit the weekly payroll records, including the records of the Contractor's subcontractors and agents, to the City Engineer for every week that work is being done on the contract. The submittal shall be within twenty-one (21) calendar days of the end of the Contractor's weekly pay period.

Employees shall receive the full amounts accrued at the time of the payment, computed at rates not less than those stated in the prevailing wage rate and each employee's rate shall be determined by the work that is done within the trade or occupation classification which should be properly assigned to the employee.

An employee's classification shall not be changed to a classification of a lesser rate during the contract. If, during the term of the contract, an employee works in a higher pay classification than the one which was previously properly assigned to the employee, then that employee shall be considered to be in the higher pay classification for the balance of the contract, receive the appropriate higher rate of pay, and she/he shall not receive a lesser rate during the balance of the contract. For purposes of clarification, it is noted that there is a distinct difference between working in a different classification with higher pay and doing work within a classification that has varying rates of pay which are determined by the type of work that is done within the classification. For example, the classification "Operating Engineer" provides for different rates of pay for various classes of work and the Employer shall compensate an employee classified as an "Operating Engineer" based on the highest class of work that is done in one day. Therefore, an "Operating Engineer's" rate may vary on a day to day basis depending on the type of work that is done, but it will never be less than the base rate of an "Operating Engineer". Also, as a matter of clarification, it is recognized that an employee may work in a higher paying classification merely by chance and without prior intention, calculation or design. If such is the case and the performance of the work is truly incidental and the occurrence is infrequent, inconsequential and does not serve to undermine the single classification principle herein, then it may not be required that the employee be considered to be in the higher pay classification and receive the higher rate of pay for the duration of the contract. However, the Contractor is not precluded or prevented from paying the higher rate for the limited time that an employee performs work that is outside of the employee's proper classification.

Questions regarding an employee's classification, rate of pay or rate of pay within a classification, shall be resolved by reference to the established practice that predominates in the industry and on which the trade or occupation rate/classification is based. Rate of pay and classification disputes shall be resolved by relying upon practices established by collective bargaining agreements and guidelines used in such determination by appropriate recognized trade unions operating within the City of Madison.

The Contractor, its Subcontractors and Agents shall submit to interrogation regarding compliance with the provisions of this ordinance.

Mulcting of the employees by the Contractor, Subcontractor, and Agents on Public Works contracts, such as by kickbacks or other devices, is prohibited. The normal rate of wage of the employees of the Contractor, Subcontractor, and Agents shall not be reduced or otherwise diminished as a result of payment of the prevailing wage rate on a public works contract.

Hourly contributions. Hourly contributions shall be determined in accordance with the prevailing wage rate and with DWD. 290.01(10), Wis. Admin. Code.

Apprentices and Subjourneypersons. Apprentices and subjourneypersons performing work on the project shall be compensated in accordance with the prevailing wage rate and with DWD 290.02, and 290.025, respectively, Wis. Admin. Code.

Straight Time Wages. The Contractor may pay straight time wages as determined by the prevailing wage rate and DWD 290.04, Wis. Admin. Code.

Overtime Wages. The Contractor shall pay overtime wages as required by the prevailing wage rate and DWD 290.05, Wis. Admin. Code.

Posting of Wage Rates and Hours. A clearly legible copy of the prevailing wage rate, together with the provisions of Sec. 66.0903(10)(a) and (11)(a), Wis. Stats., shall be kept posted in at least one conspicuous and easily accessible place at the project site by the Contractor and such notice shall remain posted during the full time any laborers, workers or mechanics are employed on the contract.

Evidence of Compliance by Contractor. Upon completion of the contract, the Contractor shall file with the Department of Public Works an affidavit stating:

a. That the Contractor has complied fully with the provisions and requirements of Sec. 66.0903(3), Wis. Stats., and Chapter DWD 290, Wis. Admin. Code; the Contractor has received evidence of compliance from each of the agents and subcontractors; and the names and addresses of all of the subcontractors and agents who worked on the contract.

b. That full and accurate records have been kept, which clearly indicate the name and trade or occupation of every laborer, worker or mechanic employed by the Contractor in connection with work on the project. The records shall show the number of hours worked by each employee and the actual wages paid therefor; where these records will be kept and the name, address and telephone number of the person who will be responsible for keeping them. The records shall be retained and made available for a period of at least three (3) years following the completion of the project of public works and shall not be removed without prior notification to the municipality.

Evidence of Compliance by Agent and Subcontractor. Each agent and subcontractor shall file with the Contractor, upon completion of their portion of the work on the contract an affidavit stating that all the provisions of Sec. 66.0903(3), Wis. Stats., have been fully complied with and that full and accurate records have been kept, which clearly indicate the name and trade or occupation of every laborer, worker or mechanic employed by the Contractor in connection with work on the project. The records shall show the number of hours worked by each employee and the actual wages paid therefor; where these records shall be kept and the name, address and telephone number of the person who shall be responsible for keeping them. The records shall be retained and made available for a period of at least three (3) years following the completion of the project of public works and shall not be removed without prior notification to the municipality.

Failure to Comply with the Prevailing Wage Rate. If the Contractor fails to comply with the prevailing wage rate, she/he shall be in default on the contract.

5. **Affirmative Action.** In the performance of the services under this Agreement the Contractor agrees not to discriminate against any employee or applicant because of race, religion, marital status, age, color, sex, disability, national origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, political beliefs, or student status. The Contractor further agrees not to discriminate against any subcontractor or person who offers to subcontract on this contract because of race, religion, color, age, disability, sex or national origin.

The Contractor agrees that within thirty (30) days after the effective date of this agreement, the Contractor will provide to the City Affirmative Action Division certain workforce utilization statistics, using a form to be furnished by the City.

If the contract is still in effect, or if the City enters into a new agreement with the Contractor, within one year after the date on which the form was required to be provided, the Contractor will provide updated workforce information using a second form, also to be furnished by the City. The second form will be submitted to the City Affirmative Action Division no later than one year after the date on which the first form was required to be provided.

The Contractor further agrees that, for at least twelve (12) months after the effective date of this contract, it will notify the City Affirmative Action Division of each of its job openings at facilities in Dane County for which applicants not already employees of the Contractor are to be considered. The notice will include a job description, classification, qualifications and application procedures and deadlines. The Contractor agrees to interview and consider candidates referred by the Affirmative Action Division if the candidate meets the minimum qualification standards established by the Contractor, and if the referral is timely. A referral is timely if it is received by the Contractor on or before the date started in the notice.

Articles of Agreement
Article I

The Contractor shall take affirmative action in accordance with the provisions of this contract to insure that applicants are employed, and that employees are treated during employment without regard to race, religion, color, age, marital status, disability, sex or national original and that the employer shall provide harassment free work environment for the realization of the potential of each employee. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship insofar as it is within the control of the Contractor. The Contractor agrees to post in conspicuous places available to employees and applicants notices to be provided by the City setting out the provisions of the nondiscrimination clauses in this contract.

Article II

The Contractor shall in all solicitations or advertisements for employees placed by or on behalf of the Contractors state that all qualified or qualifiable applicants will be employed without regard to race, religion, color, age, marital status, disability, sex or national origin.

Article III

The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding a notice to be provided by the City advising the labor union or worker's representative of the Contractor's equal employment opportunity and affirmative action commitments. Such notices shall be posted in conspicuous places available to employees and applicants for employment.

Article V

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison, including the contract compliance requirements. The Contractor agrees to submit the model affirmative action plan for public works contractors in a form approved by the Director of Affirmative Action.

Article VI

The Contractor will maintain records as required by Section 39.02(9)(f) of the Madison General Ordinances and will provide the City Affirmative Action Division with access to such records and to persons who have relevant and necessary information, as provided in Section 39.02(9)(f). The City agrees to keep all such records confidential, except to the extent that public inspection is required by law.

Article VII

In the event of the Contractor's or subcontractor's failure to comply with the Equal Employment Opportunity and Affirmative Action Provisions of this contract or Section 39.03 and 39.02 of the Madison General Ordinances, it is agreed that the City at its option may do any or all of the following:

1. Cancel, terminate or suspend this Contract in whole or in part.

2. Declare the Contractor ineligible for further City contracts until the Affirmative Action requirements are met.

3. Recover on behalf of the City from the prime Contractor 0.5 percent of the contract award price for each week that such party fails or refuses to comply, in the nature of liquidated damages, but not to exceed a total of five percent (5%) of the contract price, or five thousand dollars ($5,000), whichever is less. Under public works contracts, if a subcontractor is in noncompliance, the City may recover liquidated damages from the prime Contractor in the manner described above. The preceding sentence shall not be construed to prohibit a prime Contractor from recovering the amount of such damage from the non-complying subcontractor.

Article VIII

The Contractor shall include the above provisions of this contract in every subcontract so that such provisions will be binding upon each subcontractor. The Contractor shall take such action with respect to any subcontractor as necessary to enforce such provisions, including sanctions provided for noncompliance.

Article IX

The Contractor shall allow the maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this contract.

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

IN WITNESS WHEREOF, the Contractor has hereunto set his/her hand and seal and the City has caused these presents to be sealed with its corporate seal and to be subscribed by its Mayor and City Clerk the day and year first above written.

Countersigned:

JOE DANIELS CONSTRUCTION CO., INC.
Company Name

Witness — 2/6/13 Date

Witness — 2/6/13 Date

President Joseph A. Daniels — 2/6/13 Date

Secretary Jerrald M. Daniels — 2/6/13 Date

CITY OF MADISON, WISCONSIN

Provisions have been made to pay the liability that will accrue under this contract.

Finance Director

Approved as to form:

City Attorney

Signed this 13th day of February, 20 13

Witness

Witness

Mayor — 2-13-13 Date

City Clerk — 2-11-13 Date

Bond No. 0370997

SECTION H: PAYMENT AND PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we **JOE DANIELS CONSTRUCTION CO., INC.** as principal, and Cincinnati Insurance Company Company of Cincinnati, OH as surety, are held and firmly bound unto the City of Madison, Wisconsin, in the sum of **ONE MILLION, SIXTY THOUSAND DOLLARS AND ZERO CENTS ($1,060,000.00)**, lawful money of the United States, for the payment of which sum to the City of Madison, we hereby bind ourselves and our respective executors and administrators firmly by these presents.

The condition of this Bond is such that if the above bounden shall on his/her part fully and faithfully perform all of the terms of the Contract entered into between him/herself and the City of Madison for the construction of:

OLBRICH BOTANICAL GARDENS ROOF REPLACEMENT
CONTRACT NO. 6828

in Madison, Wisconsin, and shall pay all claims for labor performed and material furnished in the prosecution of said work, and save the City harmless from all claims for damages because of negligence in the prosecution of said work, and shall save harmless the said City from all claims for compensation (under Chapter 102, Wisconsin Statutes) of employees and employees of subcontractor, then this Bond is to be void, otherwise of full force, virtue and effect.

Signed and sealed this 6th day of February, 2013

Countersigned:

Witness

Secretary
Jerrald M. Daniels

Approved as to form:

City Attorney

JOE DANIELS CONSTRUCTION CO., INC.
Company Name (Principal)

President
Joseph A. Daniels

Seal (none)

CINCINNATI INSURANCE COMPANY
Surety

Seal

☐ Salary Employee ☒ Commission

By

Attorney-in-Fact
Patrick A. McKenna

This certifies that I have been duly licensed as an agent for the above company in Wisconsin under License No. 2349196 for the year 20 13, and appointed as attorney-in-fact with authority to execute this payment and performance bond which power of attorney has not been revoked.

February 6th, 2013
Date

Agent Signature
Patrick A. McKenna

THE CINCINNATI INSURANCE COMPANY

Fairfield, Ohio

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That THE CINCINNATI INSURANCE COMPANY, a corporation organized under the laws of the State of Ohio, and having its principal office in the City of Fairfield, Ohio, does hereby constitute and appoint

Tim Hausmann; Jeff Hausmann; Steven L. Squires; Sheila Dickey; Judith A. Walker; Patrick A. McKenna; Brooke L. Parker and/or Kelsey Jacobson

of Madison, Wisconsin its true and lawful Attorney(s)-in-Fact to sign, execute, seal and deliver on its behalf as Surety, and as its act and deed, any and all bonds, policies, undertakings, or other like instruments, as follows:

Any such obligations in the United States, up to Thirty Million and No/100 Dollars ($30,000,000.00).

This appointment is made under and by authority of the following resolution passed by the Board of Directors of said Company at a meeting held in the principal office of the Company, a quorum being present and voting, on the 6th day of December, 1958, which resolution is still in effect:

"RESOLVED, that the President or any Vice President be hereby authorized, and empowered to appoint Attorneys-in-Fact of the Company to execute any and all bonds, policies, undertakings, or other like instruments on behalf of the Corporation, and may authorize any officer or any such Attorney-in-Fact to affix the corporate seal; and may with or without cause modify or revoke any such appointment or authority. Any such writings so executed by such Attorneys-in-Fact shall be binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company."

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company at a meeting duly called and held on the 7th day of December, 1973.

"RESOLVED, that the signature of the President or a Vice President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Secretary or Assistant Secretary and the seal of the Company may be affixed by facsimile to any certificate of any such power and any such power of certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certified by certificate so executed and sealed shall, with respect to any bond or undertaking to which it is attached, continue to be valid and binding on the Company."

IN WITNESS WHEREOF, THE CINCINNATI INSURANCE COMPANY has caused these presents to be sealed with its corporate seal, duly attested by its Vice President this 10th day of October, 2008.

The Cincinnati Insurance Company CORPORATE SEAL OHIO

THE CINCINNATI INSURANCE COMPANY

Thomas H. Kelly

Vice President

STATE OF OHIO) ss:
COUNTY OF BUTLER)

On this 10th day of October, 2008, before me came the above-named Vice President of THE CINCINNATI INSURANCE COMPANY, to me personally known to be the officer described herein, and acknowledged that the seal affixed to the preceding instrument is the corporate seal of said Company and the corporate seal and the signature of the officer were duly affixed and subscribed to said instrument by the authority and direction of said corporation.

NOTARIAL SEAL STATE OF OHIO

Mark J. Huller

MARK J. HULLER, Attorney at Law
NOTARY PUBLIC - STATE OF OHIO
My commission has no expiration
date. Section 147.03 O.R.C.

I, the undersigned Secretary or Assistant Secretary of THE CINCINNATI INSURANCE COMPANY, hereby certify that the above is a true and correct copy of the Original Power of Attorney issued by said Company, and do hereby further certify that the said Power of Attorney is still in full force and effect.

GIVEN under my hand and seal of said Company at Fairfield, Ohio.

this 6th day of February, 2013.

The Cincinnati Insurance Company CORPORATE SEAL OHIO

Gregory J. Hahlamm

Secretary

PN 1005 (10/08)

MINIMUM WAGE SCALE

FOR

PUBLIC WORKS IMPROVEMENTS

APPROVED BY: BOARD OF PUBLIC WORKS

MADISON, WISCONSIN

February 7, 2012

The attached "Prevailing Wage Rate Determination: (Pages 1 through 30), issued February 7, 2012, is hereby approved as the Minimum Wage Scale of the City of Madison.

State of Wisconsin
Department of Workforce Development
Equal Rights Division

DEPARTMENTAL ORDER

ISSUE DATE: 1/13/2012

PROJECT:

ALL PUBLIC WORKS PROJECTS UNDER SEC 66.0903, STATS. CITY OF MADISON
MADISON CITY, DANE COUNTY, WI
Determination No. 201200105

PROJECT OWNER:	REQUESTER:
ROBERT F. PHILLIPS, CITY ENGINEER CITY OF MADISON-ENGINEERING 210 MARTIN L KING JR BLVD, RM 115 MADISON, WI 53703	ROBERT F. PHILLIPS, CITY ENGINEER CITY OF MADISON-ENGINEERING 210 MARTIN L KING JR BLVD, RM 115 MADISON, WI 53703
ADDITIONAL CONTACT:	
NORMAN DAVIS, CONTRACT COMPLIANCE CITY OF MADISON-DEPT OF CIVIL RTS-AA DIV 210 MARTIN L KING JR BLVD, RM 523 MADISON, WI 537033342	

The department received an application for prevailing wage rate determination for the above-captioned project. The department conducted a survey to determine the prevailing wage rate for the trade(s) or occupation(s) needed to complete the project. The survey's findings appear in the attached project determination.

If you believe that the wage rate for any trade or occupation does not accurately reflect the prevailing wage rate in the city, village or town where the project is located, you may ask the department to conduct an administrative review of such wage rate. You must submit this request in writing within 30 days from the date indicated above. Additionally, your request must include wage rate information from at least three similar projects in the city, village or town where the proposed project is located and on which some work has been performed by the contested trade(s) during the current survey period and was previously considered by the department in issuing the attached determination. See DWD 290.10 of the Wisconsin Administrative Code and either s. 66.0903(3)(br), s. 66.0904(4)(e), or s. 103.49(3)(c), Stats., for a complete explanation of the administrative review process.

Enclosures

It is hereby ordered that the prevailing wage rates set forth in the attached project determination shall only be applicable to the above referenced project. This order is a **FINAL ORDER** of the department unless a timely request for an administrative review is filed with the department.

ISSUED BY:

Equal Rights Division
Labor Standards Bureau
Construction Wage Standards Section
PO Box 8928 Madison, WI 53708-8928
(608)266-6861

Web Site: http://dwd.wisconsin.gov/er/

PREVAILING WAGE RATE DETERMINATION
Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 66.0903, Wis. Stats.
Issued On: 1/13/2012

DETERMINATION NUMBER:	201200105
EXPIRATION DATE:	Prime Contracts MUST Be Awarded or Negotiated On Or Before 12/31/2012. If NOT, You MUST Reapply.
PROJECT NAME:	ALL PUBLIC WORKS PROJECTS UNDER SEC 66.0903, STATS.-CITY OF MADISON
PROJECT LOCATION:	MADISON CITY, DANE COUNTY, WI
CONTRACTING AGENCY:	CITY OF MADISON-ENGINEERING

CLASSIFICATION:	Contractors are responsible for correctly classifying their workers. Either call the Department of Workforce Development (DWD) with trade or classification questions or consult DWD's Dictionary of Occupational Classifications & Work Descriptions on the DWD website at: dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm.
OVERTIME:	Time and one-half must be paid for all hours worked: - over 10 hours per day on prevailing wage projects - over 40 hours per calendar week - Saturday and Sunday - on all of the following holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; - The day before if January 1, July 4 or December 25 falls on a Saturday; - The day following if January 1, July 4 or December 25 falls on a Sunday. Apply the time and one-half overtime calculation to whichever is higher between the Hourly Basic Rate listed on this project determination or the employee's regular hourly rate of pay. Add any applicable Premium or DOT Premium to the Hourly Basic Rate before calculating overtime. A DOT Premium (discussed below) may supersede this time and one-half requirement.
FUTURE INCREASE:	When a specific trade or occupation requires a future increase, you MUST add the full hourly increase to the "TOTAL" on the effective date(s) indicated for the specific trade or occupation.
PREMIUM PAY:	If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whevenever such pay is applicable.
DOT PREMIUM:	This premium only applies to highway and bridge projects owned by the Wisconsin Department of Transportation and to the project type heading "Airport Pavement or State Highway Construction." DO NOT apply the premium calculation under any other project type on this determination.
APPRENTICES:	Pay apprentices a percentage of the applicable journeyperson's hourly basic rate of pay and hourly fringe benefit contributions specified in this determination. Obtain the appropriate percentage from each apprentice's contract or indenture.
SUBJOURNEY:	Subjourney wage rates may be available for some of the trades or occupations indicated below with the exception of laborers, truck drivers and heavy equipment operators. Any employer interested in using a subjourney classification on this project MUST complete Form ERD-10880 and request the applicable wage rate from the Department of Workforce Development PRIOR to using the subjourney worker on this project.

This document MUST BE POSTED by the CONTRACTING AGENCY in at least one conspicuous and easily accessible place on the site of the project . A local governmental unit may post this document at the place normally used to post public notices if there is no common site on the project. This document MUST remain posted during the entire time any worker is employed on the project and MUST be physically incorporated into the specifications and all contracts and subcontracts. If you have any questions, please write to the Equal Rights Division, Labor Standards Bureau, P.O. Box 8928, Madison, Wisconsin 53708 or call (608) 266-6861.

The following statutory provisions apply to local governmental unit projects of public works and are set forth below pursuant to the requirements of s. 66.0903(8), Stats.

s. 66.0903 (1) (f) & s. 103.49 (1) (c) "PREVAILING HOURS OF LABOR" for any trade or occupation in any area means 10 hours per day and 40 hours per week and may not include any hours worked on a Saturday or Sunday or on any of the following holidays:

1. January 1.
2. The last Monday in May.
3. July 4.
4. The first Monday in September.
5. The 4th Thursday in November.
6. December 25.
7. The day before if January 1, July 4 or December 25 falls on a Saturday.
8. The day following if January 1, July 4 or December 25 falls on a Sunday.

s. 66.0903 (10) RECORDS; INSPECTION; ENFORCEMENT.
(a) Each contractor, subcontractor, or contractor's or subcontractor's agent performing work on a project of public works that is subject to this section shall keep full and accurate records clearly indicating the name and trade or occupation of every person performing the work described in sub. (4) and an accurate record of the number of hours worked by each of those persons and the actual wages paid for the hours worked.

s. 66.0903 (11) LIABILITY AND PENALTIES.
(a) 1. Any contractor, subcontractor, or contractor's or subcontractor's agent who fails to pay the prevailing wage rate determined by the department under sub. (3) or who pays less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor is liable to any affected employee in the amount of his or her unpaid wages or his or her unpaid overtime compensation and in an additional amount as liquidated damages as provided under subd. 2., 3., whichever is applicable.
2. If the department determines upon inspection under sub. (10) (b) or (c) that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the department shall order the contractor to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages within a period specified by the department in the order.
3. In addition to or in lieu of recovering the liability specified in subd. 1. as provided in subd. 2., any employee for and in behalf of that employee and other employees similarly situated may commence an action to recover that liability in any court of competent jurisdiction. If the court finds that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the court shall order the contractor, subcontractor, or agent to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages.
5. No employee may be a party plaintiff to an action under subd. 3. unless the employee consents in writing to become a party and the consent is filed in the court in which the action is brought. Notwithstanding s. 814.04 (1), the court shall, in addition to any judgment awarded to the plaintiff, allow reasonable attorney fees and costs to be paid by the defendant.

BUILDING OR HEAVY CONSTRUCTION

Includes sheltered enclosures with walk-in access for the purpose of housing persons, employees, machinery, equipment or supplies and non-sheltered work such as canals, dams, dikes, reservoirs, storage tanks, etc. A sheltered enclosure need not be "habitable" in order to be considered a building. The installation of machinery and/or equipment, both above and below grade level, does not change a project's character as a building. On-site grading, utility work and landscaping are included within this definition. Residential buildings of four (4) stories or less, agricultural buildings, parking lots and driveways are NOT included within this definition.

SKILLED TRADES

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
101	Acoustic Ceiling Tile Installer	29.06	15.16	44.22
102	Boilermaker	31.09	23.75	54.84
103	Bricklayer, Blocklayer or Stonemason Future Increase(s): Add $.50/hr on 6/1/2012; Add $ .80 on 6/1/2013 Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.26	16.60	48.86
104	Cabinet Installer	29.06	15.16	44.22
105	Carpenter	29.06	15.16	44.22
106	Carpet Layer or Soft Floor Coverer	29.06	15.16	44.22
107	Cement Finisher	32.03	15.13	47.16
108	Drywall Taper or Finisher	26.10	13.65	39.75
109	Electrician Future Increase(s): Add $.50/hr on 6/1/2012. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.55	18.68	51.23
110	Elevator Constructor	43.79	25.48	69.27
111	Fence Erector	25.50	0.26	25.76
112	Fire Sprinkler Fitter	36.39	16.75	53.14
113	Glazier	36.23	11.22	47.45
114	Heat or Frost Insulator	33.28	22.51	55.79
115	Insulator (Batt or Blown)	23.62	11.55	35.17
116	Ironworker	30.90	19.11	50.01
117	Lather	29.06	15.16	44.22

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
118	Line Constructor (Electrical)	35.97	18.08	54.05
119	Marble Finisher	31.16	16.27	47.43
120	Marble Mason	32.66	16.20	48.86
121	Metal Building Erector	22.00	4.11	26.11
122	Millwright	30.66	15.21	45.87
123	Overhead Door Installer	18.00	4.86	22.86
124	Painter	25.65	14.11	39.76
125	Pavement Marking Operator	26.00	0.00	26.00
126	Piledriver	29.56	15.16	44.72
127	Pipeline Fuser or Welder (Gas or Utility)	29.54	18.84	48.38
129	Plasterer	29.03	15.16	44.19
130	Plumber	36.20	15.02	51.22
132	Refrigeration Mechanic Future Increase(s): Add $.85/hr on 12/1/11; Add $.90/hr on 6/1/12; Add $.85/hr on 12/1/12.	40.35	16.21	56.56
133	Roofer or Waterproofer	28.06	0.00	28.06
134	Sheet Metal Worker	34.23	20.19	54.42
135	Steamfitter Future Increase(s): Add $.85/hr on 12/1/11; Add $.90/hr on 6/1/12; Add $.85/hr on 12/1/12.	40.35	16.21	56.56
137	Teledata Technician or Installer	21.26	6.99	28.25
138	Temperature Control Installer	32.55	18.68	51.23
139	Terrazzo Finisher	18.00	5.35	23.35
140	Terrazzo Mechanic	31.16	16.27	47.43
141	Tile Finisher Future Increase(s): Add $.50/hr on 6/1/2012; Add $ .80/hr on 6/1/2013.	23.77	16.00	39.77
142	Tile Setter Future Increase(s): Add $.50/hr on 6/1/2012; Add $ .80/hr on 6/1/2013.	29.71	16.00	45.71
143	Tuckpointer, Caulker or Cleaner	22.00	9.75	31.75
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
146	Well Driller or Pump Installer	25.32	15.30	40.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
147	Siding Installer	16.74	2.58	19.32
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	32.37	16.48	48.85
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	28.78	15.16	43.94
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	17.80	9.00	26.80
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	18.00	6.98	24.98
203	Three or More Axle Future Increase(s): Add $1.57/hr on 6/1/2012.	18.00	13.83	31.83
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	31.89	17.98	49.87
205	Pavement Marking Vehicle	19.25	10.84	30.09
207	Truck Mechanic	18.00	13.68	31.68

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): Add $.50/hr. on 06/04/2012; Add $.75/hr. on 06/03/2013 Premium Increase(s): Add $1.00/hr for certified welder; Add $.25/hr for mason tender	24.14	13.45	37.59
302	Asbestos Abatement Worker	23.96	12.88	36.84
303	Landscaper	17.00	6.36	23.36
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	20.39	12.20	32.59
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.51	0.00	16.51
314	Railroad Track Laborer	14.00	4.77	18.77

HEAVY EQUIPMENT OPERATORS
SITE PREPARATION, UTILITY OR LANDSCAPING WORK ONLY

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
501	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Milling Machine; Boring Machine (Directional, Horizontal or Vertical); Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Backhoe (Track Type) Having a Mfgr's Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Crane, Shovel, Dragline, Clamshells; Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Grader or Motor Patrol; Master Mechanic; Mechanic or Welder; Robotic Tool Carrier (With or Without Attachments); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Tractor (Scraper, Dozer, Pusher, Loader); Trencher (Wheel Type or Chain Type Having Over 8 Inch Bucket). Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	32.42	17.98	50.40
502	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Environmental Burner; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Jeep Digger; Screed (Milling Machine); Skid Rig; Straddle Carrier or Travel Lift; Stump Chipper; Trencher (Wheel Type or Chain Type Having 8 Inch Bucket & Under).	31.89	14.44	46.33
503	Air Compressor (&/or 400 CFM or Over); Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Greaser; High Pressure Utility Locating Machine (Daylighting Machine); Mulcher; Oiler; Post Hole Digger or Driver; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	31.89	17.98	49.87
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01
505	Work Performed on the Great Lakes Including Crane or Backhoe Operator; Assistant Hydraulic Dredge Engineer; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder; 70 Ton & Over Tug Operator. Premium Increase(s): Add $.50/hr for friction crane, lattice boom or crane certification (CCO).	37.45	19.45	56.90

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
506	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	26.80	18.52	45.32
507	Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	27.75	19.15	46.90

HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
508	Boring Machine (Directional); Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013. Premium Increase(s): Add $.50/hr at 200 ton: Add $1.00/hr. at 300 ton; Add $1.50/hr at 400 ton; Add $2.00/hr at 500 ton.	34.62	17.98	52.60
509	Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Boring Machine (Horizontal or Vertical); Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Pile Driver; Versi Lifts, Tri-Lifts & Gantrys (20,000 Lbs. & Over). Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013. Premium Increase(s): Add $.25/hr for cranes with lifting capacity of 45 ton or over.	33.62	17.98	51.60
510	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Dredge (NOT Performing Work on the Great Lakes); Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Hydro-Blaster (10,000 PSI or Over); Milling Machine; Skid Rig; Traveling Crane (Bridge Type). Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	32.42	17.98	50.40

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
511	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Environmental Burner; Gantrys (Under 20,000 Lbs.); Grader or Motor Patrol; High Pressure Utility Locating Machine (Daylighting Machine); Manhoist; Material or Stack Hoist; Mechanic or Welder; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tining or Curing Machine; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	31.89	17.98	49.87
512	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Grout Pump; Hoist (Tugger, Automatic); Industrial Locomotives; Jeep Digger; Lift Slab Machine; Mulcher; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	35.59	19.10	54.69
513	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Boatmen (NOT Performing Work on the Great Lakes); Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Elevator; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Forklift; Generator (&/or 150 KW or Over); Greaser; Heaters (Mechanical); Loading Machine (Conveyor); Oiler; Post Hole Digger or Driver; Prestress Machine; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	29.19	17.98	47.17
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add $2/hr. on 1/1/2013.	34.89	19.68	54.57
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment).	30.32	17.40	47.72
516	Fiber Optic Cable Equipment	22.00	7.27	29.27

SEWER, WATER OR TUNNEL CONSTRUCTION

Includes those projects that primarily involve public sewer or water distribution, transmission or collection systems and related tunnel work (excluding buildings).

SKILLED TRADES

CODE	TRADE OR OCCUPATION Fringe Benefits Must Be Paid On All Hours Worked	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	32.66	16.20	48.86
105	Carpenter Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.43	19.31	52.74
107	Cement Finisher Future Increase(s): Add $1.86 on 6/1/12; Add $1.87 on 6/1/13; Add $1.87 on 6/1/14; Add $1.87 on 6/1/15; Add $1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	30.68	15.68	46.36
109	Electrician Future Increase(s): Add $1.40/hr on 6/1/2012. Add $1.60/hr on 6/1/2013. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	31.54	20.95	52.49
111	Fence Erector	25.50	0.26	25.76
116	Ironworker Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	31.31	22.22	53.53
118	Line Constructor (Electrical)	35.97	18.08	54.05
125	Pavement Marking Operator	26.00	0.00	26.00
126	Piledriver	29.56	15.16	44.72
130	Plumber	36.20	15.02	51.22
135	Steamfitter	39.90	15.76	55.66
137	Teledata Technician or Installer	21.26	6.99	28.25

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
143	Tuckpointer, Caulker or Cleaner	22.00	9.75	31.75
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
146	Well Driller or Pump Installer	24.22	14.80	39.02
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	32.37	16.48	48.85
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	28.78	15.16	43.94
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	17.80	9.00	26.80
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	23.00	8.64	31.64
203	Three or More Axle	21.17	9.51	30.68
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	22.50	16.19	38.69
205	Pavement Marking Vehicle	19.25	10.84	30.09
207	Truck Mechanic	21.17	9.51	30.68

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): Add $.70/hr. on 06/04/2012; Add $.80/hr. on 06/03/2013 Premium Increase(s): Add $.20 for blaster, bracer, manhole builder, caulker, bottomman and power tool; Add $.55 for pipelayer; Add $1.00 for tunnel work 0-15 lbs. compressed air; Add $2.00 for over 15-30 lbs. compressed air; Add $3.00 for over 30 lbs. compressed air.	25.28	13.44	38.72

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
303	Landscaper	17.00	6.36	23.36
304	Flagperson or Traffic Control Person	12.00	17.89	29.89
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.51	0.00	16.51
314	Railroad Track Laborer	14.00	4.77	18.77

HEAVY EQUIPMENT OPERATORS SEWER, WATER OR TUNNEL WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
521	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Master Mechanic; Pile Driver. Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013. Premium Increase(s): Add $.25/hr for cranes with lifting capacity of 45 ton or over.	33.62	17.98	51.60
522	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Spreader & Distributor; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Dredge (NOT Performing Work on the Great Lakes); Milling Machine; Skid Rig; Telehandler; Traveling Crane (Bridge Type). Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	32.42	17.98	50.40

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
523	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Boring Machine (Horizontal or Vertical); Bulldozer or Endloader (Over 40 hp); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Manholst; Material or Stack Holst; Mechanic or Welder; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	31.89	17.98	49.87
524	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Environmental Burner; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Holst (Tugger, Automatic); Grout Pump; Jeep Digger; Lift Slab Machine; Mulcher; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Tining or Curing Machine; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	30.89	17.16	48.05
525	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Loading Machine (Conveyor); Post Hole Digger or Driver; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	29.19	17.98	47.17
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	29.19	17.96	47.15
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01
528	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	36.20	18.81	55.01

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
529	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	26.80	18.52	45.32
530	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under), Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	26.80	18.52	45.32

AIRPORT PAVEMENT OR STATE HIGHWAY CONSTRUCTION

Includes all airport projects (excluding buildings) and all projects awarded by the Wisconsin Department of Transportation (excluding buildings).

SKILLED TRADES

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	32.66	15.92	48.58
105	Carpenter	30.23	15.16	45.39
107	Cement Finisher Future Increase(s): Add $1.86 on 6/1/12; Add $1.87 on 6/1/13; Add $1.87 on 6/1/14; Add $1.87 on 6/1/15; Add $1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	30.68	15.68	46.36
109	Electrician	37.25	14.68	51.93
111	Fence Erector	35.62	0.00	35.62
116	Ironworker	30.90	19.11	50.01
118	Line Constructor (Electrical)	35.97	18.08	54.05
124	Painter	28.00	11.15	39.15
125	Pavement Marking Operator	26.65	14.92	41.57
126	Piledriver	29.56	15.16	44.72
133	Roofer or Waterproofer	28.06	0.00	28.06
137	Teledata Technician or Installer	21.26	6.99	28.25
143	Tuckpointer, Caulker or Cleaner	22.00	9.75	31.75
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.42	12.90	48.32
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	35.50	14.27	49.77
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.18	14.07	39.25
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86

154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	22.35	16.19	38.54
203	Three or More Axle Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	22.50	16.19	38.69
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	24.91	15.63	40.54
205	Pavement Marking Vehicle	23.84	14.76	38.60
206	Shadow or Pilot Vehicle	24.76	15.35	40.11
207	Truck Mechanic	24.91	15.35	40.26

LABORERS

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): Add $1.60/hr on 6/1/2012: Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014. Premium Increase(s): Add $.10/hr for topman, air tool operator, vibrator or tamper operator (mechanical hand operated), chain saw operator and demolition burning torch laborer; Add $.15/hr for bituminous worker (raker and luteman), formsetter (curb, sidewalk and pavement) and strike off man; Add $.20/hr for blaster and powderman; Add $.25/hr for bottomman; Add $.35/hr for line and grade specialist; Add $.45/hr for pipelayer. / DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	27.20	13.45	40.65
302	Asbestos Abatement Worker	23.96	12.88	36.84
303	Landscaper Future Increase(s): Add $1.60/hr on 6/1/12; Add $1.70/hr on 6/1/13; Add $1.60/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	27.20	13.45	40.65
304	Flagperson or Traffic Control Person Future Increase(s): Add $1.60/hr on 6/1/2012; Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	23.55	13.45	37.00

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.51	0.00	16.51
314	Railroad Track Laborer	14.00	4.77	18.77

HEAVY EQUIPMENT OPERATORS
AIRPORT PAVEMENT OR STATE HIGHWAY CONSTRUCTION

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
531	Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Traveling Crane (Bridge Type). Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	34.22	18.90	53.12
532	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs., & Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.72	18.90	52.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
533	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boatmen (NOT Performing Work on the Great Lakes); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures; when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.22	18.90	52.12

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
534	Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	32.96	18.90	51.86
535	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	32.67	18.90	51.57
536	Fiber Optic Cable Equipment.	22.00	7.27	29.27
537	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
538	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	36.20	18.81	55.01
539	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	26.80	18.52	45.32
540	Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks-Great Lakes ONLY.	26.80	18.52	45.32

LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION

Includes roads, streets, alleys, trails, bridges, paths, racetracks, parking lots and driveways (except residential or agricultural), public sidewalks or other similar projects (excluding projects awarded by the Wisconsin Department of Transportation).

SKILLED TRADES

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	32.66	16.20	48.86
105	Carpenter	29.06	15.16	44.22
107	Cement Finisher Future Increase(s): Add $1.86 on 6/1/12; Add $1.87 on 6/1/13; Add $1.87 on 6/1/14; Add $1.87 on 6/1/15; Add $1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	30.68	15.68	46.36
109	Electrician Future Increase(s): Add $.50/hr. effective 06/04/2012. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	28.74	17.86	46.60
111	Fence Erector	25.50	0.26	25.76
116	Ironworker	30.90	19.11	50.01
118	Line Constructor (Electrical)	35.97	18.08	54.05
124	Painter	25.65	14.11	39.76
125	Pavement Marking Operator	26.00	0.00	26.00
126	Piledriver	29.56	15.16	44.72
133	Roofer or Waterproofer	28.06	0.00	28.06
137	Teledata Technician or Installer	21.26	6.99	28.25
143	Tuckpointer, Caulker or Cleaner	22.00	9.75	31.75
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.42	12.90	48.32

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day:	29.64	14.64	44.28
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.18	13.07	38.25
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	15.00	0.00	15.00
203	Three or More Axle	19.50	4.97	24.47
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	31.89	17.98	49.87
205	Pavement Marking Vehicle	19.25	10.84	30.09
206	Shadow or Pilot Vehicle	15.00	0.00	15.00
207	Truck Mechanic	19.50	4.97	24.47

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	26.15	12.29	38.44
303	Landscaper	23.71	15.07	38.78
304	Flagperson or Traffic Control Person	12.00	17.89	29.89
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.51	0.00	16.51
314	Railroad Track Laborer	14.00	4.77	18.77

HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
541	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	34.22	18.90	53.12
542	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Crane, Tower Crane Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.72	18.90	52.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
543	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.22	18.90	52.12

Determination No. 201200105

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
544	Backfiller; Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.22	18.90	52.12
545	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack.	30.42	17.58	48.00
546	Fiber Optic Cable Equipment.	22.00	7.27	29.27
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01
548	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	36.20	18.81	55.01
549	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or more); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	26.80	18.52	45.32
550	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	26.80	18.52	45.32

HEAVY EQUIPMENT OPERATORS
ASPHALT PAVEMENT OR OTHER WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
551	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads and/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic.	34.62	17.96	52.58
552	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	33.72	18.90	52.62

CODE	TRADE OR OCCUPATION Fringe Benefits Must Be Paid On All Hours Worked	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
553	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boring Machine (Directional, Horizontal or Vertical); Bulldozer or Endloader; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Laser/Screed; Concrete Slipform Placer Curb & Gutter Machine; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14.	32.67	18.55	51.22
554	Backfiller; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self-Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler.	31.52	17.89	49.41
555	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14.	32.67	18.55	51.22
556	Fiber Optic Cable Equipment.	22.00	7.27	29.27

RESIDENTIAL OR AGRICULTURAL CONSTRUCTION

Includes single family houses or apartment buildings of no more than four (4) stories in height and all buildings, structures or facilities that are primarily used for agricultural or farming purposes, excluding commercial buildings. For classification purposes, the exterior height of a residential building, in terms of stories, is the primary consideration. All incidental items such as site work, driveways, parking lots, private sidewalks, private septic systems or sewer and water laterals connected to a public system and swimming pools are included within this definition. Residential buildings of five (5) stories and above are NOT included within this definition.

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
101	Acoustic Ceiling Tile Installer	27.00	2.47	29.47
102	Boilermaker	31.09	23.75	54.84
103	Bricklayer, Blocklayer or Stonemason	32.00	3.00	35.00
104	Cabinet Installer	22.00	2.74	24.74
105	Carpenter	27.00	3.46	30.46
106	Carpet Layer or Soft Floor Coverer	23.95	2.78	26.73
107	Cement Finisher	21.33	4.25	25.58
108	Drywall Taper or Finisher	23.80	1.55	25.35
109	Electrician	22.00	9.18	31.18
110	Elevator Constructor	43.79	25.48	69.27
111	Fence Erector	17.64	4.33	21.97
112	Fire Sprinkler Fitter	36.39	16.97	53.36
113	Glazier	36.23	11.22	47.45
114	Heat or Frost Insulator	29.04	19.73	48.77
115	Insulator (Batt or Blown)	18.95	1.70	20.65
116	Ironworker	30.90	19.11	50.01
117	Lather	28.15	15.14	43.29
119	Marble Finisher	31.16	16.27	47.43
120	Marble Mason	32.66	16.20	48.86
121	Metal Building Erector	17.50	2.80	20.30
123	Overhead Door Installer	17.00	0.00	17.00
124	Painter	25.65	6.33	31.98
125	Pavement Marking Operator	26.00	0.00	26.00

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
129	Plasterer	19.00	0.29	19.29
130	Plumber	30.00	10.34	40.34
132	Refrigeration Mechanic	30.96	0.00	30.96
133	Roofer or Waterproofer	29.85	1.55	31.40
134	Sheet Metal Worker	21.03	3.40	24.43
135	Steamfitter	32.59	11.05	43.64
137	Teledata Technician or Installer	19.23	5.32	24.55
138	Temperature Control Installer	22.45	4.11	26.56
139	Terrazzo Finisher	18.00	5.35	23.35
140	Terrazzo Mechanic	31.16	16.27	47.43
141	Tile Finisher	23.96	13.36	37.32
142	Tile Setter	21.00	0.00	21.00
143	Tuckpointer, Caulker or Cleaner	23.96	12.88	36.84
146	Well Driller or Pump Installer	15.10	12.38	27.48
147	Siding Installer	18.80	1.42	20.22

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	19.86	2.54	22.40
203	Three or More Axle	19.50	14.27	33.77
205	Pavement Marking Vehicle	19.25	10.84	30.09
207	Truck Mechanic	19.00	1.75	20.75

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	16.09	7.18	23.27
302	Asbestos Abatement Worker	17.00	2.21	19.21
303	Landscaper	25.00	0.54	25.54

311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.51	0.00	16.51

HEAVY EQUIPMENT OPERATORS
RESIDENTIAL OR AGRICULTURAL CONSTRUCTION

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
557	Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type); Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boring Machine (Directional, Horizontal or Vertical); Bulldozer or Endloader; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Crane, Shovel, Dragline, Clamshells; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type); Winches & A-Frames.	29.45	15.37	44.82
558	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Backfiller; Belting, Burlap, Texturing Machine; Boiler (Temporary Heat); Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Jeep Digger; Lift Slab Machine; Mulcher; Oiler; Post Hole Digger or Driver; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Roller (Rubber Tire, 5 Tons or Under); Screed (Milling Machine); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Stump Chipper; Telehandler; Vibratory Hammer or Extractor, Power Pack.	26.45	14.35	40.80

********** END OF RATES **********