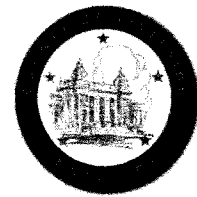


**SUBMITTAL TO THE BOARD OF DIRECTORS OF THE
REDEVELOPMENT AGENCY
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA**

228



FROM: Redevelopment Agency

SUBMITTAL DATE:
June 16, 2011

SUBJECT: Mead Valley Library – Adoption of the Mitigated Negative Declaration and Mitigation Monitoring Reporting Program, Award of Contract, and Approval of the Project Budget

RECOMMENDED MOTION: That the Board of Directors:

1. Adopt the Mitigated Negative Declaration (MND) and the Mitigation Monitoring Reporting Program (MMRP), both attached hereto for EA1504001010, based on the findings incorporated therein;
2. Approve Addenda No. 1 to the plans and specifications that were issued to all plan holders prior to the June 8, 2011 bid opening;
3. Award the construction contract to Stronghold Engineering, Inc. as the lowest responsive bidder in the amount of \$8,660,127 which includes bid alternates 1 and 2;

(Continued)

Robert Field
Executive Director

FINANCIAL DATA	Current F.Y. Total Cost:	\$ 13,385,000	In Current Year Budget:	Yes
	Current F.Y. Net County Cost:	\$ 0	Budget Adjustment:	No
	Annual Net County Cost:	\$ 0	For Fiscal Year:	2010/11

COMPANION ITEM ON BOARD OF SUPERVISORS AGENDA: No

SOURCE OF FUNDS: I-215 Corridor Redevelopment Project Area Capital Improvement Funds – Mead Valley Sub-Area	Positions To Be Deleted Per A-30	<input type="checkbox"/>
	Requires 4/5 Vote	<input type="checkbox"/>

C.E.O. RECOMMENDATION: APPROVE

BY:
Jennifer L. Sargent

County Executive Office Signature

MINUTES OF THE BOARD OF DIRECTORS OF THE REDEVELOPMENT AGENCY

On motion of Supervisor Buster, seconded by Supervisor Ashley and duly carried by unanimous vote, IT WAS ORDERED that the above matter is approved as recommended.

Ayes: Buster, Tavaglione, Stone, Benoit and Ashley
Nays: None
Absent: None
Date: June 28, 2011
xc: RDA, Auditor, CIP

Kecia Harper-Ihem
Clerk of the Board
By:
Deputy

Prev. Agn. Ref.: 4.2 of 5/24/11, 4.2 of 4/26/11 | District: 1 | Agenda Number: 4.11

ATTACHMENTS FILED
WITH THE CLERK OF THE BOARD

FISCAL PROCEDURES APPROVED
 PAUL ANGULO, CPA, AUDITOR-CONTROLLER
 BY: 6/21/11
 SAMUEL WANG
 Department of CIP
 REVIEWED BY CIP
 Christopher Hans
 FORM APPROVED COUNTY COUNSEL
 BY: 6/20/11
 MARSHAL VICTOR
 DATE

Dept's Recomm.: Consent Policy Policy
 Per Exec. Ofc.: Consent Policy Policy

RECOMMENDED MOTION: (Continued)

4. Authorize the Chairman of the Board to execute the contract documents on behalf of the Board; and
5. Approve the project budget of \$13,385,000.

BACKGROUND:

As the lead agency, the Redevelopment Agency for the County of Riverside (RDA) prepared an Initial Study for the proposed project.

In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000-21177) and California Code of Regulations Section 15063, an Initial Study was prepared to analyze the proposed project to determine if any potential significant impacts upon the environment would result from construction and implementation of the project.

The results of the analysis demonstrate that the project would not have any significant impacts on the environment with the implementation of the mitigation measures contained in the Initial Study. The Initial Study/Mitigated Negative Declaration (IS/MND) was prepared and circulated for the mandated thirty day public review and comment period from April 22, 2011 to May 23, 2011.

Pursuant to CEQA Section 15074, the county shall consider all comments received during the review period prior to adoption of the IS/MND. Only (1) comment letter was received. The comment letter and its response are included in the IS/MND.

Pursuant to CEQA (Public Resources Code Section 21081.6), the county is required to adopt a reporting and monitoring plan for the mitigation measures identified in the IS/MND to mitigate or avoid significant effects on the environment. The Mitigation Monitoring and Reporting Program (MMRP) contained in the IS/MND presented to the Board for adoption is designed to ensure compliance during project implementation. The IS/MND, MMRP, and Notice of Determination are attached.

On April 26, 2011, the Board of Directors approved the plans and specifications for the Mead Valley Library project and authorized the Clerk of the Board to advertise for bids. The project consists of a new 23,000 square foot library including a community room, landscaping, parking lot, lighting, and associated off-site infrastructure improvements.

During the advertisement period, one (1) addendum was issued to the plans and specifications for the project. Bidders are required to acknowledge and take into account the issued addendum on their bid proposal to be considered for award. The addendum was issued to clarify and modify the approved project contract documents. The addendum is attached.

(Continued)

BACKGROUND: (Continued)

On June 8, 2011, 18 bids were received. The agency and County Counsel reviewed the four lowest bids for the project. Stronghold Engineering, Inc. was the apparent low bidder. There was a letter of protest filed by the second low bidder, Tovey/Shultz Construction. The grounds for protest are summarized in the attached response from County Counsel. The low bid by Stronghold has been found to be responsive and the issues raised in the protest letter do not provide a basis to change that finding and the recommendation of award. Therefore it is recommended that the Board award the construction contract to Stronghold Engineering, Inc., in the amount of \$8,660,127.

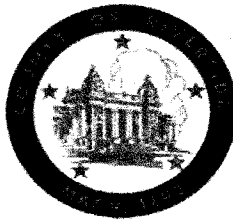
It is recommended that the Board approve the project budget as follows:

Project Budget

Design and Environmental	1,075,800
Construction	8,660,127
Specialty Inspection and Testing	386,000
Utility Connections	600,000
Project Management and Inspection	308,000
FF&E	450,000
Miscellaneous fees and expenses	688,254
Project Contingency	<u>1,216,819</u>
Total	\$13,385,000

Attachments:

- Mitigated Negative Declaration
- Mitigation Monitoring Reporting Program
- Addendum No. 1 to the plans and specifications
- Construction agreement documents between Stronghold Engineering, Inc. and the Redevelopment Agency for the County of Riverside
- Bid protest response letter from County Counsel



Original Negative Declaration/Notice of Determination was routed to County Clerks for posting on.

4/7/11
Date

WS
Initial

Notice of Determination

To:

Office of Planning and Research

For U.S Mail:

P.O. Box 3044

Sacramento, CA 95812-3044

Street Address:

1400 Tenth St.

Sacramento, CA 95814

From:

Public

Agency:

Address:

Contact:

Phone:

Redevelopment Agency for the

County of Riverside

3403 10th Street, 5th Floor

Riverside, CA 92501

Claudia Steiding

(951) 955-8174

County Clerk

County of: Riverside

2724 Gateway Drive

P.O. Box 751

Address: Riverside, CA 92502-0751

Lead Agency (if different from above):

Address: _____

Contact: _____

Phone: _____

SUBJECT: Filing of Notice of Determination in Compliance with Section 21108 or 21152 of the public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2011041079

Project Title: Mead Valley Library

Project Location (include county): The Project is located on a 3.24-acre site within the I-215 Corridor Redevelopment Area on the northeast corner of Clark Street and Oakwood Street, APN 318-120-045, Riverside County

Project Description: The Project consists of a one-story, 23,000-square-foot Library featuring children's, teens, and family reading rooms, study areas, two multipurpose rooms, as well as an outdoor amphitheater. The Library site would be accessed from two driveway entrances located along Oakwood Street. The Project includes two parking lots to serve Library patrons and employees; total of 92 parking spaces.

This is to advise that the County of Riverside Board of Directors, as the Lead Agency, approved the above project on

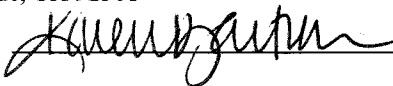
June 28, 2011 and has made the following determinations regarding the above described project:
(tentative date)

1. The project will will not have a significant effect on the environment.
2. An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
 A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures were were not made a condition of the approval of the project.
4. A Mitigation reporting or monitoring plan was was not adopted for this project.
5. A statement of Overriding Considerations was was not adopted for this project.
6. Findings were were not made pursuant to the provisions of CEQA.

JUN 28 2011 4.11

This is to certify that the Final EIR with comments and responses and record of project approval, or the Negative Declaration, is available to the General Public at:

General Public at: Redevelopment Agency for the County of Riverside
3403 10th Street, 5th Floor
Riverside, CA 92501

Signature: (Public Agency)  Title: Board Assistant

Date: 6/28/11 Date received for filing at OPR: _____

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2005

AGREEMENT FORM

THIS AGREEMENT, entered into this 20th day of June, 2011, by and between Stronghold Engineering, Inc., hereinafter called the "Contractor", and the Redevelopment Agency for the County of Riverside hereinafter called the "Owner".

WITNESSETH: That the parties hereto have mutually covenanted and agreed as follows:

CONTRACT: The Complete Contract includes all of the Contract Documents, to wit: The Notice Inviting Bids, the Instructions to Bidders, the Contractor's Proposal, Wage Schedule, Payment and Performance Bonds, the Plans and Specifications plus any Addenda thereto, the General Conditions, the Supplementary General Conditions, if applicable and this Agreement. All Contract Documents are intended to cooperate and be complimentary so that any work called for in one and not mentioned in the other, or vice versa, is to be executed the same as if mentioned in all Contract Documents.

STATEMENT OF WORK: The Contractor hereby agrees to furnish all tools, equipment, services, apparatus, facilities, transportation, labor and materials for the construction of the **Mead Valley Library** project. In strict accordance with the Plans and Specifications dated May 2011 prepared by DLR Group WWCOT hereinafter called the "Architect", including Addenda thereto as listed in the Contractor's Proposal, all of which are made a part hereof.

TIME FOR COMPLETION: The work shall be commenced on a date to be specified in a written order of the Architect and shall be completed within three hundred ninety-five (395) calendar days from and after said date. It is expressly agreed that except for extensions of time duly granted in the manner and for the reasons specified in the General Conditions, time shall be of the essence.

COMPENSATION TO BE PAID TO CONTRACTOR: The Owner agrees to pay and the Contractor agrees to accept in full consideration for the performance of the Contract, subject to additions and deductions as provided in the General Conditions, the sum of Eight Million Six Hundred Sixty Thousand One Hundred Twenty Seven dollars (\$ 8,660,127.00) being the total of the base bid, alternates 1, 2, plus the following addenda: 1. The sum is to be paid according to the schedule as provided in the General Conditions.

Pursuant to Labor Code, Section 1861, the Contractor gives the following certification: I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract.

IN WITNESS WHEREOF, the parties hereto on the day and year first above written have executed this agreement in four (4) counterparts.

Type of Contractor's organization: Corporation
If other than individual or corporation, list names of all members who have authority to bind firm.

Firm Name: Stronghold Engineering, Inc.
Address: 2000 Market Street, Riverside, California 92501
Contractor's License No.: 787490

IF OTHER THAN CORPORATION EXECUTE HERE

Signature: _____
Title: _____

IF CORPORATION, FILL OUT FOLLOWING AND EXECUTE

Name of President of Corporation: Beverly Bailey
Name of Secretary of Corporation: Scott Bailey
Corporation is organized under the laws of State of California
Signature: _____ Charles R. Gossage
Title: Executive Vice President

Owner: COUNTY OF RIVERSIDE Bob Buster
Signature: _____
Title: Chairman - Board of Directors **BOB BUSTER**

Attest: Clerk - Board of Supervisors **KECIA HARPER-IHEM**
By: [Signature]
Title: Deputy

Affix Seal
If
Corporation

JUN 28 2011 4.11

FORM APPROVED COUNTY COUNSEL
BY: [Signature] 6/30/11
MARSHAL L. VICTOR DATE

Executed in Five (5) Original Counterparts

Bond No.: 024038461

Premium: \$62,371.00

Premium is for Contract Term and is subject to adjustment based on the Final Contract Price.

PERFORMANCE BOND

The makers of this Bond, Stronghold Engineering Incorporated, as Principal, and Safeco Insurance Company of America as Surety, are held and firmly bound unto the Redevelopment Agency for the County of Riverside, hereinafter called the Owner, in the sum of _____ Dollars (\$ 8,660,127.00) for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

*Eight Million Six Hundred Sixty Thousand One Hundred Twenty-Seven and No/100ths

The condition of this obligation is such, that whereas the Principal entered into a certain contract, hereto attached, with the Owner, dated _____, 2011 for Mead Valley Library

Now therefore, if the Principal shall well and truly perform and fulfill all the undertakings covenants, terms, conditions and agreements of said Contract during the original term of said Contract and any extension thereof that may be granted by the Owner, with or without notice to the Surety, and during the file of any guarantee required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may thereafter be made, then this obligation to be void, otherwise to remain in full force and virtue. Without notice, Surety consents to extension of time for performance, change in requirements, change in compensation or prepayment under said Contract.

Signed and Sealed this 16th Day of June, 2011.

Stronghold Engineering Incorporated

(Firm Name - Principal)

2000 Market Street, Riverside, CA 92501

(Business Address)

Affix Seal
if
Corporation

By: _____

(Signature - Attach Notary's Acknowledgment)

Charles R. Gossage

Executive Vice President

(Title)

Safeco Insurance Company of America

(Corporation Name - Surety)

330 N. Brand Blvd., Ste. 950, Glendale, CA 91203

(Business Address)

Affix
Corporate
Seal

By: Jennifer L. Cox

(Signature - Attach Notary's Acknowledgment)

Jennifer L. Cox

ATTORNEY-IN-FACT

(Title-Attach Power of Attorney)

POWER OF ATTORNEY

No. 9979

KNOW ALL BY THESE PRESENTS:

That SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA, each a Washington corporation, does each hereby appoint

GERRIT E. BROUWER; JEFFREY W. CAVIGNAC; JENNIFER L. COX; JAMES P. SCHABARUM, II; JANIS THEODORE; San Diego, California

its true and lawful attorney(s)-in-fact, with full authority to execute on its behalf fidelity and surety bonds or undertakings and other documents of a similar character issued in the course of its business, and to bind the respective company thereby.

IN WITNESS WHEREOF, SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA have each executed and attested these presents

this 23rd day of June, 2010

Dexter R. Legg

TAMIKOLAJEWSKI

Dexter R. Legg, Secretary

Timothy A. Mikolajewski, Vice President

CERTIFICATE

Extract from the By-Laws of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA:

"Article V, Section 13. - FIDELITY AND SURETY BONDS ... the President, any Vice President, the Secretary, and any Assistant Vice President appointed for that purpose by the officer in charge of surety operations, shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the company in the course of its business... On any instrument making or evidencing such appointment, the signatures may be affixed by facsimile. On any instrument conferring such authority or on any bond or undertaking of the company, the seal, or a facsimile thereof, may be impressed or affixed or in any other manner reproduced; provided, however, that the seal shall not be necessary to the validity of any such instrument or undertaking."

Extract from a Resolution of the Board of Directors of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA adopted July 28, 1970.

"On any certificate executed by the Secretary or an assistant secretary of the Company setting out,

- (i) The provisions of Article V, Section 13 of the By-Laws, and
(ii) A copy of the power-of-attorney appointment, executed pursuant thereto, and
(iii) Certifying that said power-of-attorney appointment is in full force and effect,

the signature of the certifying officer may be by facsimile, and the seal of the Company may be a facsimile thereof."

I, Dexter R. Legg, Secretary of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA, do hereby certify that the foregoing extracts of the By-Laws and of a Resolution of the Board of Directors of these corporations, and of a Power of Attorney issued pursuant thereto, are true and correct, and that both the By-Laws, the Resolution and the Power of Attorney are still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of said corporation

this 16th day of June, 2011



Dexter R. Legg

Dexter R. Legg, Secretary

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

STATE OF CALIFORNIA

County of San Diego }

On June 16, 2011 before me, J. E. Theodore, Notary Public,
Date Here Insert Name and Title of the Officer

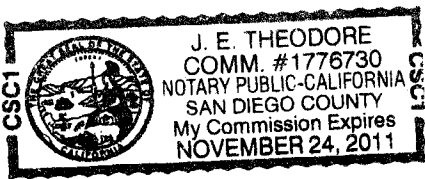
personally appeared Jennifer L. Cox
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~is~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity(~~ies~~), and that by ~~his~~/her/~~their~~ signature(~~s~~) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal.

Signature J. E. Theodore
Signature of Notary Public



Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: _____

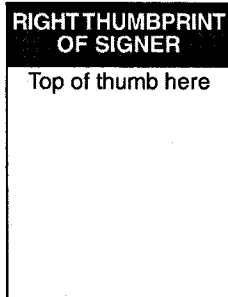
Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

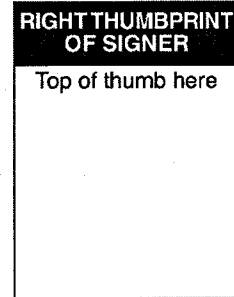
- Individual
- Corporate Officer — Title(s): _____
- Partner — Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____



Signer Is Representing:

Signer's Name: _____

- Individual
- Corporate Officer — Title(s): _____
- Partner — Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____



Signer Is Representing:

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Riverside

On June 16, 2011 before me, Patricia I. McNicholas, Notary Public

personally appeared Charles R. Gossage

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.



I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature [Handwritten Signature]
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Performance Bond (Bond No.: 024038461)

Document Date: June 16, 2011 Number of Pages: one (1)

Signer(s) Other Than Named Above: Jennifer L. Cox - Safeco Insurance Co. of America

Capacity(ies) Claimed by Signer(s)

Signer's Name: Charles R. Gossage

- Individual
- Corporate Officer — Title(s): Executive Vice President
- Partner — Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____

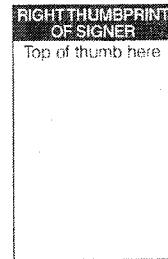


Signer Is Representing: _____

Stronghold Engineering, Inc.

Signer's Name: N/A

- Individual
- Corporate Officer — Title(s): _____
- Partner — Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____



Signer Is Representing: _____

PAYMENT BOND

(Public Work - Civil Code Section 3247 et seq.)

The makers of this Bond are Stronghold Engineering Incorporated as Principal and Original Contractor and Safeco Insurance Company of America, a corporation, authorized to issue Surety Bonds in California, as Surety, and this Bond is issued in conjunction with that certain public works contract dated _____, 2011 between Principal and County of Riverside, a public entity, as owner, for _____ * _____ dollars (\$ 8,660,127.00) the total amount payable. THE AMOUNT OF THIS BOND IS 100% OF SAID SUM. Said contract is for public work of: Mead Valley Library

*Eight Million Six Hundred Sixty Thousand One Hundred Twenty-Seven and No/100ths

The beneficiaries of this Bond are as is stated in 3248 of the Civil Code and the requirements and conditions of this Bond are as is set forth in Sections 3248, 3249, 3250 and 3252 of said Code. Without notice, Surety consents to extension of time for performance, change in requirements, amount of compensation, or prepayment under said Contract.

Signed and Sealed this 16th Day of June 2011.

Stronghold Engineering Incorporated
(Firm Name - Principal)

2000 Market Street, Riverside, CA 92501
(Business Address)

By: _____
(Signature - Attach Notary's Acknowledgment)
Charles R. Gossage
Executive Vice President
(Title)

Affix Seal
if
Corporation

Safeco Insurance Company of America
(Corporation Name - Surety)

330 N. Brand Blvd., Ste. 950, Glendale, CA 91203
(Business Address)

By: Jennifer L. Cox
(Signature - Attached Notary's Acknowledgment)
Jennifer L. Cox
ATTORNEY-IN-FACT
(Title-Attach Power of Attorney)

Affix
Corporate
Seal

POWER OF ATTORNEY

No. 9979

KNOW ALL BY THESE PRESENTS:

That SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA, each a Washington corporation, does each hereby appoint

*****GERRIT E. BROUWER; JEFFREY W. CAVIGNAC; JENNIFER L. COX; JAMES P. SCHABARUM, II; JANIS THEODORE; San Diego, California*****

its true and lawful attorney(s)-in-fact, with full authority to execute on its behalf fidelity and surety bonds or undertakings and other documents of a similar character issued in the course of its business, and to bind the respective company thereby.

IN WITNESS WHEREOF, SAFECO INSURANCE COMPANY OF AMERICA and GENERAL INSURANCE COMPANY OF AMERICA have each executed and attested these presents

this 23rd day of June, 2010

Dexter R. Legg

TAMIKOLAJEWSKI

Dexter R. Legg, Secretary

Timothy A. Mikolajewski, Vice President

CERTIFICATE

Extract from the By-Laws of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA:

"Article V, Section 13. - FIDELITY AND SURETY BONDS ... the President, any Vice President, the Secretary, and any Assistant Vice President appointed for that purpose by the officer in charge of surety operations, shall each have authority to appoint individuals as attorneys-in-fact or under other appropriate titles with authority to execute on behalf of the company fidelity and surety bonds and other documents of similar character issued by the company in the course of its business... On any instrument making or evidencing such appointment, the signatures may be affixed by facsimile. On any instrument conferring such authority or on any bond or undertaking of the company, the seal, or a facsimile thereof, may be impressed or affixed or in any other manner reproduced; provided, however, that the seal shall not be necessary to the validity of any such instrument or undertaking."

Extract from a Resolution of the Board of Directors of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA adopted July 28, 1970.

"On any certificate executed by the Secretary or an assistant secretary of the Company setting out,

- (i) The provisions of Article V, Section 13 of the By-Laws, and
(ii) A copy of the power-of-attorney appointment, executed pursuant thereto, and
(iii) Certifying that said power-of-attorney appointment is in full force and effect,

the signature of the certifying officer may be by facsimile, and the seal of the Company may be a facsimile thereof."

I, Dexter R. Legg, Secretary of SAFECO INSURANCE COMPANY OF AMERICA and of GENERAL INSURANCE COMPANY OF AMERICA, do hereby certify that the foregoing extracts of the By-Laws and of a Resolution of the Board of Directors of these corporations, and of a Power of Attorney issued pursuant thereto, are true and correct, and that both the By-Laws, the Resolution and the Power of Attorney are still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of said corporation

this 16th day of June, 2011



Dexter R. Legg

Dexter R. Legg, Secretary

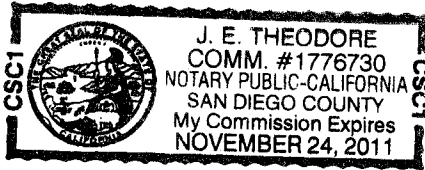
CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

STATE OF CALIFORNIA

County of San Diego }

On June 16, 2011 before me, J. E. Theodore, Notary Public,
Date Here Insert Name and Title of the Officer

personally appeared Jennifer L. Cox
Name(s) of Signer(s)



Place Notary Seal Above

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~the~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity(~~ies~~), and that by ~~his~~/her/~~their~~ signature(~~s~~) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

Witness my hand and official seal.

Signature J. E. Theodore
Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: _____

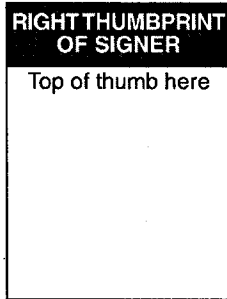
Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

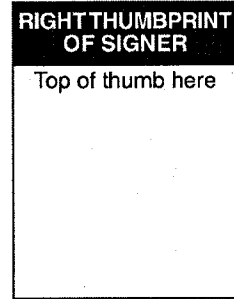
- Individual
- Corporate Officer — Title(s): _____
- Partner — Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____



Signer Is Representing:

Signer's Name: _____

- Individual
- Corporate Officer — Title(s): _____
- Partner — Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____



Signer Is Representing:

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Riverside

On June 16, 2011 before me, Patricia I. McNicholas, Notary Public
Date Here insert Name and Title of the Officer

personally appeared Charles R. Gossage
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature [Handwritten Signature]
Signature of Notary Public



Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Payment Bond (Bond No.: 024038461)

Document Date: June 16, 2011 Number of Pages: one (1)

Signer(s) Other Than Named Above: Jennifer L. Cox - Safeco Insurance Co. of America

Capacity(ies) Claimed by Signer(s)

Signer's Name: Charles R. Gossage

- Individual
- Corporate Officer — Title(s): Executive Vice President
- Partner — Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____

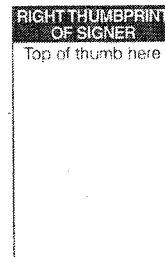


Signer Is Representing: _____

Stronghold Engineering, Inc.

Signer's Name: N/A

- Individual
- Corporate Officer — Title(s): _____
- Partner — Limited General
- Attorney in Fact
- Trustee
- Guardian or Conservator
- Other: _____



Signer Is Representing: _____



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
6/16/2011

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Cavignac & Associates 450 B Street, Suite 1800 San Diego, CA 92101-8005 License No. 0A99520	CONTACT NAME: Certificate Department		
	PHONE (A/C, No, Ext): 619-234-6848	FAX (A/C, No): 619-234-8601	
E-MAIL ADDRESS: certificates@cavignac.com			
PRODUCER CUSTOMER ID #: STRON-1			
INSURED Stronghold Engineering, Inc. 2000 Market Street Riverside, CA 92501 United States	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A: TRAVELERS IND CO OF CT		25682
	INSURER B: TRAVELERS PROP CAS CO OF AMER		25674
	INSURER C: ST PAUL FIRE & MARINE INS CO		24767
	INSURER D:		
	INSURER E:		
INSURER F:			

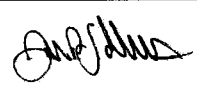
COVERAGES	CERTIFICATE NUMBER: 148401	REVISION NUMBER: 148402
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THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR	WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
B	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Separation of Insured GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC	X	X	VTC2JCO9322B881TIL11	5/1/2011	5/1/2012	EACH OCCURRENCE	\$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 300,000
							MED EXP (Any one person)	\$ 5,000
							PERSONAL & ADV INJURY	\$ 1,000,000
							GENERAL AGGREGATE	\$ 2,000,000
							PRODUCTS - COMP/OP AGG	\$ 2,000,000
							BI/PD Deduct.	\$ 75,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS	X	X	VTECAP9322B856TCT11	5/1/2011	5/1/2012	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
							BODILY INJURY (Per person)	\$
							BODILY INJURY (Per accident)	\$
							PROPERTY DAMAGE (Per accident)	\$
								\$
								\$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DEDUCTIBLE <input checked="" type="checkbox"/> RETENTION \$ 10,000			QK04501128	5/1/2011	5/1/2012	EACH OCCURRENCE	\$ 20,000,000
							AGGREGATE	\$ 20,000,000
								\$
								\$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below <input type="checkbox"/> Y <input checked="" type="checkbox"/> N/A		X	VTJUB9322B86811	5/1/2011	5/1/2012	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER	
							E.L. EACH ACCIDENT	\$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	\$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	\$ 1,000,000
B	Bus. Personal Property			QT6606690M349TIL11	5/1/2011	5/1/2012	Limit	\$840,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Re: Mead Valley Library - 21580 Oakwood Street, Mead Valley in Perris, CA; Project Number: 75-10621-00. Additional Insured coverage applies to General and Automobile Liability for Redevelopment Agency for the County of Riverside, County of Riverside, their Director's, Officers, special Districts, Board of Supervisors, employees, agents or representatives per policy form. Primary coverage applies to General and Automobile Liability per policy form. Waiver of subrogation applies to General and Automobile Liability and Workers Compensation per policy form. Property - Special form, replacement cost.

CERTIFICATE HOLDER Redevelopment Agency for the County of Riverside 3403 10th Street, Ste 400 Riverside, CA 92501 United States	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE James Schabarum 
--	---

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

BUSINESS AUTO EXTENSION ENDORSEMENT

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by the endorsement.

GENERAL DESCRIPTION OF COVERAGE – This endorsement broadens coverage. However, coverage for any injury, damage or medical expenses described in any of the provisions of this endorsement may be excluded or limited by another endorsement to the Coverage Part, and these coverage broadening provisions do not apply to the extent that coverage is excluded or limited by such an endorsement. The following listing is a general coverage description only. Limitations and exclusions may apply to these coverages. Read all the provisions of this endorsement and the rest of your policy carefully to determine rights, duties, and what is and is not covered.

- A. BROAD FORM NAMED INSURED**
- B. BLANKET ADDITIONAL INSURED**
- C. EMPLOYEE HIRED AUTO**
- D. EMPLOYEES AS INSURED**
- E. SUPPLEMENTARY PAYMENTS – INCREASED LIMITS**
- F. HIRED AUTO – LIMITED WORLDWIDE COVERAGE – INDEMNITY BASIS**
- G. WAIVER OF DEDUCTIBLE – GLASS**
- H. HIRED AUTO PHYSICAL DAMAGE – LOSS OF USE – INCREASED LIMIT**
- I. PHYSICAL DAMAGE – TRANSPORTATION EXPENSES – INCREASED LIMIT**
- J. PERSONAL EFFECTS**
- K. AIRBAGS**
- L. NOTICE AND KNOWLEDGE OF ACCIDENT OR LOSS**
- M. BLANKET WAIVER OF SUBROGATION**
- N. UNINTENTIONAL ERRORS OR OMISSIONS**

PROVISIONS

A. BROAD FORM NAMED INSURED

The following is added to Paragraph A.1., **Who Is An Insured**, of **SECTION II – LIABILITY COVERAGE**:

Any organization you newly acquire or form during the policy period over which you maintain 50% or more ownership interest and that is not separately insured for Business Auto Coverage. Coverage under this provision is afforded only until the 180th day after you acquire or form the organization or the end of the policy period, whichever is earlier.

B. BLANKET ADDITIONAL INSURED

The following is added to Paragraph c. in A.1., **Who Is An Insured**, of **SECTION II – LIABILITY COVERAGE**:

Any person or organization who is required under a written contract or agreement between you and that person or organization, that is signed and

executed by you before the "bodily injury" or "property damage" occurs and that is in effect during the policy period, to be named as an additional insured is an "insured" for Liability Coverage, but only for damages to which this insurance applies and only to the extent that person or organization qualifies as an "insured" under the **Who Is An Insured** provision contained in Section II.

C. EMPLOYEE HIRED AUTO

1. The following is added to Paragraph A.1., **Who Is An Insured**, of **SECTION II – LIABILITY COVERAGE**:

An "employee" of yours is an "insured" while operating an "auto" hired or rented under a contract or agreement in that "employee's" name, with your permission, while performing duties related to the conduct of your business.

- (b) A partner (if you are a partnership);
- (c) A member (if you are a limited liability company);
- (d) An executive officer, director or insurance manager (if you are a corporation or other organization); or
- (e) Any "employee" authorized by you to give notice of the "accident" or "loss".

M. BLANKET WAIVER OF SUBROGATION

The following replaces Paragraph A.5., **Transfer Of Rights Of Recovery Against Others To Us**, of SECTION IV – BUSINESS AUTO CONDITIONS:

5. Transfer Of Rights Of Recovery Against Others To Us

We waive any right of recovery we may have against any person or organization to the ex-

tent required of you by a written contract signed and executed prior to any "accident" or "loss", provided that the "accident" or "loss" arises out of operations contemplated by such contract. The waiver applies only to the person or organization designated in such contract.

N. UNINTENTIONAL ERRORS OR OMISSIONS

The following is added to Paragraph B.2., **Concealment, Misrepresentation, Or Fraud**, of SECTION IV – BUSINESS AUTO CONDITIONS:

The unintentional omission of, or unintentional error in, any information given by you shall not prejudice your rights under this insurance. However this provision does not affect our right to collect additional premium or exercise our right of cancellation or non-renewal.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

BLANKET ADDITIONAL INSURED (CONTRACTORS)

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

1. **WHO IS AN INSURED** – (Section II) is amended to include any person or organization that you agree in a "written contract requiring insurance" to include as an additional insured on this Coverage Part, but:
 - a) Only with respect to liability for "bodily injury", "property damage" or "personal injury"; and
 - b) If, and only to the extent that, the injury or damage is caused by acts or omissions of you or your subcontractor in the performance of "your work" to which the "written contract requiring insurance" applies. The person or organization does not qualify as an additional insured with respect to the independent acts or omissions of such person or organization.
2. The insurance provided to the additional insured by this endorsement is limited as follows:
 - a) In the event that the Limits of Insurance of this Coverage Part shown in the Declarations exceed the limits of liability required by the "written contract requiring insurance", the insurance provided to the additional insured shall be limited to the limits of liability required by that "written contract requiring insurance". This endorsement shall not increase the limits of insurance described in Section III – Limits Of Insurance.
 - b) The insurance provided to the additional insured does not apply to "bodily injury", "property damage" or "personal injury" arising out of the rendering of, or failure to render, any professional architectural, engineering or surveying services, including:
 - i. The preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders or change orders, or the preparing, approving, or failing to prepare or approve, drawings and specifications; and
 - ii. Supervisory, inspection, architectural or engineering activities.
3. The insurance provided to the additional insured by this endorsement is excess over any valid and collectible "other insurance", whether primary, excess, contingent or on any other basis, that is available to the additional insured for a loss we cover under this endorsement. However, if the "written contract requiring insurance" specifically requires that this insurance apply on a primary basis or a primary and non-contributory basis, this insurance is primary to "other insurance" available to the additional insured which covers that person or organization as a named insured for such loss, and we will not share with that "other insurance". But the insurance provided to the additional insured by this endorsement still is excess over any valid and collectible "other insurance", whether primary, excess, contingent or on any other basis, that is available to the additional insured when that person or organization is an additional insured under such "other insurance".
4. As a condition of coverage provided to the additional insured by this endorsement:
 - a) The additional insured must give us written notice as soon as practicable of an "occurrence" or an offense which may result in a claim. To the extent possible, such notice should include:
 - c) The insurance provided to the additional insured does not apply to "bodily injury" or "property damage" caused by "your work" and included in the "products-completed operations hazard" unless the "written contract requiring insurance" specifically requires you to provide such coverage for that additional insured, and then the insurance provided to the additional insured applies only to such "bodily injury" or "property damage" that occurs before the end of the period of time for which the "written contract requiring insurance" requires you to provide such coverage or the end of the policy period, whichever is earlier.

COMMERCIAL GENERAL LIABILITY

- i. How, when and where the "occurrence" or offense took place;
 - ii. The names and addresses of any injured persons and witnesses; and
 - iii. The nature and location of any injury or damage arising out of the "occurrence" or offense.
- b) If a claim is made or "suit" is brought against the additional insured, the additional insured must:
- i. Immediately record the specifics of the claim or "suit" and the date received; and
 - ii. Notify us as soon as practicable.
- The additional insured must see to it that we receive written notice of the claim or "suit" as soon as practicable.
- c) The additional insured must immediately send us copies of all legal papers received in connection with the claim or "suit", cooperate with us in the investigation or settlement of the claim or defense against the "suit", and otherwise comply with all policy conditions.
- d) The additional insured must tender the defense and indemnity of any claim or "suit" to

any provider of "other insurance" which would cover the additional insured for a loss we cover under this endorsement. However, this condition does not affect whether the insurance provided to the additional insured by this endorsement is primary to "other insurance" available to the additional insured which covers that person or organization as a named insured as described in paragraph 3. above.

5. The following definition is added to SECTION V. – DEFINITIONS:

"Written contract requiring insurance" means that part of any written contract or agreement under which you are required to include a person or organization as an additional insured on this Coverage Part, provided that the "bodily injury" and "property damage" occurs and the "personal injury" is caused by an offense committed:

- a. After the signing and execution of the contract or agreement by you;
- b. While that part of the contract or agreement is in effect; and
- c. Before the end of the policy period.

COMMERCIAL GENERAL LIABILITY

Policy No. VTC2JCO9322B881TIL11

2. This insurance does not apply to damage to premises while rented to you, or temporarily occupied by you with permission of the owner, caused by:
 - a. Rupture, bursting, or operation of pressure relief devices;
 - b. Rupture or bursting due to expansion or swelling of the contents of any building or structure, caused by or resulting from water;
 - c. Explosion of steam boilers, steam pipes, steam engines, or steam turbines.

3. Paragraph 6. of LIMITS OF INSURANCE (Section III) is deleted and replaced by the following:

Subject to 5. above, the Damage To Premises Rented To You Limit is the most we will pay under COVERAGE A. for the sum of all damages because of "property damage" to any one premises while rented to you, or temporarily occupied by you with permission of the owner, caused by: fire; explosion; lightning; smoke resulting from such fire, explosion, or lightning; or water. The Damage To Premises Rented To You Limit will apply to all "property damage" proximately caused by the same "occurrence", whether such damage results from: fire; explosion; lightning; smoke resulting from such fire, explosion, or lightning; or water; or any combination of any of these causes.

The *Damage To Premises Rented To You* Limit will be the higher of:

- a. \$300,000; or
 - b. The amount shown on the Declarations for Damage To Premises Rented To You Limit.
4. Paragraph a. of the definition of "insured contract" (DEFINITIONS – Section V) is deleted and replaced by the following:
 - a. A contract for a lease of premises. However, that portion of the contract for a lease of premises that indemnifies any person or organization for damage to premises while rented to you, or temporarily occupied by you with permission of the owner, caused by: fire; explosion; lightning; smoke resulting from such fire, explosion, or lightning; or water, is not an "insured contract";

5. This Provision B. does not apply if coverage for Damage To Premises Rented To You of COVERAGE A. BODILY INJURY AND PROPERTY DAMAGE LIABILITY (Section I – Coverages) is excluded by endorsement.

C. BLANKET WAIVER OF SUBROGATION

We waive any right of recovery we may have against any person or organization because of payments we make for injury or damage arising out of: premises owned or occupied by or rented or loaned to you; ongoing operations performed by you or on your behalf, done under a contract with that person or organization; "your work"; or "your products". We waive this right where you have agreed to do so as part of a written contract, executed by you before the "bodily injury" or "property damage" occurs or the "personal injury" or "advertising injury" offense is committed.

D. BLANKET ADDITIONAL INSURED – MANAGERS OR LESSORS OF PREMISES

WHO IS AN INSURED (Section II) is amended to include as an insured any person or organization (referred to below as "additional insured") with whom you have agreed in a written contract, executed before the "bodily injury" or "property damage" occurs or the "personal injury" or "advertising injury" offense is committed, to name as an additional insured, but only with respect to liability arising out of the ownership, maintenance or use of that part of any premises leased to you, subject to the following provisions:

1. Limits of Insurance. The limits of insurance afforded to the additional insured shall be the limits which you agreed to provide in the written contract, or the limits shown on the Declarations, whichever are less.
2. The insurance afforded to the additional insured does not apply to:
 - a. Any "bodily injury" or "property damage" that occurs, or "personal injury" or "advertising injury" caused by an offense which is committed, after you cease to be a tenant in that premises;
 - b. Any premises for which coverage is excluded by endorsement; or
 - c. Structural alterations, new construction or demolition operations performed by or on behalf of such additional insured.
3. The insurance afforded to the additional insured is excess over any valid and collectible

**WORKERS COMPENSATION
AND
EMPLOYERS LIABILITY POLICY**

ENDORSEMENT WC 99 03 76 (00)

POLICY NUMBER: VTJUB9322B86811

**WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS
ENDORSEMENT - CALIFORNIA
(BLANKET WAIVER)**

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule.

You must maintain payroll records accurately segregating the remuneration of your employees while engaged in the work described in the Schedule.

The additional premium for this endorsement shall be % of the California workers' compensation premium otherwise due on such remuneration.

Schedule

Person or Organization

Job Description

ANY PERSON OR ORGANIZATION FOR WHOM THE NAMED
INSURED HAS AGREED BY WRITTEN CONTRACT
EXECUTED PRIOR TO LOSS TO FURNISH THIS
WAIVER.

ADDENDUM #1

DLR Group WWCOT
4280 Latham Street, Suite H
Riverside, CA 92501
(951) 682-0470
(951) 682-1801

June 2, 2011



ADDENDUM #1

DLR Group WWCOT
4280 Latham Street, Suite H
Riverside, CA 92501
(951) 682-0470
(951) 682-1801

June 2, 2011

NOTICE TO BIDDERS: Changes to the Project Manuals and Drawings to the above referenced project as follows:

PROJECT MANUAL

- ITEM NO. 1** Division 0, Section 00 01 00 – Table of Contents
- A. Make the following changes:
1. Add Section 03 35 00 – Chemically Stained Concrete Floor
 2. Add Section 07 13 26 – Self Adhered Membrane
 3. Delete Section 07 81 00 – Applied Fire Proofing
 4. Add Section 08 11 17 – Pre-Finished Steel Door Frames
 5. Delete Section 08 91 00 – Louvers
 6. Delete Section 10 22 26 – Acoustical Wall
 7. Delete Section 12 22 16 – Roller Shades

8. Add Section 23 64 11 – Air Cooled Water Chillers
9. Delete Section 23 65 00 – Cooling Towers
10. Delete Section 23 81 46 – Water Source
11. Add Section 27 51 16 – Public Address and Mass Notification System
12. Add Section 33 10 00 – Water Distribution
13. Add Section 33 30 00 – Sanitary Sewer
14. Add Section 33 41 00 – Storm Drain

ITEM No. 2 Division 0 – Instructions to Bidders, Paragraph N: Change the license requirement to "B" General Building Contractor.

ITEM No. 3 Division 0 – General Conditions, Article 7, Liquidated Damages
A. Change the calendar day amount of liquidated damages to \$5,000/day.

ITEM No. 4 Division 1, Section 01 23 00 - Alternates
A. (Clarification Only): Additive Alternate #1 is for the photovoltaic system as described.
Additive alternate #2 is for the Systems Furniture.

ITEM No. 5 Section 03 30 00 – Cast in Place Concrete
A. Delete article 3.05c.

ITEM No. 6 Section 03 35 00 – Chemically Stained Concrete Floor
A. Add this section.

ITEM No. 7 Section 05 12 00 – Structural Steel
A. 1.03.D
1. Revise "AWS Qualified" to "City of Los Angeles Qualified"
B. 1.04C
1. Inspection requirements of CBC 1704A.3 and 1704A2.2 shall apply.
C. 1.05.A
1. Add "All shop fabrication shall be performed by a City of Los Angeles approved fabricator" to the paragraph.
D. 3.06.B
1. Revise AWS to City of Los Angeles.

ITEM No. 8 Section 07 81 00 – Applied Fire Proofing
A. Delete this section.

- ITEM No. 9 Section 08 11 17 – Pre-Finished Steel Door Frames
A. Add this section.
- ITEM No. 10 Section 08 91 00 – Louvers
A. Delete this section.
- ITEM No. 11 Section 09 00 00 – Colors and Materials
A. Delete WC-2.
B. Delete reference to WC-1 in projection screen niche.
- ITEM No. 12 Section 10 22 26 – Acoustical Wall
A. Delete this section.
- ITEM No. 13 Section 11 52 13 – Projection Screens
A. Replace this section.
- ITEM No. 14 Section 12 22 16 – Roller Shades
A. Delete this section.
- ITEM No. 15 Section 22 40 00 – Plumbing Fixtures
A. Modified Article 2.17 B, 2.18 B, 2.19 B and 2.20 B to state fixtures shall be installed with automatic sensor type flush valve/faucets, included in revised Section 22 40 00.
B. Replace this section with the attached section.
- ITEM No. 16 Section 23 07 00 – HVAC Insulation
A. Paragraph 3.05 revised to include chilled water piping.
B. Replace this section with the attached section.
- ITEM No. 17 Section 23 64 11 – Air Cooled Water Chillers
A. Add this section.
- ITEM No. 18 Section 23 65 00 – Cooling Towers
A. Delete this section.
- ITEM No. 19 Section 23 81 46 – Water Source
A. Delete this section.

- ITEM No. 20 Section 26 16 00 – Intrusion Detection System
A. Paragraph 2.01-B.1, add “or equal by DMP XR 500”.
- ITEM No. 21 Section 26 31 00 – Photovoltaics
A. Paragraph 1.03-B.3, delete “combiner boxes”.
B. Delete paragraph 1.06-D in its entirety.
C. Paragraph 2.01-A., add subparagraph “2.C. Schott Solar”.
D. Paragraph 2.01-A, add subparagraph “2. Enphase Energy Inc.”
E. Paragraph 2.01-A, delete subparagraph D.1., 2. and 3.
F. Delete paragraph 2.07-C.
G. Paragraph 2.07-D., delete “at least one inverter” and substitute “Micro-Inverter per Module.”
H. Replace this section with the attached section.
- ITEM No. 22 Section 27 51 16 – Public Address and Mass Notification System
A. Add this section.
- ITEM No. 23 Section 28 16 00 – Intrusion Detection System
A. Add this section.
- ITEM NO. 24 Section 28 31 00 – Analog Addressable Fire Alarm
A. Change paragraph 2.02C as follows:
1. System sensor model #HRK for electric horn.
2. System sensor model #SR for visual strobe.
3. System sensor model #P2R for horn/strobe device.
- ITEM No. 25 Section 31 10 00 – Site Clearing
A. Replace this section.
- ITEM No. 26 Section 31 22 00 – Grading
A. Replace this section.
- ITEM No. 27 Section 32 11 00 – Base Course
A. Replace this section.
- ITEM No. 28 Section 32 12 00 – Flexible Paving

A. Replace this section.

ITEM No. 29 Section 32 13 00 – Rigid Paving

A. Replace this section.

ITEM No. 30 Section 33 11 00 – Water Distribution

A. Add this section.

ITEM No. 31 Section 33 30 00 – Sanitary Sewer

A. Add this section.

ITEM No. 32 Section 33 41 00 – Storm Drain

A. Add this section.

DRAWINGS

ITEM NO. 33 Sheet G0.1 – Revise Index as follows:

A. Add sheet A12.2.

B. Delete sheet S1.7.

ITEM No. 34 Sheet G0.6 – Accessibility Details - Exterior

A. Revise Parking Striping, (Detail #2).

1. See attached ASK-1-01.0

ITEM No. 35 Sheet G3.1 – Project Notes, Note #40 and Sheet A9.1.

A. Modify backing for ceramic tile on toilet room walls as follow:

1. Provide gypsum board backing for ceramic tile in toilet rooms as called for in Specification Section 09 21 16, paragraph 2.02 D.1 and .6.

ITEM No. 36 Sheet C1.2 – Precise Grading Detail Sheet

A. Changed block type.

B. Revised and added construction notes 17-24.

ITEM No. 37 Sheet C1.3 – Precise Grading Plan Sheet

A. Revised and added construction notes 17-24.

B. Stairs to be constructed 6/S1.3.

- C. Revise note 111 to state "retaining wall: construction as shown in wall section on 6/S1.3".

ITEM No. 38 Sheet C1.4 – Precise Grading Plan Sheet

- A. Revised and added construction notes 17-24.

ITEM NO. 39 Sheet C2.1 – Sewer and Water Plan

- A. Make the following changes to sheet C2.1:
 - 1. The fire hydrant shown in the northeast corner of the site shall be relocated to the Oakwood side of the Oakwood/Clark corner (southwest corner of site). The hydrant shown approximately 127' east of the Clark/Oakwood corner shall move east to the western edge of drive approach into the small staff parking lot.
 - 2. Relocate the fire detector check near the sidewalk on Oakwood at grid line K. The fire riser shall be located in Mechanical Room 133.

ITEM No. 40 Sheet C3.1 – Street Improvement Plan Title Sheet

- A. Updated quantities.

ITEM No. 41 Sheet C3.2 – Street Improvement Plan Clark Street

- A. Revised pavement and transition lengths.
- B. Added 4' swale.

ITEM No. 42 Sheet C3.3 – Street Improvement Plan Oakwood Street

- A. Revised AB buffer to 20'.

ITEM No. 43 Sheet C5.1 – Signing and Stripping Plan

- A. Lengthened striped transitions.
- B. Added relocation of existing "dip" sign.
- C. Added solar powered flashing beacons at crosswalks.
- D. Updated construction note quantities.
- E. Added construction note 16.

ITEM No. 44 Sheet LS1.0 – Irrigation Plan

- A. Relocated water connection to north-west corner along Clark Street.
- B. Added booster pump located in the north-west planter.
- C. Modified valve flow A-5 & A-6 per new parkway planting along Clark Street on north-west corner.

- D. Modified valve flow A-3 per new parking tree added on the island planter in the west parking lot.
- E. Modified valve flow A-13 & A-14 per new planter area added on the north side of project within main courtyard.
- F. Modified valve flow A-15 per new retaining wall added on the south-east parking area.
- G. Modified valve flow A-19 & A-20 per new planter area added on the children's courtyard.
- H. Added two (2) additional NibcoT-113 shut off gate valves; one on the north side & one on the south east side of the mainline.
- I. Modified irrigation equipment on the irrigation schedule: booster pump, backflow device, sleeve, rain bird remote control valve, quick coupler valve.
- J. Removed irrigation in front of cooling tower building on north east side of project.

ITEM No. 45 Sheet LS1.1 – Irrigation Plan

- A. Recalculated critical analysis per new planting & irrigation.
- B. Adjusted callouts #1, #2, #3 from new irrigation water P.O.C. note.
- C. Added PSI information for site project.
- D. Removed callout #2 and modified callout #8 on Notes block.

ITEM No. 46 Sheet LS2.0 – Irrigation Details

- A. Modified detail "D" to add "½" wire cloth gopher screen" and added Heat Brand to lid.
- B. Modified detail "E", "F", "H", "I" to add heat brand to lid.
- C. Modified Detail "J" to show control and neutral conductors next to main line.

ITEM No. 47 Sheet LS2.1 – Irrigation Details

- A. Adjusted spelling errors on Detail "C".
- B. Added PSI and GPM information to callout #8 on detail "E".
- C. Added new pump detail and specifications per detail "F" and "G".
- D. Added new concrete paving detail "H".

ITEM No. 48 Sheet LS3.0 – Planting Plan

- A. Added parkway planting along Clark Street on north-west corner.
- B. Changed tree species on the island planter in the west parking area.
- C. Added one additional tree on the north side planter in the parking area.
- D. Added paving material for the west side entrance to library on Clark Street per callout #6 on construction legend.

- E. Added material paving and score lines on the outer perimeter of the library & walkways per callouts #5 & #7 on construction legend.
- F. Adjusted overall plant quantity on plant schedule.
- G. Removed callout #4 in front of the cooling tower building and on the construction legend.
- H. Removed planting in front of the cooling tower building on the north east side of project.
- I. Replaced Lantana camara 'Confetti' species with Lantana camara 'Gold Rush' in planting schedule.
- J. Added additional Note at the end of the planting schedule.
- K. Added new planting for planter areas in the north and south courtyard.
- L. All labor and materials shown are a part of the base bid.

ITEM No. 49 Sheet LS4.0 – Planting Details

- A. Added small cobbles to detail "E".
- B. Removed detail "G".
- C. Adjusted callout #7 on the planting notes.

ITEM No. 50 Sheet A1.0 – Site Plan

- A. Add trash enclosure detail reference, (14/A12.1).
 - 1. See revised sheet A12.1.
- B. Add splash block detail reference, (20/A12.1).
 - 1. See revised sheet A12.1.
- C. Add handrails at northeast courtyard ramp and stairs (2/A1.0). Construct ramp and handrails per 8/A10.7.
- D. Add handrail detail reference, (12/12.2) for new handrails at northeast courtyard ramp and stairs.
 - 1. See new sheet A12.2.
- E. Add new hose bibb location at northeast corner of the library.
- F. Add hose bibb detail reference, (17/A12.1).
 - 1. See revised sheet A12.1.
- G. Adjust concrete paving edge at mechanical equipment enclosure.
- H. Adjust building outline at southeast corner of multi-purpose rooms.
- I. Add new keynote "080", concrete stair reference.
- J. Add detail reference for concrete ramp, (8/A12.7)

ITEM No. 51 Sheet A1.1.1 – Floor Plan – Section A

- A. Add column wrapping detail, (16/A12.7), at grid intersection of grids “2” and “B”.
 - 1. See attached ASK-1-02.0 and ASK-1-02.1.
- B. Add wall tag to east wall of room #113.
 - 1. See attached ASK-1-03.0.
- C. Add wall tag to west wall of room #137.
 - 1. See attached ASK-1-05.0.
- D. Add interior elevation reference, (9/A10.1).
 - 1. See attached ASK-1-04.0 and ASK-1-04.1.

ITEM No. 52 Sheet A1.1.2 – Floor Plan – Section B

- A. Add wall tags to restrooms #142 and #141.
- B. Remove furred wall on south side of mechanical room #138.
- C. Add storefront tag to storefront SF24 at southeast corner of Multi-Purpose room #144.
- D. Add missing door numbers to doors 143D, 143F, 144D and 144B.
- E. Add missing gate numbers to gates G01 and G02.
- F. Add detail reference at main entrance on west side of multi-purpose room, (14/A12.7).
 - 1. See revised sheet A12.7.
- G. Add detail reference at grid intersection of grids “CM-3” and “CM-E”, (13/A12.7).
 - 1. See revised sheet A12.7.

ITEM No. 53 Sheet A1.1.3 – Clearstory Plan – Section A

- A. Add detail reference, in detail #14, at grid intersection of grids “2” and “D”, (11/A12.8).
 - 1. See attached ASK-1-06.0.
- B. Add detail reference, in detail #14 at grid intersection of grids “2” and “G”, (19/A12.8).
 - 1. See attached ASK-1-07.0 and ASK-1-07.1.
- C. Add detail reference, in detail #2 at grid intersection of grids “2” and “J”, (20/A12.8).
 - 1. See attached ASK-1-08.0 and ASK-1-08.1.
- D. Add detail reference, in detail #2 at grid intersection of grids “2” and “K”, (7/A12.7).
 - 1. See attached ASK-1-09.0 and ASK-1-09.1.
- E. Add detail reference, in detail #2 at grid intersection of grids “4” and “L”, (9/A12.7).
 - 1. See attached ASK-1-10.0 and ASK-1-10.1.

- ITEM No. 54 Sheet A2.1 – Enlarged Restrooms Plans & Elevations
- A. Add one new recessed combination paper towel dispenser and waste disposal receptacle in rooms #142 and #141.
 - B. Add recessed equipment detail reference, (18/A12.7 and 19/A12.7), in plan views of details #3 and #4.
 - 1. See revised sheet A12.7.
 - C. Add recessed equipment detail reference, (18/A12.7), in plan views of details #9 and #10.
 - 1. See revised sheet A12.7.
 - D. Add equipment callout for keyed note “056” in details #3, 4, 9 and 10.
 - E. Revise keyed notes 052, 053, 054, 055, 056, 057, 058 and 059.
 - 1. See detail #1.
- ITEM No. 55 Sheet A3.1.1 – Ceiling Plan - A
- A. Show all mechanical ceiling mount registers for supply and return.
 - B. Show all smoke detectors.
 - 1. Add smoke detector label in “Reflected Ceiling Plan Legend”, detail #1.
 - C. In rooms #136 and #137 offset the acoustic tile ceiling system’s edges from wall by 3”.
 - D. In workroom #107 soffit at south side change from 8’-6” to 8’-0”.
 - E. Add circulation printer station backing panel connection to the acoustical ceiling system above.
 - F. Revise reflected ceiling fixture legend.
 - G. Revise “Note”, add lighting fixture reference
- ITEM No. 56 Sheet A3.1.2 – Ceiling Plan - B
- A. Show all mechanical ceiling mount registers for supply and return.
 - B. Show all smoke detectors.
 - C. Add smoke detector label in “Reflected Ceiling Plan Legend”, detail #1.
 - D. Add roof eave details, (7/A12.5 and 3A12.7), at east and west overhangs over the multi-purpose rooms.
 - E. Soffit heights at lobby drinking fountain area change from 8’-9” to 8’-6”.
 - F. Add ceiling detail, (17/A12.11), at ceiling transition wood system to suspended gyp. board system
 - 1 See attached ASK-1-30.0
 - G. Add recessed perimeter light detail, (19/A12.11), in women’s restroom

- 1 See attached ASK-1-31.0
- H. Revise reflected ceiling fixture legend.
- I. Revise "Note", add lighting fixture reference

ITEM No. 57 Sheet A4.1.1 – Roof Plan – Section A

- A. Show all mechanical units.
- B. Two hose bibbs relocated from south of the east and west sides of children's area roof towards north end.
- C. Add hose bibb detail reference, (17/A12.1).
 1. See revised sheet A12.1.
- D. Revise the graphics showing the relevant outline of exterior walls below the overhangs for reference.

ITEM No. 58 Sheet A4.1.2 – Roof Plan – Section B

- A. Show all mechanical units.
- B. Add hose bibb detail reference, (17/A12.1).
 1. See revised sheet A12.1.
- C. Relocate roof drains on north and south flat roofs.
- D. Add roof slopes on north and south flat roofs.
- E. Revise the graphics showing the relevant outline of exterior walls below the overhangs for reference.

ITEM No. 59 Sheet A5.1 – Exterior Elevation

- A. Revise line of grade on all elevation drawings per civil drawings.
 1. New keyed note "049" for line of grade added to all elevation drawings.
 2. Keyed note "049" added to the "Keynote" legend.
- B. Detail #2 add detail reference for main library signage, (13/A12.2).
 1. See new sheet A12.2.
- C. Detail #2 add book drop canopy details, (19A/A12.2, 19B/A12.2 and 19C/A12.2).
 1. See new sheet A12.2

ITEM No. 60 Sheet A5.2 – Exterior Elevation

- A. Revise line of grade on all elevation drawings per civil drawings.
 1. New keyed note "049" for line of grade added to all elevation drawings.
 2. Keyed note "049" added to the "Keynote" legend.
- B. Detail #2 adjust fence height per grade line adjustments.

- ITEM No. 61 Sheet A5.3 – Exterior Elevation
- A. Revise line of grade on all elevation drawings per civil drawings.
 - 1. New keyed note "049" for line of grade added to all elevation drawings.
 - 2. Keyed note "049" added to the "Keynote" legend.
 - B. Detail #2 add detail reference (K/A5.4).
 - C. Detail #4 add detail reference (I/A5.4).
 - D. Detail #3 adjust fence and mechanical enclosure height per grade line adjustments.
- ITEM No. 62 Sheet A5.4 – Exterior Elevation
- A. Revise line of grade on all elevation drawings per civil drawings.
 - 1. New keyed note "049" for line of grade added to all elevation drawings.
 - 2. Keyed note "049" added to the "Keynote" legend.
 - B. Detail #J adjust fence and mechanical enclosure height per grade line adjustments.
- ITEM No. 63 Sheet A7.0.4 – Enlarged Storefront Elevations
- A. Add detail reference for jamb and sill, (12/A12.13).
 - 1. See attached ASK-1-11.0 and ASK-1-11.1.
 - B. Add detail reference for sill, (20/A12.14).
 - 1. See attached ASK-1-12.0.
- ITEM No. 64 Sheet A7.1.1 – Wall Sections
- A. Add detail reference, (16/A12.1), in detail #1 - WS41.
 - 1. See attached ASK-1-15.0 and ASK-1-15.1.
- ITEM No.65 Sheet A7.1.7 – Wall Sections
- A. Add detail reference, (3/A12.2), in detail #2.
 - 1. See attached ASK-1-16.0 and ASK-1-16.1.
 - B. Add detail reference, (2/A12.16), in detail #2.
 - 1. See attached ASK-1-17.0 and ASK-1-17.1.
- ITEM No. 66 Sheet A7.2.1 – Wall Sections
- A. Add detail reference, (10/A12.7), in detail #10.
 - 1. See attached ASK-1-18.0 and ASK-1-18.1.
- ITEM No. 67 Sheet A7.2.2 – Wall Sections
- A. Add detail reference, (1/A12.2), in detail #14.
 - 1. See attached ASK-1-19.0 and ASK-1-19.1.

- ITEM No. 68 Sheet A9.2 – (Door Schedule and Door Type)
- A. Revise gate schedule.
 - B. Revise door schedule.
 - 1. See "Frame Material" column.
 - C. Add two new gate types, "R" and "S".
 - D. Revise door schedule legend.
- ITEM No. 69 Sheet A10.1 – Interior Elevations
- A. Add detail reference, (19/A12.15), in detail #3.
 - 1. See attached ASK-1-20.0 and ASK-1-20.1.
 - B. Adjust soffit outline in detail #15.
 - 1. See attached ASK-1-21.0.
 - C. Adjust soffit outline in detail #13.
 - 1. See attached ASK-1-22.0.
- ITEM No. 70 Sheet A10.2 – Interior Elevations
- A. Add detail reference, (5/A12.16), in detail #12.
 - 1. See attached ASK-1-23.0 and ASK-1-23.1.
- ITEM No. 71 Sheet A10.3 – Interior Elevations
- A. Add keynote legend
 - 1. See attached ASK-1-38.0
 - B. Change wall finish in detail #3 from WC/1 to P/1
 - 1. See attached ASK-1-13.0
- ITEM No. 72 Sheet A10.5 – Casework – Enlarged Plans & Elevations
- A. Add detail reference, (7/A12.16), in detail #7.
 - 1. See attached ASK-1-24.0 and ASK-1-24.1.
 - B. Add detail reference, (15/12.15 and 18/12.15), in detail #6.
 - 1. See attached ASK-1-25.0, ASK-1-25.1 and ASK-1-25.2.
- ITEM No. 73 Sheet A10.6 – Casework – Enlarged Plans & Elevations
- A. Add detail reference, (9/A12.16 and 13/A12.16), in detail #8.
 - 1. See attached ASK-1-26.0, ASK-1-26.1 and ASK-1-26.2.

- ITEM No. 74 Sheet A10.7 – Casework – Enlarged Plans & Elevations
A. Add detail reference, (4/A12.6), in detail #9.
1. See attached ASK-1-27.0 and ASK-1-27.1.
- ITEM No. 75 Sheet A10.8 – Casework – Enlarged Plans & Elevations
A. Add detail reference, (12/A10.8), in detail #C/1
1. See attached ASK-1-28.0 and ASK-1-28.1
- ITEM No. 76 Sheet A12.1 – Site Details & Exterior Misc Details
A. Add to sheet, details #13, 14, 16, 17 and 20.
- ITEM No. 77 Sheet A12.2 – Exterior Details
A. Add new sheet.
- ITEM No. 78 Sheet A12.3 – Roof details
A. Revise flashing in detail #2
1. See attached ASK-1-33.0.
- ITEM No. 79 Sheet A12.3 – Roof details
A. Revise flashing in detail #7
1. See attached ASK-1-34.0.
- ITEM No. 80 Sheet A12.3 – Roof details
A. Revise flashing in detail #9
1. See attached ASK-1-35.0.
- ITEM No. 81 Sheet A12.4 – Interior Misc. Details
A. Add dimensions in #4
1. See attached ASK-1-32.0.
- ITEM No. 82 Sheet A12.7 – Wall Details
A. Add to sheet, details #9, 10, 13, 14, 16, 18 and 19.
B. Omit details #5 and #6.
C. Add ramp detail 8/A12.7.
- ITEM No. 83 Sheet A12.12 – Door Details
A. Change door frame material in detail #10

1. See attached ASK-1-36.0.
- B. Change door frame material in detail #9
 1. See attached ASK-1-37.0.

ITEM No. 84 Sheet S1.1 – Typical Details

- A. Modify detail #1 to require 95mil vapor membrane per specification section 07 26 00 in lieu of noted 15mil membrane.

ITEM No. 85 Sheet S1.3 – Typical Details

- A. Detail 7:
 1. Add U-bar at top of the cast-in-place concrete wall.
 2. Indicate vertical reinforcing location.
 3. Show slab on grade with reinforcing.
 4. Indicate splice length of the vertical dowels.
 5. Add top bars in the footing.
 6. Revise bottom bars.

ITEM No. 86 Sheet S2.1 – Foundation Plan

- A. Cooling Tower Enclosure
 1. Revise HSS 6x6x3/8 posts to HSS 6x6x1/4.
 2. Call out slab on grade & edges.

ITEM No. 87 Sheet S4.2 – Foundation Details

- A. Detail 7
 1. Add cap plate & show its weld at top of post.
 2. Show slab on grade with reinforcing.
 3. Modify slab edge dimension from the face of the post.
 4. Revise bottom bars in the footing.
 5. Add top bars in the footing.
 6. Revise base plate.
 7. Revise footing depth.
 8. Revise anchor bolt embedment depth.

ITEM No. 88 Sheet S4.3 – Foundation Details

- A. Detail 3.
 1. Add horizontal HSS 16x2x1/4 at the top corners (3 places).
 2. Delete bent plates at the top 3 corners.

3. PLAN B-B
 - a. Clarify end plates & welds.
 - b. Show HSS 6x2.
4. PLAN VIEW
 - a. Clarify the weld symbol.
5. CORNER ENLARGED DETAIL
 - a. Clarify the vertical plates as typical.
 - b. Clarify the welds as typical.
 - c. Delete bent plate & weld.
 - d. Show HSS 6x2.
6. Detail 4
 - a. Clarify the weld & symbol.

ITEM No. 89 Sheet S0.1 – General Notes

- A. STRUCTURAL STEEL NOTE NO. 5.
 1.fabricator licensed by the "City of Los Angeles".

ITEM No. 90 Sheet M002 – Equipment Schedules

- A. Split System Air Conditioner Schedule (Indoor and Outdoor Units).
 1. IU-2 and OU-2 model changed from 3.5 ton ceiling hung to 2 ton wall mount type.

ITEM No. 91 Sheet M201 – HVAC Floor Plan

- A. Added intake vent for FC-7.
- B. Indicate door louver for doors serving Men 140 and Women 141 and door undercuts for Janitor's Closets 114 and 140, Electrical 109, Children's Restroom 124 and Staff Restroom 113.
- C. IU-2 changed to wall mount type in lieu of ceiling hung.
- D. Added 6" intake vent for boiler.

ITEM No. 92 Sheet M301 – HVAC Roof Plan

- A. Added intake vent for FC-7.
- B. Added 6" intake vent for boiler.

ITEM No. 93 Sheet M402 – Detail #5

- A. Revise detail to indicate minimum height above adjacent parapet wall.

ITEM No. 94 Sheet M403 – Detail #6

A. Detail removed. Ceiling hung fan coil removed.

ITEM No. 95 Sheet M404 – Detail #1

A. Revise detail to indicate outside air damper as manual type in lieu of automatic type.

ITEM No. 96 Sheet P002 – Plumbing Schedules

A. Plumbing Fixture Schedules.

1. Modified drawing to show hard wired sensor operated flush valve faucets as indicated on the revised drawing.
2. Modified drawing to show AB1953 compliant faucets for (S-1) and (KS-1) as indicated on the revised drawing.
3. Modified drawing to show AB1953 compliant bowls for (S-1) and (KS-1) as indicated on the revised drawing.
4. Modified drawing to show new garbage disposer serving (KS-1) as indicated on the revised drawing.

ITEM NO. 97 Sheet P401 – Plumbing Enlarged Floor Plans

A. Replace this sheet with the attached sheet.

ITEM No. 98 Sheet E001 – General Notes, Drawing List, Applicable Codes and Standards

A. Revised sheet index, add new sheet “E203 – Emergency Egress Lighting Plan”.

ITEM No. 99 Sheet E002 – Legend and Abbreviations

A. Legend

1. Add security system symbols and descriptions.
2. Added symbols for light fixtures with emergency power provisions.

B. Lighting Control Diagram.

1. Revised LCP product data and wiring interconnection.

ITEM No. 100 Sheet E003 – Single Line Diagram, Load Summary and Feeder Schedule

A. Revised single line diagram, deleting PV inverter and adding isolation transformer and distribution panel “MPV”.

ITEM No. 101 Sheet E004 – Panel Schedules

A. Revised panel schedules “LP1” and “LP2”.

ITEM No. 102 Sheet E005 – PV System Wiring Diagram

- A. Revised diagram to reflect provision of micro-inverters.

ITEM No. 103 Sheet E101 – Site Plan

- A. Added notations for underground raceways.

ITEM No. 104 Sheet E201 – Lighting Plan

- A. Added daylight sensor to control circuit HL2-1X.
- B. Provide switched control “aa” for circuit HL2-11.

ITEM No. 105 Sheet E203 – Emergency Egress Lighting Plan

- A. New sheet added.

ITEM No. 106 Sheet E301 – Power Plan

- A. Added power outlet for security system monitors.
- B. Added note #7.
- C. Deleted PV inverter, added isolation transformer and distribution panel “MPV” for PV system.
- D. Added power for plumbing fixtures auto-sensors.

ITEM No. 107 Sheet E302 – Electrical Roof Plan

- A. Added roof receptacles.
- B. Deleted combiner boxes and added power panels for PV system.
- C. Revised keynotes.

ITEM No. 108 Sheet E401 – Signal, Security and Communication Plan

- A. Added Security system devices.
- B. Added PA system Control and Terminal cabinet “PATC” in Electrical room.
- C. Relocated wall mounted speakers.

ITEM No. 109 Sheet E601 – Details

- A. Revised detail #9 to reflect addition of PA system control and Terminal cabinet “PATC”.

SUBSTITUTION REQUESTS AND APPROVALS

Notes: These manufacturers are approved as a substitution provided they meet the project specifications. Make addition of these manufacturer's names to each section.

Item:	Mfgr:	Section:	Product Description:	Phone:
#110	Metal Sales Manufacturing Corp.	07 41 13	Standing seam metal roofing system	800-782-7953
#111	Fabric Wallcraft	09 54 43	Upholstered wall system	714-632-8373

Attachments:

Specification Sections:

- 03 35 00 – Chemically Stained Concrete Floors
- 05 12 00 – Structural Steel
- 08 11 17 – Pre-finished Steel Door Frames
- 09 00 00 – Colors and Materials
- 11 52 13 – Projection Screens
- 22 40 00 – Plumbing Fixtures
- 23 07 00 – HVAC Insulation
- 23 64 11 – Air-Cooled Water Chillers
- 26 31 00 – Photovoltaics
- 27 51 16 – Public Address and Mass Notification System
- 28 16 00 – Intrusion Detection System
- 28 31 00 – Analog Addressable Fire Alarm
- 31 10 00 – Site Clearing
- 31 22 00 – Grading
- 32 11 00 – Base Course
- 32 12 00 – Flexible Paving
- 32 13 00 – Rigid Paving
- 33 11 00 – Water Distribution
- 33 30 00 – Sanitary Sewer
- 33 41 00 – Storm Drain

Drawings:

- Sketches: ASK-1-01-0
- ASK-1-02-0
- ASK-1-02-1
- ASK-1-03-0
- ASK-1-04-0
- ASK-1-04-1
- ASK-1-05-0
- ASK-1-06-0
- ASK-1-07-0
- ASK-1-07-1
- ASK-1-08-0
- ASK-1-08-1
- ASK-1-09-0
- ASK-1-09-1
- ASK-1-10-0
- ASK-1-10-1
- ASK-1-11-0
- ASK-1-11-1
- ASK-1-12-0
- ASK-1-13-0
- ASK-1-15-0
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- ASK-1-21-0
- ASK-1-22-0

ASK-1-23-0
ASK-1-23-1
ASK-1-24-0
ASK-1-24-1
ASK-1-25-0
ASK-1-25-1
ASK-1-25-2
ASK-1-26-0
ASK-1-26-1
ASK-1-26-2
ASK-1-27-0
ASK-1-27-1
ASK-1-28-0
ASK-1-28-1
ASK-1-30-0
ASK-1-31-0
ASK-1-32-0
ASK-1-33-0
ASK-1-34-0
ASK-1-35-0
ASK-1-36-0
ASK-1-37-0
ASK-1-38-0
SSK-1-01.0
SSK-1-02.0
SSK-1-03.0
SSK-1-04.0
SSK-1-04.1
SSK-1-04.2
SSK-1-05.0
SSK-1-06.0
MSK-1-19-0
MSK-1-19-1
MSK-1-19-2

Sheets: G0.1
C1.1
C1.2
C1.3
C1.4
C1.5
C2.1
C3.1
C3.2
C3.3
C3.4
C4.1
C5.1
LS1.0
LS1.1
LS2.0
LS2.1
LS3.0
LS4.0
A1-0
A1-1-2
A2-1
A3-1-1
A3-1-2
A4-1-1
A4-1-2
A5-1
A5-2
A5-3
A5-4
A9-2
A12-1
A12-2
A12-7
S0-1

S1-3
S2-1
S4-2
S4-3
M002
M201
M301
P002
P401
E001
E002
E003
E004
E005
E101
E201
E203
E301
E302
E401
E601

SECTION 03366
CHEMICALLY STAINED CONCRETE FLOOR

PART 1 - GENERAL

1.1 SUMMARY

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to Work of this Section.
- B. Section Includes:
 - 1. Chemically stained concrete floor finish.
 - 2. Sealer.
- C. Related Sections:
 - 1. Division 3 Section "Cast-In-Place Concrete" for general applications of concrete.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical data sheets and installation instructions for each product specified.
- B. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available.
- C. Qualification Data: For firms indicated in "Quality Assurance" Article, including lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of stain and sealer products shall have minimum 10 years experience in the production of the specified products.
- B. Installer Qualifications: Minimum 3 years experience in staining applications and successfully completed not less than 5 projects comparable in scale and complexity.
- C. Substitutions: The use of any products other than those specified shall be considered providing that the Contractor requests its use in writing within 14 days prior to bid date.
- D. Regulatory Requirements:
 - 1. Products shall comply with the United States Clean Air Act for maximum Volatile Organic Compound (VOC) content as specified in PART 2 of this section.
- E. Source Limitations: Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout Project.

- F. Field Samples:
 - 1. At location on Project selected by Architect, prepare field samples 4 by 4 feet for review and approval.
 - 2. Field samples shall be stained and sealed by the individual workers who will actually be performing the work for the Project.
 - 3. Approved field samples may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver the specified products in original, unopened containers with legible manufacturer's identification and information.
- B. Store specified products in conditions recommended by the manufacturer.

1.5 PROJECT CONDITIONS

- A. Environmental Conditions: Maintain an ambient temperature of between 50° and 90° F during application and at least 48 hours after application.
- B. Protection: Precautions shall be taken to avoid damage or contamination of any surfaces near the work zone. Protect completed stain work from moisture or contamination.

1.6 PRE-JOB CONFERENCE

- A. One week prior to the placement of Chemical Stain a meeting will be held to discuss the project and application of materials.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. L. M. SCOFIELD COMPANY, www.scofield.com
- B. SEAL-KRETE, www.seal-crete.com
- C. EQUAL

2.2 MATERIALS

- A. Chemical Stains: reactive water-based solution of metallic salts which react with the calcium hydroxide in the cured concrete substrate to produce permanent, variegated or translucent color effects.
 - 1. Colors: As selected by Architect from manufacturer's full range.
 - 2. A clear curing and sealing compound for protecting concrete hardscapes and floors, matte finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. **Verification of Conditions:** Contractor shall examine areas and conditions under which work will be performed and identify conditions detrimental to proper and timely completion of work. Do not proceed until unsatisfactory conditions have been corrected.
- B. **Compliance with Manufacturer's Instructions:** Contractor shall obtain, understand and comply with the current versions of the manufacturer's technical data sheets and installation instructions as referenced in Section 1.2.A. Wherever technical data such as preparation or installation instructions differs from language in this specification or other written material, the information submitted in accordance with Section 1.2.A is considered definitive.

3.2 PREPARATION

- A. **Concrete:**
 - 1. Newly placed concrete shall be sufficiently cured to allow concrete to become reactive, minimum 14 days.
 - 2. If any of the following colors are used, the minimum cure time of the concrete shall be 30 to 60 days to meet water vapor transmission requirements.
 - a. Copper Patina.
 - b. Fern Green.
 - c. Weathered Bronze.
 - 3. Do not use liquid curing materials. Cure concrete flatwork with new, unwrinkled, non-staining, high quality curing paper. Do not overlap curing paper.
 - 4. Surfaces shall be cured using the same method and different sections (pours) chemically stained when the concrete is the same age.
 - 5. Immediately prior to chemically staining, thoroughly clean the concrete. Sweep surfaces, then pressure wash or scrub using a rotary floor machine. Use suitable, high quality commercial detergents to facilitate cleaning. Rinse surfaces after cleaning until rinse water is completely clean. Allow floor to dry completely prior to application of floor stain.

3.3 APPLICATION OF CHEMICAL STAIN

- A. Concrete surfaces shall be dry and properly prepared as described above. Protect surrounding areas from over-spray, run-off and tracking. Divide surfaces into small work sections using wall, joint lines, or other stationary breaks as natural stopping points.
- B. Apply chemical stains full strength (undiluted) at the coverage rate recommended by the manufacturer and use application equipment described in the manufacturer's printed technical literature. The color of the liquid chemical stain has no resemblance to the final color produced on the concrete substrate.
- C. Chemical stains normally fizz when reacting with the concrete. If fizzing does not occur, the substrate has not been adequately prepared or the concrete pH level is too low. If this should happen, contact the local representative for further recommendations.
- D. Transfer chemical stain to the substrate by brush or spray and immediate scrub into surface.

- E. Reaction time depends on wind conditions, temperatures, and humidity levels.
- F. When multiple coats of one or more colors are required, washing and drying between colors is desirable to evaluate the color prior to the next coat.
- G. After the final coat of chemical stain has remained on the surface for a minimum of four hours, remove all residue by wet scrubbing with commercial grade detergent. Rinse surfaces after scrubbing until rinse water is completely clean. Run off may stain the adjacent areas or harm plants. Collect rinse water by wet vacuuming or absorbing with an inert material.

3.4 APPLICATION OF SEALER

- A. Concrete substrate shall be completely dry.
- B. Sealer shall be produced by the chemical stain manufacturer.
- C. Test surface for proper pH level prior to applying sealer.
- D. Apply sealer according to manufacturer's written instructions at a rate of 300 to 500 square feet per gallon per coat.
- E. Maintain a wet edge at all times.
- F. Allow sealer to completely dry before applying additional coats.
- G. Apply second coat of sealer at 90° to the direction of the first coat using the same application method and rates.
- H. Seal horizontal joints in areas subject to pedestrian or vehicular traffic.

3.5 PROTECTION

- A. Protect floor from traffic for at least 72 hours after final application of sealer.

3.6 MAINTENANCE

- A. Maintain chemically stained and sealed floors by sweeping. Clean spills when they occur and rinse dirt off with water. Wet-clean heavily soiled areas by mopping or by scrubbing with a rotary floor machine equipped with a scrubbing brush and a suitable, high quality commercial detergent. Maintain interior floors that require polishing by using a compatible, premium-grade, emulsion-type, commercial floor polish, following manufacturer's instructions and safety requirements.

END OF SECTION

SECTION 05 12 00
STRUCTURAL STEEL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural steel framing members, galvanized and shop-primed.

1.02 REFERENCES

- A. AISC MO15L - Manual of Steel Construction. (Thirteenth Edition).
- B. AISC S323 - Quality Criteria and Inspection Standards.
- C. ASTM A36 & A992 - Structural Steel.
- D. ASTM A53 - Hot Dipped, Zinc-Coated Welded and Seamless Steel Pipe.
- E. ASTM A108 - Steel Bars, Carbon, Cold-Finished, Standard Quality.
- F. ASTM A123 - Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products.
- G. ASTM A153 - Zinc Coating (Hot Dip) on Iron and Steel Hardware.
- H. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners.
- I. ASTM A325 - High Strength Bolts for Structural Steel Joints.
- J. ASTM F1852, High Strength Twist – off Bolts.
- K. ASTM A500 - Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes.
- L. ASTM C1107 - Packaged Dry, Hydraulic Cement Grout (Non-Shrink).
- M. AWS A2.4 - Standard Welding Symbols.
- N. AWS D1.1 - Structural Welding Code.
- O. AWS WHB-1 – Joining and Cutting Processes.
- P. AWS A5.1 - Carbon Steel Covered Arc-Welding Electrodes.
- Q. SSPC - Steel Structures Painting Council, SP-2, Hand Tool Cleaning.
- R. 2010 CBC Chapter 22.
- S. AISC – American Institute of Steel Construction, Code of standards practice for steel buildings and bridges.

1.03 SUBMITTALS

- A. Submit Shop Drawings:
 - 1. Indicate profiles, sizes, spacing and locations of structural members, connections, openings, attachments and fasteners.
 - 2. Indicate cambers.
 - 3. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.
- B. Submit Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.
- C. Submit Mill Test Reports: showing structural strength, destructive and non-destructive test analysis and identification.
- D. Submit Manufacturer's Certificates certifying welders employed on the work have been City of Los Angeles qualified within the previous 12 months, in accordance with AWS-WHB-1.
- E. Submit fabricator's and erector's qualifications.

1.04 QUALITY ASSURANCE

- A. Fabricate structural steel members and perform work in accordance with AISC-M015L.
- B. Perform welding in accordance with AWS D1.1 and 2010 California Building Code Chapter 22.

1.05 QUALIFICATIONS

- A. Fabricator: Company specializing in performing structural steel work minimum five years experience. All shop fabrication shall be performed by City of Los Angeles approved fabricator.
- B. Erector: Company specializing in performing structural steel work with minimum five years experience.

1.06 FIELD MEASUREMENTS

- A. Verify field measurements.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Structural Steel Members: ASTM A36, A992 and A572 grade 50.
- B. Hollow structural steel (HSS) tubes; ASTM A500, Grade B, Fy = 46 ksi.
- C. Pipe: ASTM A500, Grade B, Fy = 42 ksi.
- D. Shear Stud Connectors: ASTM A108, Grade 1015 forged steel, headed, uncoated, granular flux filled shear connector or anchor studs by Nelson Stud Welding Division of TRW, Lorain, OH, or equal as approved in accordance with Division 01 for substitutions.

- E. Bolts, Nuts and Washers: ASTM A307 galvanized to ASTM A153 for galvanized members, American National Course Threaded Series.
- F. High Strength Bolts: ASTM A325 Slip-Critical, tension set high strength bolts, by Bristol Machine Co., Walnut, CA, or equal as approved in accordance with Division 01 for substitutions.
- G. Welding Materials: AWS A5.1, E70XX, type and procedures required by electrode manufacturer for materials being welded.
- H. Grout: ASTM C1107, non-shrink type, pre-mixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing additives, capable of developing a minimum compressive strength of 8,000 psi at 7 days; of consistency suitable for application and a 30 minute working time.
- I. Shop and Touch-Up Primer: Series P10-99 modified alkyd, red color, air dried, by Tnemec or equal as approved in accordance with Division 01 for substitutions.
- J. Touch-Up Material for Galvanized Steel: Ready mixed, zinc-rich galvanizing compound, DEVCON Z, by Devcon Corp., Danvers, MA, GALVICON, by Southern Coatings, Sumter, SC, or equal as approved in accordance with Division 01 for substitutions.

2.02 SHEAR STUD CONNECTORS

- A. Space shear stud connectors as indicated on the drawings.
- B. Completely fuse end of stud to plate. Allow no porosity in weld.
- C. Allowable decrease in length of stud during welding:
 - 1. 1/8 inch for 5/8 inch diameter and smaller.
 - 2. 3/16 inch for more than 5/8 inch diameter.

2.03 FINISH

- A. Prepare structural component surfaces in accordance with SSPC SP-2.
- B. Shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete or high strength bolted.
 - 1. Clean surfaces to be primed, remove mill scale, grease, dirt and foreign matter. Two coats required for parts in contact but inaccessible for painting after erection.
 - 2. Apply primer by brush or spray. Thoroughly work into joints, angles and open spaces. Allow primer to dry and harden prior to handling for delivery to the site.
 - 3. Clean contact surfaces immediately prior to assembly, leave unpainted.
 - 4. Coat machined surfaces with approved removable coating to prevent corrosion.
 - 5. After erection, clean field welds, field bolts and abraded portions and apply one additional brush spot coat using same paint material.
 - 6. All surfaces scheduled to receive sprayed-applied fireproofing shall be free of lubricants, oils, paint or other matter which will impair adhesion of fireproofing.

- C. Galvanize structural steel members where indicated to coating thickness in accordance with ASTM A123. All steel exposed to exterior weather conditions shall be galvanized unless otherwise indicated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
 - 1. Report discrepancies between drawings and field dimensions to Architect before commencing work.
- B. Beginning of installation means erector accepts existing conditions and surfaces underlying or adjacent to work of this section.

3.02 ERECTION

- A. Allow for erection loads and stresses, and for sufficient temporary bracing to maintain structure safe, plumb and in true alignment until completion of erection and installation of permanent bracing. Provide bracing for dead and live loads and wind loads. Keep bracing in place until required to maintain safe conditions.
- B. Contractor shall be responsible for correcting detailing and fabrication errors and for correct fitting of all members and components.
- C. Field weld components and shear studs indicated on structural drawings.
- D. Do not field cut or alter structural members without approval of Architect.
- E. When approved, perform cutting, punching, drilling and tapping to accommodate work. Obtain accurate data as indicated on shop and erection drawings.
- F. After erection, prime welds, abrasions and surfaces not shop primed except surfaces to be in contact with concrete.
- G. Grout under baseplates with the specified non-shrink grout.
- H. Provide anchor bolts with templates and diagrams. Contractor shall be responsible for proper location and installation of bolts. Correct deficiencies or errors.

3.03 ERECTION TOLERANCES

- A. Conform to AISC S323.

3.04 HIGH STRENGTH BOLTS

- A. Allowable hole sizes: 1/16 inch larger than bolt size.
- B. Use friction type connection with standard hardened steel circular, square or rectangular washer under bolt nut.

- C. Thoroughly clean area under bolt head, nut and washer. Remove all paint, lacquer, oil or other coatings except organic zinc-rich paints in accordance with SSPC, SP-2.
- D. Tighten bolts by power torque wrench or hand wrench until twist-off.

3.05 PUNCHING AND DRILLING

- A. Punch material 1/16 inch larger than nominal diameter of bolt, wherever thickness of metal is equal to or less than the diameter of the bolt plus 1/8 inch.
- B. Drill or sub-punch and ream where metal is equal to or more than the diameter of the bolt plus 1/8 inch. Make diameter for sub-punched and sub-drilled holes 1/16 inch larger than nominal diameter of bolt.
- C. Precisely locate holes to ensure passage of bolt through assembled materials without drifting. Enlarge holes when necessary to receive bolts by reaming. Poorly matched holes will be rejected.
- D. Punch and ream holes to receive high strength bolts.

3.06 WELDING

- A. Conform to AWS D1.1 and 2010 CBC Chapter 22 and Section 1704.3.1.
- B. Perform welding by direct electric arc process. Use operators certified within preceding 12 month period as per City of Los Angeles "Standard Qualification Procedure."
- C. Chip welds to remove slag. Use wire brush to demonstrate uniformity of section, smoothness of welded metal, freedom from undercuts, overlays or feather edges and freedom from porosity and clinkers.
- D. Visually inspect edges and ends of fillets and butt joint welds for indication of good fusion and penetration into base metal. Grind smooth all exposed welds.
- E. Use of cutting torch will be allowed where metal being cut does not carry stress during the operations, and provided no stresses will be transmitted through a flame-cut surface. Make gas cuts smooth and regular in contour.
- F. To determine effective width of members subjected to gas cutting, deduct 1/8 inch from width of gas cut edges. Make radius of gas cut fillets as large as practicable, but in no case less than one inch. Gas cutting to align bolt is not permitted.

3.07 CLEANING AND STRAIGHTENING

- A. Before fabrication, thoroughly wire-brush material clean of scale and rust. Straighten by methods that will not injure materials.
- B. After punching or working, remove twists or bends before parts are assembled. Make finished members free from twists, bends and open joints when erected.

3.08 FITTING

- A. Closely fit members, finished true to line and in precise position required to allow accurate erection and proper joining in the field.
- B. Drilling to enlarge unfair holes will not be allowed. Light drifting to draw parts together will be permitted. Do not heat rolled sections, except for minor details.

3.09 QUALITY CONTROL

- A. Required testing shall be performed under provisions of Division 01.

3.10 HANDLING

- A. Both in shop and in field, transport, handle and erect to preclude damage or overstressing of any component.

END OF SECTION

**SECTION 08 11 17
PRE-FINISHED STEEL DOOR FRAMES**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: This Section specifies knocked down, site assembled, prefinished metal, frames for:
 - 1. Doors.
 - 2. Sidelights.
- B. Related Requirements:
 - 1. Section 08 71 00, Door Hardware: Hardware, silencers and weatherstripping.

1.02 REFERENCES

- A. Reference Standards:
 - 1. American Architectural Manufacturers Association (AAMA) - AAMA 611 Voluntary Standards for Anodized Architectural Aluminum.
 - 2. ASTM International (ASTM):
 - a. ASTM A366 Standard Specification for Commercial Steel (CS) Sheet, Carbon (0.15 Maximum Percent) Cold-Rolled.
 - b. ASTM A879 Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface
 - c. ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
 - d. ASTM B455 Standard Specification for Copper-Zinc-Lead Alloy (Leaded-Brass) Extruded Shapes.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays. Comply with Section 01 31 00 - Project Coordination.

1.04 SUBMITTALS

- A. General: Submit listed submittals in accordance with Contract Conditions and Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit specified products as follows:
 - 1. Manufacturer's product data.
 - 2. Manufacturer's installation instructions.
 - 3. Catalog pages illustrating products to be incorporated into project.
 - 4. Material Safety Data Sheets (MSDS).
- C. Shop Drawings: Indicate information on shop drawings as follows:
 - 1. Frame elevations.
 - 2. Details of frame anchorage.
 - 3. Details of reinforcements.
 - 4. Rough opening requirements.

5. Finishes.

D. Samples: Submit as follows:

1. Frame samples illustrating each finish specified.

1.05 INFORMATION SUBMITTALS

A. General: Submit listed submittals in accordance with Contract Conditions and Section 01 33 00 - Submittal Procedures.

B. Test and Evaluation Reports:

1. Certified test reports showing compliance with specified performance characteristics and physical properties.

1.06 QUALITY ASSURANCE

A. Installer shall have 10 years experience installing similar door frames.

1.07 DELIVERY, STORAGE & HANDLING

A. Delivery and Acceptance Requirements:

1. Deliver material in accordance with Section 01 60 00 - Product Requirements and in accordance with manufacturer's written instructions.
2. Deliver materials in manufacturer's original packaging with identification labels intact and in sizes to suit project.

B. Storage and Handling Requirements:

1. Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

1.08 WARRANTY

A. Warranty: Refer to Contract Conditions and Section 01 79 00 - Warranties for project warranty provisions.

PART 2 PRODUCTS

2.01 MANUFACTURER:

A. Timely Industries, 10241 Norris Avenue, Pacoima, CA 91331-2218; Telephone: 800-247-6242; Fax: 818-492-3530; E-mail: sales@timelyframes.com; Website: www.timelyframes.com.

1. Single Source Responsibility: Provide all frames from single manufacturer.
2. Substitution Limitations:
 - a. Substitutions: In accordance with Contract Conditions and Section 01 63 00 - Substitution Procedures.

2.02 FRAMES:

A. Frame Material:

1. Cold rolled steel to ASTM A366.

B. Size: As indicated on drawings.

C. Frame Profile:

1. "C" Series: 1.2 mm (18 gauge) thick.
 - a. Rabbet profile: Equal.

D. Frame Casings:

1. TA-08: Standard Steel with 1/4 inch (6 mm) reveal; corner alignment clips.
- E. Regulatory Requirements:
 - a. In accordance with Section 01 41 00 - Regulatory Requirements.
- F. Fabrication:
 1. Cut, notch and fabricate frames at manufacturer's facility.
 2. Provide minimum 14 gauge hinge reinforcement plate, tapped for machine screws supplied with hinges. Mechanically attach hinge plate to hinge emboss on frame.
 3. Casing Clips: Fabricate frames with factory applied, heat treated clips to prevent deflection in the clip upon application or removal of casing. Attachment clips may not be of same material as frame.
 4. Provide notches and tabs or stops (or both) for positive alignment of frame parts at all corners.
 5. Provide corner alignment clips.
- G. Finishes:
 1. Steel, Colonial Steel and Galvanized Steel: Polyurethane-based, 3-coat paint system.
 - a. Standard Color(s): Color by Architect.

2.03 ACCESSORIES

- A. Frame Reinforcements for Site Installation: Manufacturer's standard reinforcements for hardware as indicated in Section 08 71 00, Door Hardware.
- B. Adjustable strikes: Emboss frames for TA-1 strike for cylindrical lock. Provide TA-1 strike in finish compatible with hardware finish.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Verify that conditions of substrates previously installed under other sections or contracts are acceptable for product installation in accordance with manufacturer's instructions prior to door frame installation.
 1. Inform Architect of unacceptable conditions immediately upon discovery.

3.02 INSTALLATION

- A. Coordinate frame work with work of other trades for proper time and sequence to avoid construction delays.
- B. Install frame in accordance with manufacturer's instructions.
- C. Install frame plumb and level.
- D. Accurately fit, align, securely fasten and install free from distortion or defects.

3.03 CLEANING

- A. Upon completion, remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Final Cleaning.
- B. Waste Management:
 1. Coordinate recycling of waste materials with Section 01 74 19 - Construction Waste Management.

3.04 PROTECTION

- A. Repair damage to adjacent materials caused by door frame installation.

END OF SECTION

SECTION 09 00 00
COLORS & MATERIALS

PART 1 - GENERAL

1.01 RELATED WORK:

- A. **Related Work of Other Sections:** Coordinate the Work of this Section with the Work of other Sections as required to properly execute the Work and as necessary to maintain satisfactory progress of the Work of other Sections.

1.02 GENERAL DESCRIPTION OF THE WORK OF THIS SECTION: This Section designates selection of materials, color and finish of exposed surfaces for interior work indicated.

1.03 QUALITY ASSURANCE: All installed Work is to match submitted control samples. Prior to submittal, Contractor to verify that adequate matching material exists to complete job.

1.04 REFERENCES: Refer to individual Sections for specific references.

1.05 SUBMITTALS: Refer to Section 01 33 00 submittal procedures.

- A. In addition to the requirements of Section 01 33 00 - Submittals and specific Sections, comply with the following.
- B. Color selections are subject to revision by Architect upon review of actual samples prepared by supplier showing color and finish.
- C. Samples of materials supplied as yard goods shall be submitted as not less than 12" square memo sample, but in no case less than one full repeat of the pattern.
- D. Paint colors are to match those shown in this schedule and are to be submitted as noted in Section 09 90 00 of the same material used in the project for preliminary review by the Architect. Submit three display panels of each color, finish and type shown in the schedule. For paint colors designated for drywall application, submit on 1/4" thick drywall with taped edges. Final submittal of drywall paint colors shall be as a field sample after approval of display panels. Field samples shall be in location as designated on the Drawings or at the direction of the Architect. Field samples shall be a minimum of 3'-0" wide by full height and shall be in area with final project light fixtures in place and functioning. Do not proceed with related Work until approval of field samples.
- E. Submit sealants and grout samples to Architect for color review installed between actual paving materials to be used.
- F. Submit actual samples of devices such as light switches, sprinkler heads, ionization detectors, fire alarm pulls and similar devices complete with appropriate escutcheons or cover plates and anchors for Architect's approval of color and finish.
- G. Control samples are available for review at Architect's office and Contractor shall be responsible to ensure that samples submitted and actual product installed conform with control samples for color, appearance, gloss, sheen and finish.

1.06 DELIVERY, STORAGE AND HANDLING:

- A. Delivery of Materials: Deliver materials (except bulk materials) in manufacturer's unopened containers fully identified with manufacturer's name, trade name, type, class, grade, size and color.
- B. Storage of Materials: Store materials in unopened containers. Store off ground and under cover, protected from damage. Do not store rolled goods in upright position.

PART 2 - PRODUCTS

2.01 GENERAL NOTES:

- A. Miscellaneous painted items not otherwise shown in the Contract Documents or schedules below are to be painted to match the adjacent surface.
- B. Sealants and grout are, in general, to match finished surfaces between which they are exposed to view unless otherwise noted. Where finish materials change color, sealant and grout color transition shall be as directed by Architect. Refer to Section 07 90 15 "Sealants."
- C. All doors as indicated to receive paint shall be finish C unless otherwise noted. All frames as indicated in Architect's door schedule to receive paint shall be finish C unless otherwise noted in this schedule. Where rooms change color the door transition color shall occur as directed by Architect.
- D. Unless noted otherwise, reveals, including head reveals, shall be painted to match adjacent surfaces.
- E. All gypsum board and ceramic tile walls exposed to wet locations and all plumbing walls to be water resistant gypsum board. Refer to Section 09 21 16 "Gypsum Wallboard."
- F. All metal stair surfaces exposed to view are to be painted finish C. Field paint as necessary for smooth uniform finish.
- G. Paint access covers to match adjacent surfaces unless noted otherwise.
- H. All flush mounted sprinkler plate covers are to be manufacturer's standard white unless noted otherwise. Custom colors where indicated are to be factory painted.
- I. Provide white electrical devices and face plates, ionization detectors, life safety and paging speakers, and metal ceiling trim to be match ceiling color when exposed to view unless noted otherwise.
- J. All exposed mechanical louvers, grilles, etc., are to be painted to match adjacent surfaces unless noted otherwise.
- K. Resilient base to be 4" straight base at carpet areas, 4" cove base at hard surface materials such as linoleum unless noted otherwise.
- L. Finish of interior cabinetry to be cabinet grade melamine in manufacturer's standard white as selected by Architect.
- M. Where non-solid core plastic laminates are specified, exposed edges are to be faced in PVC edging .018" thick as manufactured by Wood tape Canada in color to match face laminate.

2.02 COLOR AND FINISH SELECTION KEY:

A. FINISH SELECTION KEY:

KEY	SHEEN	GEO./ DEGREE	PAINT GLOSS RANGE	FINISH TYPE TO BE AS LISTED HERE UNLESS NOTED OTHERWISE
A	Flat	85	Below 15	Painted drywall ceilings.
B	Eggshell	60	5 to 20	Painted drywall.
C	Semi-gloss	60	30 to 65	Millwork where noted, wood and metal doors and frames.
D	Gloss	60	Over 65	Millwork/metal where noted.

2.03 MATERIALS SELECTION KEY

- A. Materials are scheduled by code on the Drawings.
1. Interior colors and materials as noted below:

CARPET (Section 09 68 13)

- CP1 Carpet Tile: Manufacturer: Tandus, Style: 03666 Atmosphere, Color: 49503 Casting Bronze, Size: 24" x 24" tile, Installation Method: Horizontal Ashlar , Construction: Stratatec™ Patterned Loop, Face Weight: 20 oz/sq yd, Gauge: 5/64, Stitches per Inch: 10.2, Tuft Density: 130.56 tufts/sq in, Pile Height Average" 0.187", Pile Thickness: 0.107", Density Factor: 6,729 oz/cu yd, Fiber System: Antron® Legacy Nylon, Dye Method: 75% Solution Dyed / 25% Yarn Dyed, Soil/Stain Protection: Ensure, Primary Tufting Substrate: Synthetic Non-Woven, Pattern Repeat: 6' W x 110" L - *Pattern Match End Seam Only*, Manufacturer's Rep: Anthia Kappos, akappos@tandus.com, Phone: (626) 710-6066
Backing: ER3® Modular, Total Product Recycled Content: 51.7% Pre-Consumer: 41.7% Post-Consumer: 10% SCS Certified, Third Party Certification NSF-140: Platinum SCS Certified, Product Size: 24" x 24" Tile, Secondary Backing: 100% Recycled Content with Tru Bloc (Barrier System), Intermediate Layer: Fiberglass Reinforced Sealant, Product Construction: No Delamination per ASTM D-3936, Secondary Backing Density: 65 lbs/cu ft, Secondary Backing Thickness: 0.087", Total Weight with RS / Non-RS: 132.5 130.9 oz/sq yd +/-5%, CRI Green Label Plus Certification: GLP1366
- CP2 Carpet Tile: Manufacturer: Shaw Contract Group, Style: The Eccentric 59587, Color: Grace 67761, Size: 24" x 24" tile, Installation Method: Quarter Turn, Construction: Multi-Level Pattern Cut/Loop, Fiber: Eco Solution Q Nylon, Dye Method: 80% Solution Dyed/20% Yarn Dyed, Tufted Weight: 28.0, Gauge: 1/12", Stitches per Inch: 10.0, Finished Pile Thickness: 0.124", Total Thickness: 0.268", Average Density: 8129, Primary Backing: Synthetic, Secondary Backing: Ecoworx Tile, Protective Treatments: SSP Shaw Soil Protection, Pattern Repeat: None, CRI Green Label Plus Certification: GLP9968, NSF140 Platinum, Cradle to Cradle Silver Certified, Manufacturer's Rep: Eli Lapsley, eli.lapsley@shawinc.com, Phone: (310) 570-9232

- CP3 Carpet Tile: Manufacturer: Atlas, Style: Inizio, Color: IZ46 Island Shores, Size: 12'-6", Construction: Textured Loop, Gauge: 1/10 Loop, Yarn: Antron Legacy Nylon Type 6,6, Density: 6967, Pattern Repeat: None, Width: 12'-6", Tufted Yarn Weight: 32 oz/sq yd, Total Finished Weight: 62 oz/sq yd, Average Finished Pile Height: 0.155", Soil Retardant: DuraTech, Recycled Content: 10% Post Consumer, Indoor Air Quality: CRI Green Label Plus, NSF: Certified, Manufacturer's Rep: Amber Ray, aray@atlascarpetmills.com, Phone: (760) 586-1878
- CP4 Broadloom Carpet: Manufacturer: Tandus, Style: 03666 Atmosphere, Color: 49503 Casting Bronze, Size: 6' Roll, Installation Method: N/A, Construction: Stratatec™ Patterned Loop, Face Weight: 20 oz/sq yd, Gauge: 5/64, Stitches per Inch: 10.2, Tuft Density: 130.56 tufts/sq in, Pile Height Average" 0.187", Pile Thickness: 0.107", Density Factor: 6,729 oz/cu yd, Fiber System: Antron® Legacy Nylon, Dye Method: 75% Solution Dyed / 25% Yarn Dyed, Soil/Stain Protection: Ensure, Primary Tufting Substrate: Synthetic Non-Woven, Pattern Repeat: 6' W x 110" L - *Pattern Match End Seam Only*
Backing: Powerbond ER3® Cushion, Total Product Recycled Content 44.3% Pre-Consumer: 34.3% Post-Consumer: 10% SCS Certified, Third Party Certification NSF-140: Platinum SCS Certified, Product Size: 6 ft., Cushion: 98% Recycled Content Closed Cell Cushion, Heterogeneous Construction: No Delamination per ASTM D-3936, Cushion Density: 28.5 lbs/cu ft, Cushion Thickness: 0.125" ASTM D-3574, Total Weight: 106.6 oz/sq yd +/-5%, Compression Set: Max. 10% ASTM D-3574, Compression Deflection: 7 Min. 25 max lbs/sq inch @ 25% ASTM D-3574, CRI Green Label Plus Certification: GLP8030, Manufacturer's Rep: Anthia Kappos, akappos@tandus.com, Phone: (626) 710-6066
- CP5 Broadloom Carpet: Manufacturer: Atlas, Style: Onslow, Color: ON65 Restless Sea, Construction: Interloop, Gauge: 5/64" Patterned Loop, Yarn: Antron Legacy Nylon Type 6,6, Density: 6882, Pattern Repeat: 75"W x 150"L, Width: 12'-6", Tufted Yarn Weight: 28 oz/sq yd, Average Finished Pile Height: 0.136", Soil Retardant: DuraTech, Recycled Content: 10% Post Consumer, Indoor Air Quality: CRI Green Label Plus, NSF: Certified, Manufacturer's Rep: Amber Ray, aray@atlascarpetmills.com, Phone: (760) 586-1878
- CP6 Broadloom Carpet: Manufacturer: Atlas, Style: Dongara, Color: 70DG Tomahawk, Construction: Interloop, Gauge: 5/64" Patterned Loop, Yarn: Antron Legacy Nylon Type 6,6, Density: 7448, Pattern Repeat: 37.5"W x 75"L, Width: 12'-6", Tufted Yarn Weight: 28 oz/sq yd, Total Finished Weight: 58 oz/sq. yd., Average Finished Pile Height: 0.126", Soil Retardant: DuraTech, Recycled Content: 10% Post Consumer, Indoor Air Quality: CRI Green Label Plus, NSF: Certified, Manufacturer's Rep: Amber Ray, aray@atlascarpetmills.com, Phone: (760) 586-1878

TILE (Section 09 30 00)

- CT1 Ceramic Tile: Manufacturer: Daltile, Style: Modern Dimensions, Size: 4.25"x8.5", Thickness: 5/16", Color: K775 Matte Biscuit, Recommended Grout Joint: 1/16", Recycled Content: Pre-Consumer (Post Industrial) 36%, Post Consumer 1.5% (Restroom Walls), Manufacturer's Rep: Zoe Rahimi, zoe.rahimi@daltile.com, Phone: (323) 819-9969

- CT2 Ceramic Tile: Manufacturer: Daltile, Style: Modern Dimensions, Size: 4.25"x8.5", Thickness: 5/16", Color: 0761 Matte Urban Putty, Recommended Grout Joint: 1/16", Recycled Content: Pre-Consumer (Post Industrial) 36%, Post Consumer 1.5% (Restroom Walls), Manufacturer's Rep: Zoe Rahimi, zoe.rahimi@daltile.com, Phone: (323) 819-9969
- CT3 Ceramic Tile: Manufacturer: Daltile, Style: Modern Dimensions, Size: 4.25"x8.5", Thickness: 5/16", Color: 0771 Matte Cityline Kohl, Recommended Grout Joint: 1/16", Recycled Content: Pre-Consumer (Post Industrial) 36%, Post Consumer 1.5% (Restroom Walls), Manufacturer's Rep: Zoe Rahimi, zoe.rahimi@daltile.com, Phone: (323) 819-9969
- PT1 Porcelain Tile: Manufacturer: Daltile, Style: Colorbody Porcelain-Porcelain Solid Series, Size: 12"x12" Unpolished, Thickness 5/16", Color: CD21 Cityline Kohl, Recommended Grout Joint: 1/4", Recycled Content: Pre-Consumer (Post Industrial) 0%, Post Consumer 0% (Restroom Floors), Manufacturer's Rep: Zoe Rahimi, zoe.rahimi@daltile.com, Phone: (323) 819-9969
- CB1 Cove Base: Manufacturer: Daltile, Style: Modern Dimensions, Cove Base A-3481, Size: 4.25"x8.5", Thickness: 5/16", Color: 0761 Matte Urban Putty, Recommended Grout Joint: 1/16", Recycled Content: Pre-Consumer (Post Industrial) 36%, Post Consumer 1.5% (Restroom Walls), Manufacturer's Rep: Zoe Rahimi, zoe.rahimi@daltile.com, Phone: (323) 819-9969
- GT1 Granite Threshold: Manufacturer: Daltile Stone, Style: Golden Leaf G293, Size: Slab, Thickness: TBD, Durability: Level 4, Recommended Grout Joint: 1/16", Variation: Medium, Note: Sealer is recommended. Manufacturer's Rep: Zoe Rahimi, zoe.rahimi@daltile.com, Phone: (323) 819-9969
- G-1: Grout: Manufacturer: Custom Building Products, Style: 100% Solids Epoxy, Color: #95 Sable Brown, Note: For use on floors and walls

RESILIENT FLOORING (Section 09 65 00)

- LN1 Linoleum Sheet Goods: Manufacturer: Forbo, Style: Marmoleum, Striato, Color: 5216 Pacific Beaches, Size: 79" W x 105' LF, Roll Size: 77 sq. yds, Thickness: 1/10" (2.5mm), Backing: Jute, Manufacturer's Rep: Richard Pleis, Richard.Pleis@Forbo.com, Mobile: (818) 679-9536
- LN2 Linoleum Sheet Goods: Manufacturer: Forbo, Style: Marmoleum, Walton Cirrus, Color: 3356 Cyanic Blue, Size: 79"W x 105' LF, Roll Size: 77 sq. yds, Thickness: 1/10" (2.5mm), Backing: Jute, Manufacturer's Rep: Richard Pleis, Richard.Pleis@Forbo.com, Mobile: (818) 679-9536
- VF1 Vinyl Plank Flooring: Manufacturer: Mannington, Style: Nature's Path Select, Style: Princeton Cherry, Color: Natural 12169, Form: Plank, Size: 4" x 48", Overall Thickness: 0.100", Wearlayer Thickness: .020", Static Load Limit: 750psi, Manufacturer's Rep: Benjamin Kelley, benjamin_kelley@mannington.com, Mobile: (310) 658-7178
- VF2 Vinyl Plank Flooring: Manufacturer: Mannington, Style: Nature's Path Select, Style: Princeton Cherry, Color: Colonial 12168, Form: Plank, Size: 4" x 48", Overall Thickness: 0.100", Wearlayer Thickness: .020", Static Load Limit: 750psi,

Manufacturer's Rep: Benjamin Kelley, benjamin_kelley@mannington.com,
Mobile: (310) 658-7178

- VF3 Vinyl Tile Flooring: Manufacturer: Mannington, Style: Nature's Path Select, Style: Stonewash, Color: Mineral Beige 12223, Form: Tile, Size: 18" x 18", Overall Thickness: 0.100", Wearlayer Thickness: .020", Static Load Limit: 750psi, Manufacturer's Rep: Benjamin Kelley, benjamin_kelley@mannington.com, Mobile: (310) 658-7178
- RB1 Rubber Base: Manufacturer: Johnsonite, Style: Rubber base, Size: 4", Color: 47 Brown, Note: Straight base at carpet, coved base at hard surfaces. (At all non-stained concrete areas), Manufacturer's Rep: Ellen Wren, Ellen.Wren@Johnsonite.com, Mobile: (323) 876-3801
- SN1 Flexible Vinyl Stair Nosing: Manufacturer: Johnsonite, Style: VCD-47, Color: 47 Brown, Adhesive: 965 and 930 per manufacturer's instructions, Note: Used at stair transition from carpet tile to broadloom carpet, Manufacturer's Rep: Ellen Wren, Ellen.Wren@Johnsonite.com, Mobile: (323) 876-3801

PAINT (Section 09 90 00)

- P1 Manufacturer: Frazee or equal, Color: CLW 1014W Snowshoe Trail, LRV: 78, Finish: Lo Sheen. Low-VOC formula, see Frazee paint schedule. Manufacturer's Rep: Sue Brown, sbrown@frazee.com, Mobile: (323) 493-5080
- P2 Manufacturer: Frazee or equal, Color: CL 2754D Tana, LRV: 42, Finish: Lo Sheen. Low-VOC formula, see Frazee paint schedule. Manufacturer's Rep: Sue Brown, sbrown@frazee.com, Mobile: (323) 493-5080
- P3 Manufacturer: Frazee or equal, Color: CL 2736N Almost Ochre, LRV: 19, Finish: Lo Sheen. Low-VOC formula, see Frazee paint schedule. Manufacturer's Rep: Sue Brown, sbrown@frazee.com, Mobile: (323) 493-5080
- P4 Manufacturer: Frazee or equal, Color: CLV 1111N Anthem, LRV: 11, Finish: Lo Sheen. Low-VOC formula, see Frazee paint schedule. Manufacturer's Rep: Sue Brown, sbrown@frazee.com, Mobile: (323) 493-5080
- P5 Manufacturer: Frazee or equal, Color: CL 3082W Winter Green, LRV: 56, Finish: Lo Sheen. Low-VOC formula, see Frazee paint schedule. Manufacturer's Rep: Sue Brown, sbrown@frazee.com, Mobile: (323) 493-5080
- P6 Manufacturer: Frazee or equal, Color: CLC 1218D Sonata, LRV: 26, Finish: Lo Sheen. Low-VOC formula, see Frazee paint schedule. Manufacturer's Rep: Sue Brown, sbrown@frazee.com, Mobile: (323) 493-5080
- P7 Manufacturer: Frazee or equal, Color: CLV1132N Grasp, LRV: 10, Finish: Lo Sheen. Low-VOC formula, see Frazee paint schedule. (For wall design at arches in Reading Area only) Manufacturer's Rep: Sue Brown, sbrown@frazee.com, Mobile: (323) 493-5080
- P8 Manufacturer: Frazee or equal, Color: CL2187N Honore, LRV: 11, Finish: Lo Sheen. Low-VOC formula, see Frazee paint schedule. Manufacturer's Rep: Sue Brown, sbrown@frazee.com, Mobile: (323) 493-5080

SOLID SURFACE (Section 12 36 00)

- SS1 Manufacturer: Corian, Thickness: 1/2", Color: Camel, Manufacturer's Rep: Ozzie Mercado, Ozzie.Mercado@usa.dupont.com, Mobile: (562) 991 3676
- SS2 Manufacturer: Corian, Thickness: 1/2", Color: Medea, Manufacturer's Rep: Ozzie Mercado, Ozzie.Mercado@usa.dupont.com, Mobile: (562) 991 3676
- SS3 Manufacturer: Corian, Thickness: 1/2", Color: Bisque, Manufacturer's Rep: Ozzie Mercado, Ozzie.Mercado@usa.dupont.com, Mobile: (562) 991 3676

PLASTIC LAMINATE (Section 06 41 00)

- PL1 Manufacturer: Pionite, Style: WC431-H Millwork Cherry, Finish: Suede
- PL2 Manufacturer: Pionite, Style: AT371 Cressida, Finish: Suede

RESIN PANELS (Section 06 06 60)

- RP1 Manufacturer: 3-Form, Product: Remix Light Natural, Pattern Direction: Varies by location, see below, Front Finish: Sandstone, Back Finish: Sandstone, Gauge: 7/16", Panel Size: 4'x8', Manufacturer's Rep: Rebecca Franson Koteen, rebecca.koteen@3-form.com, Mobile: (310) 272-6088
1. Location A – Circulation #101: Circulation Desk Curved Front Panel, (1) 4'x8' panel, Pattern Direction: Parallel (design intent for panel pattern to run parallel to finished floor), heat formed to curve degree specified in drawings, inset in aluminum U-channel
 2. Location B – Circulation #101: Printer Credenza, Pattern Direction: Offset, Hardware: Top Support System, Note: Similar installation to 3-Form Ready To Go Solution 200.25.01
 3. Location C – Reference / Info #129: Printer Privacy Screen, Pattern Direction: Parallel, Hardware: Rail Aluminum System, 42" H, Small Toprail, Color: Silversmith, 1 3/4" Post Size, 1 3/4" Baseplate, Encaps required
 4. Location D – Teen #130: Study Bar Millwork, Pattern Direction: Offset, inset in aluminum U-channel, aluminum H-channel(s) at vertical seam locations as specified in drawings

WALL COVERING (Section 06 42 16)

- WC1 Wood Veneer Wallcovering: Manufacturer: Jacaranda, Inc., Distributor: LBI Boyd (Glendora, CA), Style: SanFoot Wood Veneer Wallcovering, Veneer: FC American Cherry, Cut & Figure: Flat Cut, Matching: Book Match, Note: for use in Multi-Purpose Room projection screen niche
- WC2 Wood Veneer Wallcovering: Manufacturer: Jacaranda, Inc., Distributor: LBI Boyd (Glendora, CA), Style: SanFoot Wood Veneer Wallcovering, Veneer: FC Cherry

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Stain #122105, Cut & Figure: Flat Cut, Matching: Book Match, Note: To wrap decorative ceiling members/beams at wood ceilings in the Multi-Purpose Room and Children's Area

SUSPENDED CEILING SYSTEM (Section 09 51 00 and 09 54 26)

- C1 Wood Veneer Acoustical Ceiling: Manufacturer: Armstrong, Style: WoodWorks Linear – 4-1/2" Module, Model: 6640W1-NLC (FSC-Certified Wood), Panel Dimensions: 8' x 3-3/4" x 3/4", Finish: Natural Variations Light Cherry (NLC), NRC: 0.50, fire rating: Class A, Accessory: Edge Banding Item# 6408 NLC for field cut panel edges, Manufacturer's Rep: Melissa Blyth, mcblyth@armstrong.com, Mobile: (310) 294-0493
Suspension System: Manufacturer: Armstrong, Product: 5370 – 12' HD linear Carriers (concealed) w/ integral clips (factory applied), Dimensions: 12' x 15/16" x 1-11/16", Accessories: Item# 5843 Linear Wood Splice
- C2 Wood Veneer Acoustical Ceiling: Manufacturer: Armstrong, Style: WoodWorks Concealed, Model: 5984W4NLC, Panel Dimensions: 2' x 6' x 3/4" Finish: Natural Variations Light Cherry (NLC), Perforation: Round Diagonal Rd6006 (W3), NRC: 0.65, Accessories: BioAcoustic Infill Panel Item# 5429, Edge Banding Item# 6408 NLC for cut panel edges
Suspension System: Manufacturer: Armstrong, Product: Prelude XL HD 15/16" Grid, Color: Tech Black, Accessories: Item 5986 T-Bar Hook, 91070A244 Wood Screws, Item 6091 Seismic Safety Cable, SH12 Support Hanger SH12, Note: Installed per ICC ESR-1308 for Seismic Category D,E,F. Manufacturer's Rep: Melissa Blyth, mcblyth@armstrong.com, Mobile: (310) 294-0493
- C3 Acoustical Ceiling: Manufacturer: Armstrong, Style: Ultima 1912 HRC (9/16" Beveled Tegular), Size: 24" x 24" x 3/4", Color: White NRC: 0.70, CAC: 35, Fire Rating: Class A, Light Reflect: 0.90, Accessories: Corner Posts: AX4OSCP, AX4ISCP, Manufacturer's Rep: Melissa Blyth, mcblyth@armstrong.com, Mobile: (310) 294-0493
Suspension System: Manufacturer: Armstrong, Style: Silhouette XL HD 9/16" Bolt Slot System – 1/4" Reveal, Color: White
Molding: Manufacturer: Armstrong, Style: Shadow Mold 7877 with field mitered corners and BERK-2 Clip per ICC ESR-1308, Color: WH-White
Edge Trim: Manufacturer: Armstrong, Style: Axiom Classic Perimeter Trim AXTR4STR, Size: 4", Color: WH-White
- C4 Fabric Wrapped Panel Acoustical Ceiling: Manufacturer: Novawall, Product: 1" Classic, Site Fabricated Stretch Fabric System, Edge profile: Square, Size: 3'x 6', Acoustical Core Material: Semi-rigid fiberglass board (6 pcf.), Thickness: 1", Distributor: Modern Interiors (Compton, CA), Don Bigler, dbigler@moderninteriors.com, Mobile: 310-261-4019 or Jeff Rigby, jrigby@moderninteriors.com, Mobile: 310-345-0767
Fabric: Manufacturer: Luna Textiles, Pattern: Stitch FSI-4021, Color: Oxygen, Content: 100% Eco-Intelligent Polyester, Width: 66", Repeat: 0.16" H x 0.44" V, Abrasion: 30,000+ double rubs. Manufacturer's Rep: Mary Davis, mdavis@lunatextiles.com, Mobile: 310-470-6127
- C5 Fabric Wrapped Panel Acoustical Ceiling: Manufacturer: Novawall, Product: 1" Classic, Site Fabricated Stretch Fabric System, Edge profile: Square, Size: 3'x 8'-5", Acoustical Core Material: Semi-rigid fiberglass board (6 pcf.), Thickness: 1", Distributor: Modern Interiors (Compton, CA), Don Bigler, dbigler@moderninteriors.com

interiors.com, Mobile: 310-261-4019 or Jeff Rigby, irigby@moderninteriors.com,
Mobile: 310-345-0767

Fabric: Manufacturer: Luna Textiles, Pattern: Stitch FSI-4021, Color: Oxygen,
Content: 100% Eco-Intelligent Polyester, Width: 66", Repeat: 0.16" H x 0.44" V,
Abrasion: 30,000+ double rubs. Manufacturer's Rep: Mary Davis,
mdavis@lunatextiles.com, Mobile: 310-470-6127

- C6 Fabric Wrapped Panel Acoustical Ceiling: Manufacturer: Novawall, Product: 1" Classic, Site Fabricated Stretch Fabric System, Edge profile: Square, Size: 3'x 7'-10", Acoustical Core Material: Semi-rigid fiberglass board (6 pcf.), Thickness: 1", Distributor: Modern Interiors (Compton, CA), Don Bigler, dbigler@modern-interiors.com, Mobile: 310-261-4019 or Jeff Rigby, irigby@moderninteriors.com, Mobile: 310-345-0767
- Fabric:** Manufacturer: Luna Textiles, Pattern: Stitch FSI-4021, Color: Oxygen,
Content: 100% Eco-Intelligent Polyester, Width: 66", Repeat: 0.16" H x 0.44" V,
Abrasion: 30,000+ double rubs. Manufacturer's Rep: Mary Davis,
mdavis@lunatextiles.com, Mobile: 310-470-6127

PLASTIC TOILET COMPARTMENTS (Section 10 21 13)

- TP1 Manufacturer: Bobrick, Series: Sierra Series Toilet Partitions – Solid Color Reinforced Composite (SCRC), Graffiti/Scratch/Impact/Fire Resistant, 10% recycled content, Low Emitting, Color: SC02 Desert Beige

FABRICS (Section 09 54 43)

- UP1 Manufacturer: Loop, Pattern: Straight, Color: Buffalo 032, Use: Commercial Upholstery, Content: 55% Cotton, 45% Polyester, Width: 54", Repeat: 13.4"V, 13.5"H, Abrasion: 150,000+ double rubs, Origin: USA, Note: Upholster vertically (with accent stripe running vertical/perpendicular to seat). Manufacturer's Rep: Flemming|McMahon, info@flemmingmcmahon.com, Phone: (323) 934-5499
- UP2 Manufacturer: Arc Com, Pattern: Gatsby AC-69030, Color: Bark #21, Application: Upholstery Content: 100% Vinyl Face/100% Polyester Back, Finish/Backing: Resilience Stain Resistant Finish, Width: 54", Repeat: 1.5"V, 1.5"H, Abrasion: 465,000+ double rubs, Manufacturer's Rep: Betty Ross, bross@arc-com.com, Mobile: (310) 903-2280
- UP3 Folding Partition Panels: Manufacturer: TBD, Pattern, TBD, Color: TBD

ROLLER SHADES (Section 12 22 16)

- WT1 Manufacturer: Mechoshade or equal, Product: Mechoshade 5, Manual Solar Shade, Solar Shade Cloth: EcoVeil 1500 Series 3%, Color: Beige 1552, Attachment: Surface Mounted with Fascia and End Caps or Recessed Pocket dependant on window condition, Manufacturer's Rep: Jean-Guy Poitras (Architype), igpoitras@architype.net, Phone: (310) 652-2263
- WT2 Manufacturer: Mechoshade or equal, Product: ElectroShade 1, Motorized Dual Solar plus Blackout Shade, Solar Shade Cloth: EcoVeil 1500 Series 3%, Color: Beige 1552, Room Darkening Shade Cloth: ThermoVeil 0700 Series, Color: 0700 Oyster, Attachment: Surface Mounted with Fascia and End Caps or Recessed

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Pocket, Manufacturer's Rep: Jean-Guy Poitras (Architype),
jgpoutras@architype.net, Phone: (310) 652-2263

END OF SECTION

SECTION 11 52 13
PROJECTION SCREENS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Automatic, electrically operated wall-mounted projection screens including cases and installation accessories.

1.2 RELATED SECTIONS

- A. Section 05 50 00 - Metal Fabrications.
- B. Section 09 51 23 – Acoustical Tile Ceilings.
- C. Section 26 05 00 - Common Work Results for Electrical.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Manufacturer's installation, operation, maintenance, and cleaning instructions.
- C. Shop Drawings: Indicate dimensions, fabrication and installation details.
- D. Verification Samples: Two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firm with 10 years minimum successful experience manufacturing electric projection screens.
- B. Installer Qualifications: Authorized and trained by the manufacturer to install systems required.
- C. Definition of Terms for Specifications:
 - 1. Gain: Indication of screen's luminance or brightness measured perpendicular of screen center and measured relative to a block of magnesium carbonate which serves as the standard for 1.0 gain. Higher numbers indicate greater brightness. Gain shall be determined in accordance with SMPTE RP 94-2000.
 - 2. Keystone: Distortion of projected image when screen is not perpendicular with center

- line of projected image.
3. Viewing angle: Angle from perpendicular center of screen at which the gain or brightness is decreased by 50 percent.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Da-Lite Screen Company
- B. Stewart Filmscreen Corporation.
- C. Draper, Inc.
- D. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 PROJECTION SCREENS

- A. Items specified are to establish a standard of quality for design, function, materials and appearance.
- B. Equivalent products by listed manufacturers are acceptable. The Architect shall be the sole judge of product equivalence.
- C. Electric Projection Screens – Basis of Design: Da-Lite, Contour-Electrol.
 1. Viewing Surface: High Contrast Matte White.
 - a. Viewing Surface: Video Spectra 1.5.
 - b. Viewing Format: HDTV format, 1.00 to 1.78
 - c. Sizes: (Nominal) 12'w x 8'd; 6' x 6'
 - d. Masking: Black masking borders.
 - e. Finish: White finished in lightly textured powder coat.
 - f. Limit switches: Pre-set, adjustable switches to automatically stop viewing surface, and case closure door where scheduled, in up or down positions.
 - g. Silent motor with LVC: Silent Motor with Integrated LVC.

h. Wireless Remote Control

2.3 VIEWING SURFACES CONSTRUCTION AND PERFORMANCE

A. Viewing Surface:

1. High Contrast Matte White: Flame retardant, mildew resistant, smooth, white, unsupported vinyl screen that can be rolled, folded, cleaned with mild soap and water solution.
 - a. Gain: 1.1.
 - b. Viewing angle: 50 degrees.
2. Masking: Black.
3. Drop: Refer to drawings for floor to ceiling height.
 - a. Drop Color: Black.
4. Seams: To the extent possible screen surfaces shall be seamless. Where required by size, provide a minimum number of flat, horizontal seams. Vertical seams are not acceptable.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Coordinate provision of screens with locations of other wall and ceiling mounted components such as visual display boards, casework, structural framing, light fixtures, air diffusers, ducts, and fire sprinklers to eliminate potential conflicts.
- B. Coordinate requirements for blocking, construction of recesses, and auxiliary structural supports to ensure adequate means for installation of screens.
- C. Coordinate requirements for power supply, conduit, and wiring required for electric screen and controls.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Installation hardware: Provide attachment hardware, fasteners, and other components of type, size, and spacing recommended by manufacturer for complete, functional, secure installation of screens.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 22 40 00
PLUMBING FIXTURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Water closets.
2. Urinals.
3. Lavatories.
4. Sinks.
5. Kitchen sinks.
6. Insulation kit.
7. Drinking fountain.
8. Mop sinks.
9. Floor drains.
10. Floor sinks.
11. Water hammer arrestors.
12. Trap primers.
13. Hose bibbs.
14. Access panels.
15. Cleanouts.
16. Roof drain.
17. Roof overflow drain.
18. Roof receptor.

B. Related Sections:

1. Division 07 - Joint Protection: Product requirements for calking between fixtures and building components for placement by this section.
2. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections to sensor valves and faucets specified by this section.

1.02 REFERENCES

A. American National Standards Institute:

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.

B. Air-Conditioning and Refrigeration Institute:

1. ARI 1010 - Self-Contained, Mechanically Refrigerated Drinking-Water Coolers.

C. American Society of Mechanical Engineers:

1. ASME A112.6.1 - Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use.
2. ASME A112.18.1 - Plumbing Fixture Fittings.
3. ASME A112.19.1M - Enameled Cast Iron Plumbing Fixtures.
4. ASME A112.19.2M - Vitreous China Plumbing Fixtures.

5. ASME A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use).
6. ASME A112.19.5 - Trim for Water-Closet Bowls, Tanks and Urinals.

1.03 SUBMITTALS

- A. Division 01 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- C. Manufacturer's Installation Instructions: Submit installation methods and procedures.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.04 CLOSEOUT SUBMITTALS

- A. Division 01 - Execution and Closeout Requirements: Closeout procedures.
- B. Operation and Maintenance Data: Submit fixture, trim, exploded view and replacement parts lists.

1.05 QUALITY ASSURANCE

- A. Provide products requiring electrical connections listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and indicated.
- B. Maintain one copy of each document on site.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.07 PRE-INSTALLATION MEETINGS

- A. Division 01 - Administrative Requirements: Pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 - Product Requirements: Product storage and handling requirements.
- B. Accept fixtures on site in factory packaging. Inspect for damage.
- C. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.09 WARRANTY

- A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for plumbing fixtures.

1.10 EXTRA MATERIALS

- A. Division 01 - Execution and Closeout Requirements: Spare parts and maintenance products.
- B. Furnish two sets of faucet washers, flush valve service kits, and lavatory supply fittings.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS – FIXTURES

- A. American Standard
- B. Kohler
- C. Eljer

2.02 ACCEPTABLE MANUFACTURERS - FLUSH VALVES

- A. Sloan

2.03 ACCEPTABLE MANUFACTURERS - WATER CLOSET SEATS

- A. Olsonite
- B. Beneke
- C. Church

2.04 ACCEPTABLE MANUFACTURERS - FIXTURE CARRIERS

- A. J.R. Smith
- B. Zurn
- C. Josam

2.05 ACCEPTABLE MANUFACTURERS - FIXTURE TRIM

- A. Chicago Faucet

2.06 ACCEPTABLE MANUFACTURERS - MIXING VALVES (PRESSURE BALANCED)

- A. Symmons

- B. Leonard
- C. Powers

2.07 ACCEPTABLE MANUFACTURERS – DRINKING FOUNTAIN

- A. Sunroc
- B. Haws
- C. Elkay
- D. Zurn
- E. Josam

2.08 ACCEPTABLE MANUFACTURERS - FLOOR DRAINS

- A. J.R. Smith
- B. Zurn
- C. Josam

2.09 ACCEPTABLE MANUFACTURERS - FLOOR SINKS

- A. J.R. Smith
- B. Zurn
- C. Josam

2.10 ACCEPTABLE MANUFACTURERS - WATER HAMMER ARRESTORS

- A. J.R. Smith
- B. Zurn
- C. Josam

2.11 ACCEPTABLE MANUFACTURERS - TRAP PRIMERS

- A. J.R. Smith
- B. Zurn
- C. Josam

2.12 ACCEPTABLE MANUFACTURERS - HOSE BIBBS

- A. Acorn

B. Woodford

C. Josam

2.13 ACCEPTABLE MANUFACTURERS - CLEANOUTS

A. J.R. Smith

B. Zurn

C. Josam

2.14 ACCEPTABLE MANUFACTURERS - ROOF DRAINS

A. J.R. Smith

B. Zurn

C. Josam

2.15 ACCEPTABLE MANUFACTURERS - OVERFLOW DRAINS

A. J.R. Smith

B. Zurn

C. Josam

2.16 ACCEPTABLE MANUFACTURERS - ROOF RECEPTOR

A. J.R. Smith

B. Zurn

C. Josam

2.17 WATER CLOSET, WALL HUNG, NORMAL / ACCESSIBLE

A. Bowl: ANSI A112.19.2; siphon jet, vitreous china closet bowl with elongated rim and 1-1/2" spud. For model number see schedule on drawings.

B. Flush Valve: ANSI A112.19.2; exposed chrome plated, automatic sensor, hard wired 1.28 gallon per flush diaphragm type, escutcheon, vacuum breaker. For model number see schedule on drawings.

C. Seat: Solid elongated plastic open front with self-sustaining hinge, brass bolts. For model number see schedule on drawings.

D. Wall Mounted Carrier: ANSI A112.19.1; cast iron and steel frame, lugs for floor and wall attachment, threaded fixture studs for fixture hanger, bearing studs. For model number see schedule on drawings.

2.18 URINAL, WALL HUNG, NORMAL / ACCESSIBLE

- A. Urinal: ANSI A112.19.2; vitreous china, 1/8 gallon per flush, siphon jet with flushing rim, integral trap, 3/4 inch top spud. For model number see schedule on drawings. For mounting heights refer to Architectural drawings.
- B. Flush Valve: ANSI A112.18.1; exposed chrome plated, automatic sensor, hard wired .125 gallon per flush with escutcheon and vacuum breaker. For model number see schedule on drawings.
- C. Wall Mounted Carrier: ANSI A112.6.1; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded fixture studs for fixture hanger, bearing studs. For model number see schedule on drawings.

2.19 LAVATORY, WALL HUNG, ACCESSIBLE

- A. Basin: ANSI A112.19.2; vitreous china lavatory with 4 inch high back, drillings for 4 inch centers, and rectangular basin with splash lip front overflow. For model number see schedule on drawings.
- B. Trim: ANSI A112.18.1; chrome plated automatic sensor, hard wired faucet and strainer, chrome plated 17 gage L.A. pattern cast brass P-trap and arm with secured escutcheon and rigid supplies. For model number see schedule on drawings.
- C. Wall Mounted Carrier: ANSI A112.6.1; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, concealed arm supports, bearing plate and studs. For model number see schedule on drawings.

2.20 LAVATORY, COUNTER TOP, ACCESSIBLE

- A. Basin: ANSI A112.19.2; vitreous china unglazed rim for under counter mount, oval basin with front overflow. For model number see schedule on drawings.
- B. Trim: ANSI A112.18.1; chrome plated automatic sensor, hard wired faucet and strainer, chrome plated 17 gage L.A. pattern cast brass P-trap and arm with escutcheon, and rigid supplies. For model number see schedule on drawings.

2.21 INSULATION KIT

- A. Where lavatories or sinks are noted to be insulated for ADA compliance, furnish the following: Safety covers conforming to ANSI A177.1, ASTM E84-07 and consisting of insulation kit of molded closet cell vinyl construction, 3/16 inch thick, white color, for insulating tailpiece, P-trap, valves and supply piping. Furnish with weep hole and angle valve access covers.

2.22 SINK, SINGLE COMPARTMENT, ACCESSIBLE

- A. Bowl: ANSI A112.19.3; 6-1/2 inch deep bowl, 18 gage thick, Type 304 stainless steel, self-rimming with undercoating, single hole punching, 3-1/2 inch strainer, ledgeback drilled for trim. For model number see schedule on drawings.
- B. Trim: ANSI A112.18.1; chrome plated gooseneck spout fitting. Chrome plated 17 gage L.A. pattern cast brass P-trap and arm with escutcheon and supplies. For model number see schedule on drawings.

2.23 SINK, DOUBLE COMPARTMENT, ACCESSIBLE

- A. Bowl: ANSI A112.19.3; 18 gage thick, 6-1/2" deep bowl, Type 304 stainless steel, self-rimming with undercoating, three hole punching, 3-1/2 inch strainer on right and strainer on left bowl, ledgeback drilled for trim, disposer under right bowl. For model number see schedule on drawings.
- B. Trim: ANSI A112.18.1; chrome plated gooseneck spout. Chrome plated 17 gage L.A. Pattern cast brass P-trap and arm with escutcheon, rigid supplies. For model number see schedule on drawings.

2.24 DRINKING FOUNTAIN

- A. Fountain: Stainless steel wall-mounted, Hi-Low type accessible, vandal-resistant bubbler with push bar action and 1-1/4 inch P-trap. For model number see schedule on drawings.

2.25 MOP SINK, FLOOR MOUNTED

- A. Bowl: Enameled cast iron, with 3" IPS drain and flat chrome strainer and vinyl rim guard. For model number see schedule on drawings.
- B. Trim: ANSI A112.18.1; chrome plated fitting with vacuum breaker, pail hook and hose thread outlet. For model number see schedule on drawings.

2.26 ACCESS PANELS

- A. 12" x 12" No. 4 finish stainless steel flush type, locate and set after review. Steel door and frame with metal flange with concealed hinges and screwdriver operated stainless steel cam lock. Karp style DSC-214M for fire rated construction use KRP-150FR with ring turn lock.

2.27 CLEANOUTS

- A. Exterior Surfaced Areas C.O.Y.B.: Round cast nickel bronze access frame and non-skid cover; see Schedule on drawings for Model number.
- B. Exterior Unsurfaced Areas G.C.O.: Line type with lacquered cast iron body and round epoxy coated gasketed cover; see Schedule on drawings for Model number.
- C. Interior Finished Floor Areas F.C.O.: Lacquered cast iron, two piece body with double drainage flange, weep holes, reversible clamping collar and adjustable nickel-bronze strainer, round with scoriated cover in service areas and round with depressed cover to accept floor finish in finished floor areas; see Schedule on drawings for Model number.
- D. Interior Finished Wall Areas W.C.O.: Line type with lacquered cast iron body and round epoxy coated gasketed cover and round stainless steel access cover secured with machine screw; see Schedule on drawings for Model number.

2.28 FLOOR DRAINS

- A. ANSI A112.21.1; lacquered cast iron two piece body with double drainage flange, weep holes, reversible clamping collar, round, adjustable polished nickel-bronze strainer; and trap primer connection; see Schedule on drawings for Model number.

2.29 FLOOR SINKS

- A. Square lacquered cast iron body with integral seepage pan, epoxy coated interior, aluminum dome strainer, clamp collar and nickel bronze frame; see Schedule on drawings for Model number.

2.30 TRAP PRIMERS

- A. ANSI A112.26; manauak type, cast bronze with 1/2-inch connection. See Schedule on drawings for Model number.
- B. Electroic type, provide a trap primer enclosed in a 12" x 12" x 4" NEMA-1 enclosure, with a 1/2" inch NPT female inlet complying with ANSI/ASME B1.20.1, outlet shall be 1/2" inch compression fitting, provide with circuit breaker, switch, timer, manual override, solenoid valve marked as UL Listed, electronic assembly tested and certified per UL #73, and backflow device anti-siphon atmospheric vacuum breaker IAPMO, ASSE 1001 and CSA. Provide in accordance with ASSE Standard No. 1018. See schedule on the drawings for model number.

2.31 HOSE BIBBS

- A. Provide recessed box, having one piece cast construction, stainless steel wall flange with a satin finish. The door shall be provided with a cam lock. Valves shall be cast bronze, exposed parts chrome-plated, tamper resistant lockshield bonnet and replaceable cartridge, 3/4 inch inlet for cold, and 3/4 inch outlet with vacuum breaker, See Schedules for Model No.

2.32 ACCEPTABLE MANUFACTURERS - ROOF DRAINS

- A. ANSI A112.21.2; lacquered cast iron body with sump, removable cast iron dome strainer, membrane flange and membrane clamp with integral gravel stop with adjustable underdeck clamp roof sump receiver waterproofing flange leveling frame adjustable extension sleeve (for insulation) or perforated or slotted ballast guard extension for inverted roof; see Schedule on drawings for Model number.

2.33 ACCEPTABLE MANUFACTURERS - OVERFLOW DRAINS

- A. Lacquered cast iron body and clamp collar and bottom clamp ring; cast iron dome; pipe extended to 2 inches above flood elevation; see Schedule on drawings for Model number.

2.34 ACCEPTABLE MANUFACTURERS - ROOF RECEPTOR

- A. ANSI A112.21.1; roof receptor, cast iron with large sump and flange, no-hub outlet, removable dome and sediment cup, 2 inches high solid water dam, non-puncturing flashing clamp device integral with gravel stop, sump receiver and underdeck clamp; see Schedule on drawings for Model number.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Division 01 - Administrative Requirements: Coordination and project conditions.
- B. Verify walls and floor finishes are prepared and ready for installation of fixtures.

- C. Confirm millwork is constructed with adequate provision for installation of counter top lavatories and sinks.

3.02 PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.
- C. Install components level and plumb.
- D. Install and secure fixtures in place with wall carriers and bolts.
- E. Seal fixtures to wall and floor surfaces with sealant as specified in Division 07, color to match fixture.
- F. Solidly attach water closets to floor with lag screws. Lead flashing is not intended hold fixture in place.
- G. For ADA accessible water closets, install flush lever with handle to wide side of stall.

3.04 INTERFACE WITH OTHER PRODUCTS

- A. Review millwork shop-drawings. Confirm location and size of fixtures and openings before rough in and installation.

3.05 ADJUSTING

- A. Division 01 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.06 CLEANING

- A. Division 01 - Execution and Closeout Requirements: Final cleaning.
- B. Clean plumbing fixtures and equipment.

3.07 PROTECTION OF INSTALLED CONSTRUCTION

- A. Division 01 - Execution and Closeout Requirements: Protecting installed construction.
- B. Do not permit use of fixtures before final acceptance.

END OF SECTION

SECTION 23 07 00**HVAC INSULATION****PART 1 GENERAL****1.01 SUMMARY****A. Section Includes:**

1. HVAC piping insulation, jackets and accessories.
2. HVAC equipment insulation, jackets and accessories.
3. HVAC ductwork insulation, jackets, and accessories.

B. Related Sections:

1. Division 07 - Firestopping: Product requirements for firestopping for placement by this section.
2. Division 09 - Painting and Coating: Execution requirements for painting insulation jackets and covering specified by this section.

1.02 REFERENCES**A. ASTM International:**

1. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement.
2. ASTM C449/C449M - Standard Specification for Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement.
3. ASTM C450 - Standard Practice for Fabrication of Thermal Insulating Fitting Covers for NPS Piping, and Vessel Lagging.
4. ASTM C533 - Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation.
5. ASTM C534 - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.
6. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation.
7. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
8. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
9. ASTM C585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System).
10. ASTM C591 - Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
11. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
12. ASTM C921 - Standard Practice for Determining the Properties of Jacketing Materials for Thermal Insulation.
13. ASTM C1071 - Standard Specification for Thermal and Acoustical Insulation (Glass Fiber, Duct Lining Material).
14. ASTM C1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.
15. ASTM C1290 - Standard Specification for Flexible Fibrous Glass Blanket Insulation Used to Externally Insulate HVAC Ducts.
16. ASTM D1785 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

17. ASTM D4637 - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.
18. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.
19. ASTM E162 - Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.

B. Sheet Metal and Air Conditioning Contractors':

1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

C. Underwriters Laboratories Inc.:

1. UL 1978 - Standard for Safety for Grease Ducts.

1.03 SUBMITTALS

- A. Division 01 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit product description, thermal characteristics and list of materials and thickness for each service, and location.
- C. Samples: Submit two samples of representative size illustrating each insulation type.
- D. Manufacturer's Installation Instructions: Submit manufacturers published literature indicating proper installation procedures.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.04 QUALITY ASSURANCE

- A. Test pipe insulation for maximum flame spread index of 25 and maximum smoke developed index of not exceeding 50 in accordance with ASTM E84.
- B. Pipe insulation manufactured in accordance with ASTM C585 for inner and outer diameters.
- C. Factory fabricated fitting covers manufactured in accordance with ASTM C450.
- D. Duct insulation, Coverings, and Linings: Maximum 25/50 flame spread/smoke developed index, when tested in accordance with ASTM E84, using specimen procedures and mounting procedures of ASTM E 2231.

1.05 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Applicator: Company specializing in performing Work of this section with minimum five years documented experience.

1.06 PRE-INSTALLATION MEETINGS

- A. Division 01 - Administrative Requirements: Pre-installation meeting.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.
- C. Protect insulation from weather and construction traffic, dirt, water, chemical, and damage, by storing in original wrapping.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Division 01 - Product Requirements: Environmental conditions affecting products on site.
- B. Install insulation only when ambient temperature and humidity conditions are within range recommended by manufacturer.

1.09 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.10 WARRANTY

- A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 PRODUCTS**2.01 MANUFACTURER**

- A. Manufacturers for Glass Fiber and Mineral Fiber Insulation Products:
 - 1. CertainTeed.
 - 2. Knauf.
 - 3. Johns Manville.
 - 4. Owens-Corning.
- B. Manufacturers for Closed Cell Elastomeric Insulation Products:
 - 1. Aeroflex. Aerocell.
 - 2. Armacell, LLC. Armaflex.
 - 3. Nomaco. K-flex.
- C. Manufacturers for Polyisocyanurate Foam Insulation Products:
 - 1. Dow Chemical Company.
 - 2. Substitutions: Division 01 - Product Requirements.
- D. Manufacturers for Extruded Polystyrene Insulation Products:
 - 1. Dow Chemical Company.
 - 2. Substitutions: Division 01 - Product Requirements.

2.02 PIPE INSULATION

- A. TYPE P-1: ASTM C547, molded glass fiber pipe insulation.
 - 1. Thermal Conductivity: 0.23 at 75 degrees F.
 - 2. Operating Temperature Range: 0 to 850 degrees F.
 - 3. Vapor Barrier Jacket: ASTM C1136, Type I, factory applied reinforced foil kraft with self-sealing adhesive joints.
 - 4. Jacket Temperature Limit: minus 20 to 150 degrees F.

- B. TYPE P-2: ASTM C547, molded glass fiber pipe insulation.
 - 1. Thermal Conductivity: 0.23 at 75 degrees F.
 - 2. Operating Temperature Range: 0 to 850 degrees F.

- C. TYPE P-3: ASTM C612; semi-rigid, fibrous glass board noncombustible, end grain adhered to jacket.
 - 1. Thermal Conductivity: 0.27 at 75 degrees F.
 - 2. Operating Temperature Range: 0 to 650 degrees F.
 - 3. Vapor Barrier Jacket: ASTM C1136, Type II, factory applied reinforced foil kraft with self-sealing adhesive joints.
 - 4. Jacket Temperature Limit: minus 20 to 150 degrees F.

- D. TYPE P-4: ASTM C612; semi-rigid, fibrous glass board noncombustible.
 - 1. Thermal Conductivity: 0.27 at 75 degrees F.
 - 2. Operating Temperature Range: 0 to 650 degrees F.

- E. TYPE P-5: ASTM C534, Type I, flexible, closed cell elastomeric insulation, tubular.
 - 1. Thermal Conductivity: 0.27 at 75 degrees F.
 - 2. Operating Temperature Range: Range: Minus 70 to 180 degrees F.

- F. TYPE P-6: ASTM C534, Type I, flexible, closed cell elastomeric insulation, tubular.
 - 1. Thermal Conductivity: 0.30 at 75 degrees F.
 - 2. Maximum Service Temperature: 300 degrees F.
 - 3. Operating Temperature Range: Range: Minus 58 to 300 degrees F.

- G. TYPE P-7: ASTM C534, Type I, flexible, nonhalogen, closed cell elastomeric insulation, tubular.
 - 1. Thermal Conductivity: 0.27 at 75 degrees F.
 - 2. Maximum Service Temperature: 250 degrees F.
 - 3. Operating Temperature Range: Range: Minus 58 to 250 degrees F.

- H. TYPE P-8: ASTM C547, Type I or II, mineral fiber preformed pipe insulation, noncombustible.
 - 1. Thermal Conductivity: 0.23 at 75 degrees F.
 - 2. Maximum Service Temperature: 1200 degrees F.
 - 3. Canvas Jacket: UL listed, 6 oz/sq yd, plain weave cotton fabric treated with fire retardant lagging adhesive.

- I. TYPE P-11: ASTM C533; Type I, hydrous calcium silicate pipe insulation, rigid molded white; asbestos free.
 - 1. Thermal Conductivity: 0.45 at 200 degrees F.
 - 2. Operating Temperature Range: 140 to 1200 degrees F.

2.03 PIPE INSULATION JACKETS

A. Vapor Retarder Jacket:

- 1. ASTM C921, white Kraft paper with glass fiber yarn, bonded to aluminized film.
- 2. Water Vapor Permeance: ASTM E96/E96M; 0.02 perms.

B. PVC Plastic Pipe Jacket:

- 1. Product Description: ASTM D1785, One piece molded type fitting covers and sheet material, off-white color.
- 2. Thickness: 10 mil.
- 3. Connections: Brush on welding adhesive and tacks.

C. ABS Plastic Pipe Jacket:

- 1. Jacket: One piece molded type fitting covers and sheet material, off-white color.
- 2. Minimum service temperature: 0 degrees F.
- 3. Maximum service temperature of 180 degrees F.
- 4. Water Vapor Permeance: ASTM E96/E96M; 0.02 perms.
- 5. Thickness: 30 mil.
- 6. Connections: Brush on welding adhesive.

D. Aluminum Pipe Jacket:

- 1. ASTM B209.
- 2. Thickness: 0.025 inch thick sheet.
- 3. Finish: Smooth.
- 4. Joining: Longitudinal slip joints and 2 inch laps with caulking.
- 5. Fittings: 0.025 inch thick die shaped fitting covers with factory attached protective liner.
- 6. Metal Jacket Bands: 1/2 inch wide; 0.010 inch thick stainless steel.

2.04 PIPE INSULATION ACCESSORIES

- A. Vapor Retarder Lap Adhesive: Compatible with insulation.
- B. Covering Adhesive Mastic: Compatible with insulation.
- C. Piping 1-1/2 inches diameter and smaller: Galvanized steel insulation protection shield. MSS SP-69, Type 40. Length: Based on pipe size and insulation thickness.
- D. Piping 2 inches diameter and larger: Wood insulation saddle, hard maple. Inserts length: not less than 6 inches long, matching thickness and contour of adjoining insulation.
- E. Closed Cell Elastomeric Insulation Pipe Hanger: Polyurethane insert with stainless steel jacket single piece construction with self-adhesive closure. Thickness to match pipe insulation.

- F. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
- G. Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement: ASTM C449/C449M.
- H. Insulating Cement: ASTM C195; hydraulic setting on mineral wool.
- I. Adhesives: Compatible with insulation.

2.05 EQUIPMENT INSULATION

- A. TYPE E-1: ASTM C553; glass fiber, flexible or semi-rigid, noncombustible.
 - 1. Thermal Conductivity: 0.24 at 75 degrees F.
 - 2. Operating Temperature Range: 0 to 450 degrees F.
 - 3. Density: 1.5 pound per cubic foot.
- B. TYPE E-2: ASTM C612; glass fiber, rigid board, noncombustible with factory applied kraft reinforced aluminum foil jacket.
 - 1. Thermal Conductivity: 0.24 at 75 degrees F.
 - 2. Operating Temperature Range: 0 to 450 degrees F.
 - 3. Density: 3.0 pound per cubic foot.
 - 4. Jacket Temperature Limit: minus 20 to 150 degrees F.
- C. TYPE E-3: ASTM C612; semi-rigid, fibrous glass board noncombustible, end grain adhered to jacket.
 - 1. Thermal Conductivity: 0.27 at 75 degrees F.
 - 2. Operating Temperature Range: 0 to 650 degrees F.
 - 3. Vapor Barrier Jacket: ASTM C1136, Type II, factory applied reinforced foil kraft with self-sealing adhesive joints.
 - 4. Jacket Temperature Limit: minus 20 to 150 degrees F.
- D. TYPE E-4: ASTM C612; semi-rigid, fibrous glass board noncombustible.
 - 1. Thermal Conductivity: 0.27 at 75 degrees F.
 - 2. Operating Temperature Range: 0 to 650 degrees F.
- E. TYPE E-5: ASTM C612; glass fiber, semi-rigid board, noncombustible.
 - 1. Thermal Conductivity: 0.23 at 75 degrees F.
 - 2. Maximum Operating Temperature: 850 degrees F.
 - 3. Density: 3.0 pound per cubic foot.
- F. TYPE E-6: ASTM C553; mineral fiber blanket, Type I.
 - 1. Thermal Conductivity: 0.27 at 75 degrees F.
 - 2. Maximum Operating Temperature: 1000 degrees F.
 - 3. Density: 1.0 pound per cubic foot.
- G. TYPE E-7: ASTM C533; Type II, hydrous calcium silicate block insulation, asbestos free.
 - 1. Thermal Conductivity: 0.45 at 200 degrees F.

2. Operating Temperature Range: 140 to 1200 degrees F.
- H. TYPE E-8: ASTM C534, Type II, flexible, closed cell elastomeric insulation, sheet.
1. Thermal Conductivity: 0.27 at 75 degrees F.
 2. Operating Temperature Range: Range: Minus 70 to 220 degrees F.
- I. TYPE E-9: ASTM C612, manmade mineral fiber, noncombustible, Classes 1-4.
1. Thermal Conductivity: 0.25 at 100 degrees F.
 2. Maximum Service Temperature: 1200 degrees F.
 3. Density: 6 pound per cubic foot.

2.06 EQUIPMENT INSULATION JACKETS

- A. PVC Plastic Equipment Jacket:
1. Product Description: ASTM D1785, sheet material, off-white color.
 2. Minimum Service Temperature: 0 degrees F.
 3. Maximum Service Temperature: 150 degrees F.
 4. Water Vapor Permeance: ASTM E96/E96M; 0.02 perms.
 5. Thickness: 20 mil.
 6. Connections: Brush on welding adhesive and tacks.
- B. Aluminum Equipment Jacket:
1. ASTM B209 Thickness: 0.025 inch thick sheet.
 2. Finish: Smooth.
 3. Joining: Longitudinal slip joints and 2 inch laps.
 4. Fittings: 0.016 and 0.025 inch thick die shaped fitting covers with factory attached protective liner.
 5. Metal Jacket Bands: 3/8 inch wide; 0.010 inch thick stainless steel.
- C. Canvas Equipment Jacket: UL listed, 6 oz/sq yd, plain weave cotton fabric with fire retardant lagging adhesive compatible with insulation.
- D. Vapor Retarder Jacket:
1. ASTM C921, white Kraft paper with glass fiber yarn, bonded to aluminized film.
 2. Water Vapor Permeance: ASTM E96/E96M; 0.02 perms.

2.07 EQUIPMENT INSULATION ACCESSORIES

- A. Vapor Retarder Lap Adhesive: Compatible with insulation.
- B. Covering Adhesive Mastic: Compatible with insulation.
- C. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
- D. Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement: ASTM C449/C449M.
- E. Adhesives: Compatible with insulation.

2.08 DUCTWORK INSULATION

- A. TYPE D-1: ASTM C1290, Type III, flexible glass fiber, commercial grade with factory applied reinforced aluminum foil jacket meeting ASTM C1136, Type II.
 - 1. Thermal Conductivity: 0.25 at 75 degrees F.
 - 2. Maximum Operating Temperature: 250 degrees F.
 - 3. Density: 1.5 pound per cubic foot.
- B. TYPE D-2: ASTM C612, Type IA or IB, rigid glass fiber, with factory applied reinforced aluminum foil facing meeting ASTM C1136, Type II.
 - 1. Thermal Conductivity: 0.22 at 75 degrees F.
 - 2. Density: 3.0 pound per cubic foot.
- C. TYPE D-4: ASTM C1071, Type I, flexible, glass fiber duct liner with coated air side.
 - 1. Thermal Conductivity: 0.24 at 75 degrees F.
 - 2. Density: 1.5 pound per cubic foot.
 - 3. Maximum Operating Temperature: 250 degrees F.
 - 4. Maximum Air Velocity: 6,000 feet per minute.
- D. TYPE D-5: ASTM C1071, Type II, rigid, glass fiber duct liner with coated air side.
 - 1. Thermal Conductivity: 0.23 at 75 degrees F.
 - 2. Density: 3.0 pound per cubic foot.
 - 3. Maximum Operating Temperature: 250 degrees F.
 - 4. Maximum Air Velocity: 4,000 feet per minute.

2.09 DUCTWORK INSULATION JACKETS

- A. Exterior Ductwork: Provide dual wall ductwork with specified insulation per Section 23 321 00.
- B. Vapor Retarder Jacket:
 - 1. Kraft paper with glass fiber yarn and bonded to aluminized film.
 - 2. Water Vapor Permeance: ASTM E96/E96M; 0.02 perms.
 - 3. Secure with pressure sensitive tape.
- C. Canvas Duct Jacket: UL listed, 6 oz/sq yd, plain weave cotton fabric with fire retardant lagging adhesive compatible with insulation.

2.10 DUCTWORK INSULATION ACCESSORIES

- A. Vapor Retarder Tape: Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.
- B. Vapor Retarder Lap Adhesive: Compatible with insulation.
- C. Adhesive: Waterproof, ASTM E162 fire-retardant type.
- D. Liner Fasteners: Galvanized steel, welded with press-on head.

- E. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
- F. Lagging Adhesive: Fire retardant type with maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- G. Impale Anchors: Galvanized steel, 12 gage self-adhesive pad.
- H. Adhesives: Compatible with insulation.
- I. Membrane Adhesives: As recommended by membrane manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Division 01 - Administrative Requirements: Coordination and project conditions.
- B. Verify piping, equipment and ductwork has been pressure tested before applying insulation materials.
- C. Verify surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION - PIPING SYSTEMS

- A. Piping Exposed to View in Finished Spaces: Locate insulation and cover seams in least visible locations.
- B. Continue insulation through penetrations of building assemblies or portions of assemblies having fire resistance rating of one hour or less. Provide intumescent firestopping when continuing insulation through assembly. Finish at supports, protrusions, and interruptions. Refer to Division 07 for penetrations of assemblies with fire resistance rating greater than one hour.
- C. Piping Systems Conveying Fluids Below Ambient Temperature:
 - 1. Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
 - 2. Furnish factory-applied or field-applied vapor retarder jackets. Secure factory-applied jackets with pressure sensitive adhesive self-sealing longitudinal laps and butt strips. Secure field-applied jackets with outward clinch expanding staples and seal staple penetrations with vapor retarder mastic.
 - 3. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor retarder adhesive or PVC fitting covers.
- D. Glass Fiber Board Insulation:
 - 1. Apply insulation close to equipment by grooving, scoring, and beveling insulation. Fasten insulation to equipment with studs, pins, clips, adhesive, wires, or bands.
 - 2. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor retarder cement.
 - 3. Cover wire mesh or bands with cement to a thickness to remove surface irregularities.

E. Hot Piping Systems less than 140 degrees F:

1. Furnish factory-applied or field-applied standard jackets. Secure with outward clinch expanding staples or pressure sensitive adhesive system on standard factory-applied jacket and butt strips or both.
2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
3. Do not insulate unions and flanges at equipment, but bevel and seal ends of insulation at such locations.

F. Hot Piping Systems greater than 140 degrees F:

1. Furnish factory-applied or field-applied standard jackets. Secure with outward clinch expanding staples or pressure sensitive adhesive system on standard factory-applied jacket and butt strips or both.
2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
3. Insulate flanges and unions at equipment.

G. Inserts and Shields:

1. Piping 1-1/2 inches Diameter and Smaller: Install galvanized steel shield between pipe hanger and insulation.
2. Piping 2 inches Diameter and Larger: Install insert between support shield and piping and under finish jacket.
 - a. Insert Configuration: Minimum 6 inches long, of thickness and contour matching adjoining insulation; may be factory fabricated.
 - b. Insert Material: Compression resistant insulating material suitable for planned temperature range and service.

H. Insulation Terminating Points:

1. Coil Branch Piping 1 inch and Smaller: Terminate hot water piping at union upstream of the coil control valve.
2. Chilled Water Coil Branch Piping: Insulate chilled water piping and associated components up to coil connection.
3. Condensate Piping: Insulate entire piping system and components to prevent condensation.

I. Closed Cell Elastomeric Insulation:

1. Push insulation on to piping.
2. Miter joints at elbows.
3. Seal seams and butt joints with manufacturer's recommended adhesive.
4. When application requires multiple layers, apply with joints staggered.
5. Insulate fittings and valves with insulation of like material and thickness as adjacent pipe.

J. High Temperature Pipe Insulation:

1. Install in multiple layers to meet thickness scheduled.
2. Attach each layer with bands. Secure first layer with bands before installing next layer.
3. Stagger joints between layers.
4. Cover with aluminum jacket with seams located on bottom side of horizontal piping.

- K. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces (less than 10 feet above finished floor): Finish with canvas jacket sized for finish painting.
- L. Piping Exterior to Building: Provide vapor retarder jacket. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe, and finish with glass mesh reinforced vapor retarder cement. Cover with aluminum jacket with seams located at 3 or 9 o'clock position on side of horizontal piping with overlap facing down to shed water or on bottom side of horizontal piping.
- M. Buried Piping: Insulate only where insulation manufacturer recommends insulation product may be installed in trench, tunnel or direct buried. Install factory fabricated assembly with inner all-purpose service jacket with self-sealing lap, and asphalt impregnated open mesh glass fabric, with 1 mil thick aluminum foil sandwiched between three layers of bituminous compound; outer surface faced with polyester film.
- N. Prepare pipe insulation for finish painting. Refer to Division 09.

3.03 INSTALLATION - EQUIPMENT

- A. Factory Insulated Equipment: Do not insulate.
- B. Exposed Equipment: Locate insulation and cover seams in least visible locations.
- C. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor retarder cement.
- D. Equipment Containing Fluids Below Ambient Temperature:
 1. Insulate entire equipment surfaces.
 2. Apply insulation close to equipment by grooving, scoring, and beveling insulation. Fasten insulation to equipment with studs, pins, clips, adhesive, wires, or bands.
 3. Furnish factory-applied or field-applied vapor retarder jackets. Secure factory-applied jackets with pressure sensitive adhesive self-sealing longitudinal laps and butt strips. Secure field-applied jackets with outward clinch expanding staples and seal staple penetrations with vapor retarder mastic.
 4. Finish insulation at supports, protrusions, and interruptions.
- E. Equipment Containing Fluids 140 degrees F Or Less:
 1. Do not insulate flanges and unions, but bevel and seal ends of insulation.
 2. Install insulation with factory-applied or field applied jackets, with or without vapor barrier. Finish with glass cloth and adhesive.
 3. Finish insulation at supports, protrusions, and interruptions.
- F. Equipment Containing Fluids Over 140 degrees F:
 1. Insulate flanges and unions with removable sections and jackets.
 2. Install insulation with factory-applied or field applied jackets, with or without vapor barrier. Finish with glass cloth and adhesive.
 3. Finish insulation at supports, protrusions, and interruptions.
- G. Equipment in Mechanical Equipment Rooms or Finished Spaces: Finish with canvas jacket sized for finish painting.

- H. Equipment Located Exterior to Building: Install vapor barrier jacket or finish with glass mesh reinforced vapor barrier cement. Cover with aluminum jacket with seams located on bottom side of horizontal equipment.
- I. Nameplates and ASME Stamps: Bevel and seal insulation around; do not cover with insulation.
- J. Equipment Requiring Access for Maintenance, Repair, or Cleaning: Install insulation for easy removal and replacement without damage.
- K. Prepare equipment insulation for finish painting. Refer to Division 09.

3.04 INSTALLATION - DUCTWORK SYSTEMS

- A. Duct dimensions indicated on Drawings are finished inside dimensions.
- B. Insulated ductwork conveying air below ambient temperature:
 1. Provide insulation with vapor retarder jackets.
 2. Finish with tape and vapor retarder jacket.
 3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
 4. Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.
- C. Insulated ductwork conveying air above ambient temperature:
 1. Provide with or without standard vapor retarder jacket.
 2. Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.
- D. Ductwork Exposed in Mechanical Equipment Rooms or Finished Spaces (below 10 feet above finished floor): Finish with canvas jacket sized for finish painting.
- E. External Glass Fiber Duct Insulation:
 1. Secure insulation with vapor retarder with wires and seal jacket joints with vapor retarder adhesive or tape to match jacket.
 2. Secure insulation without vapor retarder with staples, tape, or wires.
 3. Install without sag on underside of ductwork. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift ductwork off trapeze hangers and insert spacers.
 4. Seal vapor retarder penetrations by mechanical fasteners with vapor retarder adhesive.
 5. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.
- F. External Elastomeric Duct Insulation:
 1. Adhere to clean oil-free surfaces with full coverage of adhesive.
 2. Seal seams and butt joints with manufacturer's recommended adhesive.
 3. When application requires multiple layers, apply with joints staggered.
 4. Insulate standing metal duct seams with insulation of like material and thickness as adjacent duct surface. Apply adhesive at joints with flat duct surfaces.
 5. Lift ductwork off trapeze hangers and insert spacers.

G. Duct and Plenum Liner:

1. Adhere insulation with adhesive for 100 percent coverage.
2. Secure insulation with mechanical liner fasteners. Comply with SMACNA Standards for spacing.
3. Seal and smooth joints. Seal and coat transverse joints.
4. Seal liner surface penetrations with adhesive.
5. Cut insulation for tight overlapped corner joints. Support top pieces of liner at edges with side pieces.

H. Ducts Exterior to Building:

1. Install insulation according to schedule below.
2. Provide external insulation with vapor retarder jacket. Cover with caulked aluminum jacket with seams located on bottom side of horizontal duct section.
3. Calk seams at flanges and joints. Located major longitudinal seams on bottom side of horizontal duct sections.

- I. Prepare duct insulation for finish painting. Refer to Division 09.

3.05 SCHEDULES

A. Cooling Services Piping Insulation Schedule:

PIPING SYSTEM	INSULATION TYPE	PIPE SIZE	INSULATION THICKNESS inches
Chilled Water Supply and Return [40 to 60 degrees F]	P-1	1-1/4 inches and smaller	0.5
		1-1/2 inches inch and larger	1.0
Condensate Piping from Cooling Coils	P-5	All sizes	0.5
Refrigerant Suction	P-5	All sizes	1.0
Refrigerant Hot Gas	P-5	All sizes	1.0

B. Heating Services Piping Insulation Schedule:

PIPING SYSTEM	INSULATION TYPE	PIPE SIZE	INSULATION THICKNESS inches
Heating Water Supply and Return 141 to 200 degrees F	P-1		1.5

C. Ductwork Insulation Schedule:

DUCTWORK SYSTEM	INSULATION TYPE	INSULATION THICKNESS inches
Supply Ducts (internally insulated)	D-4, D-5	1.0
Return Ducts (internally insulated)	D-4, D-5	1.0
Supply Ducts (externally insulated)	D-1	1.5
Return Ducts (externally insulated)	D-1	1.5
Supply Air, Return Air (exterior to building on roof)	D-2, D-7	2.0
Transfer Air Ducts (internally insulated)	D-5	1.0

END OF SECTION

SECTION 23 64 11**AIR COOLED WATER CHILLERS****PART 1 GENERAL****1.01 SUMMARY**

- A. Section includes chiller package, charge of refrigerant and oil, controls and control connections, chilled water connections, auxiliary water connections, starters.
- B. Related Sections:
 - 1. Section 23 09 93 – Energy Management System.
 - 2. Section 23 21 13 - Hydronic Piping.
 - 3. Section 23 21 16 - Hydronic Piping Specialties.
 - 4. Section 23 23 00 - Refrigerant Piping.
 - 5. Section 26 05 03 - Equipment Wiring Connections.

1.02 REFERENCES

- A. Air-Conditioning and Refrigeration Institute:
 - 1. ARI 550/590 - Water Chilling Packages Using the Vapor Compression Cycle.
- B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
 - 1. ASHRAE 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.
- C. American Society of Mechanical Engineers:
 - 1. ASME Section VIII - Boiler and Pressure Vessel Code - Pressure Vessels.
- D. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.03 DEFINITIONS

- A. Coefficient of Performance (COP) - cooling: The ratio of the rate of heat removal to the rate of energy input, in consistent units, for a complete refrigerating system or some specific portion of that system under designated operating conditions.
- B. Integrated Part-Load Value (IPLV): A single-number figure of merit based on part-load EER, COP, or kW/ton expressing part-load efficiency for air-conditioning and heat pump equipment on the basis of weighted operation at various load capacities for the equipment.

1.04 SUBMITTALS

- A. Division 01 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate components, assembly, dimensions, weights and loads, required clearances, and location and size of field connections. Indicate valves, strainers, and thermostatic valves required for complete system.
- C. Product Data: Submit rated capacities, weights, specialties and accessories, electrical requirements, wiring diagrams, and control diagrams.
- D. Manufacturer's Installation Instructions: Submit assembly, support details, connection requirements, and include startup instructions.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements including those furnished but not produced by manufacturer.
- F. Manufacturer's Field Reports: Submit start-up report. Indicate results of leak test and refrigerant pressure test.

1.05 CLOSEOUT SUBMITTALS

- A. Division 01 - Execution and Closeout Requirements: Closeout procedures.
- B. Operation and Maintenance Data: Submit start-up instructions, maintenance data, parts lists, controls, and accessories. Include trouble-shooting guide.

1.06 QUALITY ASSURANCE

- A. Products shall be Designed, Tested, Rated and Certified in accordance with, and installed in compliance with applicable sections of the following Standards and Codes:
 1. ANSI/ASHRAE Standard 15 – Safety Code for Mechanical Refrigeration
 2. ASHRAE 90.1 – Energy Efficiency compliance.
 3. ANSI/NFPA Standard 70 – *National Electrical Code* (NEC).
 4. ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.
 5. ARI Standard 550/590 – Positive Displacement Compressors and Air Cooled Rotary Screw Water-Chilling Packages.
 6. Conform to Intertek Testing Services, formerly ETL, for construction of chillers and provide ETL/cETL Listing label.
 7. Manufactured in facility registered to ISO 9002.
 8. OSHA – Occupational Safety and Health Act.
- B. Factory Test: Chiller shall be pressure-tested, evacuated and fully charged with refrigerant and oil, and shall be factory operational run tested with water flowing through the vessel. Maintain one copy of each document on site.
- C. Chiller manufacturer shall have a factory trained and supported service organization that is within a 50 mile radius of the site.
- D. Warranty: Manufacturer shall Warrant all equipment and material of its manufacture against defects in workmanship and material for a period of one year from date of initial start-up or eighteen (18) months from date of shipment, whichever occurs first.

1.07 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years documented experience approved by manufacturer.

1.08 PRE-INSTALLATION MEETINGS

- A. Division 01 - Administrative Requirements: Pre-installation meeting.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Unit shall be delivered to job site fully assembled and charged with refrigerant and oil by the Manufacturer.
- B. Unit shall be stored and handled per Manufacturer's instructions.
- C. Protect the chiller and its accessories from the weather and dirt exposure during shipment.
- D. During shipment, provide protective covering over vulnerable components. Fit nozzles and open ends with plastic enclosures.

1.10 MAINTENANCE SERVICE

- A. Division 01 - Execution and Closeout Requirements: Requirements for maintenance service.
- B. Furnish service and maintenance of chiller for one year from Date of Substantial Completion.

- C. Examine unit components monthly. Clean, adjust, and lubricate equipment.
- D. Include systematic examination, adjustment, and lubrication of unit, and controls checkout and adjustments. Repair or replace parts in accordance with manufacturer's operating and maintenance data. Use parts produced by manufacturer of original equipment.
- E. Perform work without removing units from service during building normal occupied hours.
- F. Provide emergency call back service during working hours for this maintenance period.
- G. Maintain locally, near Place of the Work, adequate stock of parts for replacement or emergency purposes. Have personnel available to ensure fulfillment of this maintenance service, without unreasonable loss of time.
- H. Perform maintenance work using competent and qualified personnel under supervision of manufacturer or original installer.
- I. Do not assign or transfer maintenance service to agent or subcontractor without prior written consent of Owner.

1.11 MAINTENANCE MATERIALS

- A. Division 01 - Execution and Closeout Requirements: Spare parts and maintenance products.
- B. Furnish two containers of lubricating oil.

PART 2 PRODUCTS

2.01 PACKAGED WATER CHILLERS

- A. Manufacturers:
 - 1. York.
 - 2. Carrier.

2.02 CHILLER MATERIALS AND COMPONENTS

- A. General: Install and commission, as shown on the schedules and plans, factory assembled, charged, and tested air cooled scroll compressor chiller as specified herein. Chiller shall be designed, selected, and constructed using a refrigerant with Flammability rating of "1", as defined by ANSI/ASHRAE STANDARD - 34 Number Designation and Safety Classification of Refrigerants. Chiller shall include, but is not limited to: a complete system with a single refrigerant circuit 35 tons (123kW) and below, and not less than two refrigerant circuits above 35 tons (123kW), scroll compressors, direct expansion type evaporator, air-cooled condenser, refrigerant, lubrication system, interconnecting wiring, safety and operating controls including capacity controller, control center, motor starting components, and special features as specified herein or required for safe, automatic operation.
- B. Cabinet: External structural members shall be constructed of heavy gage, galvanized steel coated with baked on powder paint which, when subjected to ASTM B117, 1000 hour 5% salt spray test, yields minimum ASTM 1654 rating of "6"
- C. Service Isolation valves: Service discharge (ball type) isolation valves are added to unit per system. This option also includes a system high-pressure relief valve in compliance with ASHRAE15. (Factory-mounted.)
- D. Pressure Transducers and Readout Capability
 - 1. Discharge Pressure Transducers: Permits unit to sense and display discharge pressure.
 - 2. Suction Pressure Transducers: Permits unit to sense and display suction pressure.

2.03 COMPRESSORS

- A. Compressors: Shall be hermetic, scroll-type, including:
1. Compliant design for axial and radial sealing
 2. Refrigerant flow through the compressor with 100% suction cooled motor.
 3. Large suction side free volume and oil sump to provide liquid handling capability.
 4. Compressor crankcase heaters to provide extra liquid migration protection.
 5. Annular discharge check valve and reverse vent assembly to provide low-pressure drop, silent shutdown and reverse rotation protection.
 6. Initial Oil charge.
 7. Oil Level sightglass.
 8. Vibration isolator mounts for compressors.
 9. Brazed-type connections for fully hermetic refrigerant circuits.
 10. Compressor Motor overloads capable of monitoring compressor motor current. Provides extra protection against compressor reverse rotation, phase-loss and phase imbalance

2.04 REFRIGERANT CIRCUIT COMPONENTS

- A. Each refrigerant circuit shall include: liquid line shutoff valve with charging port, low side pressure relief device, filter-drier, solenoid valve, sight glass with moisture indicator, thermostatic expansion valves, and flexible, closed-cell foam insulated suction line and suction pressure transducer.

2.05 HEAT EXCHANGERS

- A. Evaporator:
1. Direct expansion type with refrigerant inside high efficiency copper tubes, chilled liquid forced over the tubes by galvanized steel baffles.
 2. Constructed, tested, and stamped in accordance with applicable sections of ASME pressure vessel code for minimum 450 psig (3103 kPa) refrigerant side design working pressure and 150 PSIG (1034 kPa) water side design working pressure.
 3. Shell covered with $\frac{3}{4}$ " (19mm), flexible, closed cell insulation, thermal conductivity of 0.26k (BTU/HR-Ft² -°F)/in.) maximum. Water nozzles with grooves for mechanical couplings, and insulated by Contactor after pipe installation.
 4. Provide vent and drain fittings, and thermostatically controlled heaters to protect to -20°F (29°C) ambient in off-cycle.
- B. Air Cooled Condenser:
1. Coils: Condenser coils are made of a single material to avoid galvanic corrosion due to dissimilar metals. Coils and headers are brazed as one piece. Integral sub cooling is included. The design working pressure of the coil is 650 PSIG (45 bar). Condenser coils must be cleanable with the use of a standard (up to 1500 psi) pressure washer.
 2. Condenser Coils must be protected from debris (i.e. Hail Stone) by a protective panel to ensure longer equipment life and better unit performance.
 3. Low Sound Fans Shall be dynamically and statically balanced, direct drive, corrosion resistant glass fiber reinforced composite blades molded into a low noise, full-airfoil cross section, providing vertical air discharge and low sound. Each fan in its own compartment to prevent crossflow during fan cycling. Guards of heavy gauge, PVC (polyvinylchloride) coated or galvanized steel.
 4. Fan Motors: High efficiency, direct drive, 6 pole, 3 phase, insulation class "F", current protected, Totally Enclosed Air-Over (TEAO), rigid mounted, with double sealed, permanently lubricated, ball bearings.

2.06 CONTROLS

- A. General: Automatic start, stop, operating, and protection sequences across the range of scheduled conditions and transients.

- B. Microprocessor Enclosure: Rain and dust tight NEMA 3R/12 (IP55) powder painted steel cabinet with hinged, latched, and gasket sealed door.
- C. Microprocessor Control Center:
1. Automatic control of compressor start/stop, anti-coincidence and anti-recycle timers, automatic pumpdown shutdown, condenser fans, evaporator pump, evaporator heater, unit alarm contacts, and chiller operation from 0°F to 125°F (-18°C to 52°C) ambient. Automatic reset to normal chiller operation after power failure.
 2. Software stored in non-volatile memory, with programmed setpoints retained in lithium battery backed real time clock (RTC) memory for minimum 5 years.
 3. Forty character liquid crystal display, descriptions in English (or Spanish, French, Italian, or German), numeric data in English (or Metric) units. Sealed keypad with sections for Setpoints, Display/Print, Entry, Unit Options & clock, and On/Off Switch.
 4. Programmable Setpoints (within Manufacturer limits): display language; chilled liquid temperature setpoint and range, remote reset temperature range, set daily schedule/holiday for start/stop, manual override for servicing, low and high ambient cutouts, number of compressors, low liquid temperature cutout, low suction pressure cutout, high discharge pressure cutout, anti-recycle timer (compressor start cycle time), and anti-coincident timer (delay compressor starts).
 5. Display Data: Return and leaving liquid temperatures, low leaving liquid temperature cutout setting, low ambient temperature cutout setting, outdoor air temperature, English or metric data, suction pressure cutout setting, each system suction pressure, discharge pressure (optional), liquid temperature reset via Building Automation System (Section 23 09 23) via a 4-20milliamp or 0-10 VDC input with optional BAS interface, anti-recycle timer status for each compressor, anti-coincident system start timer condition, compressor run status, no cooling load condition, day, date and time, daily start/stop times, holiday status, automatic or manual system lead/lag control, lead system definition, compressor starts/operating hours (each), status of hot gas valves, evaporator heater and fan operation, run permissive status, number of compressors running, liquid solenoid valve status, load & unload timer status, water pump status.
 6. System Safeties: Shall cause individual compressor systems to perform auto shut down; manual reset required after the third trip in 90 minutes. Includes: high discharge pressure, low suction pressure, high pressure switch, and motor protector. Compressor motor protector shall protect against damage due to high input current or thermal overload of windings.
 7. Unit Safeties: Shall be automatic reset and cause compressors to shut down if low ambient, low leaving chilled liquid temperature, under voltage, and flow switch operation. Contractor shall provide flow switch and wiring per chiller manufacturer requirements.
 8. Alarm Contacts: Low ambient, low leaving chilled liquid temperature, low voltage, low battery, and (per compressor circuit): high discharge pressure, and low suction pressure.
- D. Manufacturer shall provide any controls not listed above, necessary for automatic chiller operation. Mechanical Contractor shall provide field control wiring necessary to interface sensors to the chiller control system.

2.07 POWER CONNECTION AND DISTRIBUTION

- A. Power Panels:
1. NEMA 3R/12 (IP55) rain/dust tight, powder painted steel cabinets with hinged, latched, and gasket sealed outer doors. Provide main power connection(s), control power connections, compressor and fan motor start contactors, current overloads, and factory wiring.
 2. Power supply shall enter unit at a single location, be 3 phase of scheduled voltage, and connect to individual terminal blocks per compressor. Separate disconnecting means and/or external branch circuit protection (by Contractor) required per applicable local or national codes.

- B. Compressor, control and fan motor power wiring shall be located in and enclosed panel or routed through liquid tight conduit.

2.08 ACCESSORIES AND OPTIONS

- A. Microprocessor controlled, Factory installed Across the-Line type compressor motor starters as standard.
- B. Outdoor Ambient Temperature Control
 - 1. High Ambient Control (Factory Mounted):
 - 2. Permits unit operation above 115°F ambient.
- C. Power Supply Connections: Single Point or Multiple Point Disconnect: Single or Dual point Non-Fused Disconnect(s) and lockable external handle (in compliance with Article 440-14 of N.E.C.) can be supplied to isolate the unit power voltage for servicing. Separate external fusing must be supplied, by others, in the incoming power wiring, which must comply with the National Electric Code and/or local codes.
- D. Hot Gas By-Pass: Permits continuous, stable operation at capacities below the minimum step of unloading to as low as 5% capacity (depending on both the unit & operating conditions) by introducing an artificial load on the cooler. Hot gas by-pass is installed on only one refrigerant circuit.
- E. Building Automation System (EMS) Reset Interface: Chiller to accept 4 to 20mA, 0 to 10 VDC, input to reset the leaving chilled liquid temperature.
- F. Hydro-Kit:
 - 1. The Hydro Kit shall be integrated to the chiller without increasing overall chiller dimension.
 - 2. Field pipe connections shall be extended to exterior of the unit with victaulic connections.
 - 3. Dual pump arranged in a lead/lag configuration shall be provided for stand-by operation.
 - 4. The pump shall be of the radially split casing type of centre-line discharge design with back pull out feature permitting removal of the pump internals without disturbing pipe connections.
 - 5. Pump constructions shall be BF (Bronze Fitted) suitable for a maximum working pressure of 175 PSIG. Casing gasket to be confined within pump casing.
 - 6. Pump ambient temperature rating shall support operation condition of the chiller (0-120°F)
 - 7. The hydro-kit must have the following components for easy maintenance and proper operation:
 - a. Removable screen strainer
 - b. Service Valve located upstream of the strainer (field supplied)
 - c. Discharge check valves
 - d. Balancing valve
 - e. Bleed valve (field supplied)
 - 8. The balancing valve shall be shipped loose to be field-installed at the exterior of the unit for easy access. This shall be done for safety and performance concerns from the possibility of air-bypass through panel removal.
 - 9. The driving motor shall have class "F" insulation, horizontal shaft, foot mounted, squirrel cage induction type with NEMA "C" flange, TEFC enclosure, and suitable for operation on a (460/3/60; 200/3/60, 380-400/3/50; 575/3/60) phase supply. Motors shall have permanently lubricated bearings.
 - 10. Factory mounted freeze protection up to -20F shall be an integral part of the hydro-kit offering.

PART 3 EXECUTION

3.01 INSTALLATION

- A. General: Rig and Install in full accordance with Manufacturer's requirements, Project drawings, and Contract documents.
- B. Location: Locate chiller as indicated on drawings, including cleaning and service maintenance clearance per Manufacturer instructions. Adjust and level chiller on support structure. If equipment provided exceeds height of scheduled chiller, installing contractor is responsible for additional costs associated with extending the height of parapet or screening walls/enclosures.
- C. Components: Installing Contractor shall provide and install all auxiliary devices and accessories for fully operational chiller.
- D. Electrical: Coordinate electrical requirements and connections for all power feeds with Electrical Contractor (Division 26).
- E. Controls: Coordinate all control requirements and connections with Controls Contractor.
- F. Finish: Installing Contractor shall paint damaged and abraded factory finish with touch-up paint matching factory finish.

END OF SECTION

SECTION 26 31 00**PHOTOVOLTAICS****PART 1 GENERAL****1.01 SUMMARY**

- A. Photovoltaic system (PV System) for providing electrical power, synchronized and inter-tied with incoming utility grid power.
- B. Section Includes:
 - 1. Turnkey design of complete photovoltaic (PV) system.
 - 2. Furnish, install and wire complete photovoltaic (PV) system.
- C. Related Sections: Division 1 and Division 8.

1.02 SUBMITTALS

- A. Product Data.
- B. Shop Drawings: Provide complete system drawings with large scale details showing each component and its relationship in the system. Identify each component and quantity. Provide and schedule of parts to accompany drawings. Include product information including installation instructions for each component. Show locations of parts in relations to PV system as well as building elements to which PV system components will be attached.
- C. Engineering Analysis.
- D. Test Reports.
- E. Certificates.
- F. Qualification Statements.

1.03 SYSTEM DESIGN

- A. Calculations: Perform calculation required to provide a complete turnkey design of comprehensive operating PV system. Include system recommendation based on calculations.
- B. Manufacturer of Custom photovoltaic insulated glass units shall provide following complete services:
 - 1. System design and submittal for approval before release to manufacture.
 - 2. Manufacturing of PV laminates and delivery of final insulated glass product.
 - 3. Supply of inverters to electrical contractor.
 - 4. Site training, supervision and logistics is required by General Contractor.
 - 5. System commissioning; includes testing, startup and O&M manuals.

C. Electrical Contractor:

1. Install AC interconnect cables plug connectors.
2. Install and wire inverters and data acquisition system or line communication filter.
3. Complete all conduit and wire installation and terminations throughout the system.
4. Possible installation of data acquisition system.

1.04 QUALITY ASSURANCE

- A. System shall be certified by Underwriters' Laboratories.
- B. Contractor Qualification: Contractor shall be currently approved by manufacturer to install Photovoltaic systems.
- C. PV system components must be compliant with the requirements of and be listed as an approved technology for the California Energy Commissions (CEC) Emerging Technologies Buydown Program.
- D. If PV modules using Cadmium are included, then the environmental impact of the Cadmium usage must be disclosed to the County, including any special maintenance requirements, and proper disposal/recycling of the modules at the end of their useful life. Modules containing Cadmium must comply with the EPA Landfill Disposal Requirements. Any additional costs related to PV modules containing Cadmium must be clearly identified. The County may reject.
- E. PV system components and installation shall be compliant with California Electrical Code (CEC) Article 690.

1.05 QUALITY ASSURANCE

- A. Preinstallation Conference: Prior to Installation, General Contractor to organize and conduct a meeting with each subcontractor and supplier involved in installation of PV system. PV supplier will conduct training on installation of system.
- B. Qualifications: 5 years experience manufacturing and/or fabricating components of PV systems.
- C. Provide a factory trained and experienced individual to provide on-site supervision during installation of PV system.

1.06 DEFINITIONS

- A. Photovoltaics (PV): Conversion of light into direct current (DC) electricity.
- B. PV Cells: Thin, fragile wafers of silicon.
- C. PV Module: Several PV Cells connected together in series and laminated between layers of glass.
- D. Data Acquisition System: Part of the inverter system. Wired with signal wire and run to exterior access point.

- E. Inverter: Converts DC power into AC power either single phase or three phase and becomes a power source wired to building electrical distribution panels.

1.07 WARRANTIES

- A. The photovoltaic panels shall be covered by the PV manufacturer's limited warranty for a minimum of 20 years from system start-up.
- B. The vendor's standard warranty coverage for the system should be at least 5 years in length and provide:
 - 1. Annual on-site system inspection, including: system testing (operating current of each electrical string), system adjustment and routing maintenance.
 - 2. Repair and/or replacement of defective parts (equipment and labor).
 - 3. System performance monitoring and historical data access for customer via secure website. Data should include: system energy and power production, ambient temperature, windspeed, and insulation.
 - 4. Daily system monitoring by vendor, including reporting of problems to customer and dispatch of resources for expeditious resolution of problems.
- C. Following the initial five year warranty period, an annual system service contract on commercially reasonable terms for years 5-10.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Photovoltaic Panels:
 - 1. Applied Solar, Inc.
 - 2. Or Equal by
 - a. Shell Solar
 - b. BP Solar
 - c. Schott Solar
- B. Inverter Equipment:
 - 1. Enphase Energy, Inc.
 - 2. Xantrex: PV Series
 - 3. SMA: Sunny Boy
 - 4. Or Equal.
- C. Isolation Transformer:
 - 1. Square-D
 - 2. Cutler Hammer
 - 3. Or Equal.

2.02 MATERIALS

- A. Photovoltaic Cells:
 - 1. Type of Solar Cell: Monocrystalline Silicon.

2. Model STP 400 or STP 200.
 3. Size of Active Solar Area: 48" x 96" or 48" x 48".
- B. Technology: Building-Integrated Photovoltaic (BIPV). See Division 8 for material requirements.
- C. Cabling: 10 AWG single conductor THHW, 600 volts, AC trunk cable to power panel.
- D. Edge Connector: As indicated by PV module manufacturer.
1. Method of electrical interconnection for PV laminates shall be by means of a factory supplied plug connecting cable. MC quick connects (plug and play).
 2. Cable measuring 12 to 18 inches will be supplied with a male-type connector on each end.
 3. Each laminated light for PV modules will be supplied with a female-type connector factory supplied.

2.03 ACCESSORIES

- A. Junction boxes, anchors, wiring lugs and other accessories for a complete system installation.

2.04 SYSTEM RATING

- A. System is sized to provide a minimum of 112.5 kW at full load rated power.
- B. The load voltage and bypass line voltage shall be 480 VAC, three phase, 3 wire. The utility input voltage will be 480 VAC, three phase, 3 wire.
- C. Rated PV system capacity of 112.5 kW must be specified in direct current (DC) kilowatts peak under both STC and PTC rating conditions.
1. The STC rating, or Standard Test Conditions rating, assumes direct current, standard test conditions, referred to as "kWdc-stc". It is also referred to as kilowatts peak, or "kWp". Specific PV module manufacturer maximum and minimum power data must be specified for this rating.
 2. The PTC rating, or PV USA Test Conditions rating, is based on 1000 Watts/square meter solar irradiance, 25 degree Celsius ambient temperature and an air mass of 1.5.

2.05 ELECTRICAL CHARACTERISTICS

- A. DC Photovoltaic Panel Output:
1. PV Module Open-Circuit Voltage: 53.3 volts.
 2. PV String Open-Circuit Voltage: 600V, or less
 3. Voltage range +10 percent, -15 percent.
- B. AC Inverter System Output:
1. Voltage regulation +/- 0.5 percent balance load. +/- 2 percent for 50 percent unbalanced load.
 2. Voltage adjustment range +/- 5 percent manually.
 3. Frequency regulation 0.1 percent.
 4. Phase Displacement:

a. Balanced Loads	120° +/- 1°
b. 50 percent unbalanced	120° +/- 3°

2.06 STRUCTURAL IMPACT AND WIND LOADING

- A. PV array will add no more than 4 pounds per square foot to the facility roof structure in the array area.
- B. PV array installation must comply with wind uplift requirements per the American Society of Civil Engineers Standard for Minimum Design Loads for Buildings and Other Structures (ASCE 7), and must be able to withstand design wind speeds of at least 100 mph (3-second gusts).

2.07 COMPONENTS

- A. All components of the PV systems and the installation procedures shall meet National Electrical Code requirements.
- B. Photovoltaic Panels:
 - 1. PV modules shall be no larger than 32 square feet in size.
 - 2. PV modules shall be electrically connected by "quick-connect" electrical connectors.
- C. DC/AC Micro-Inverter:
 - 1. PV system will have micro-inverter per module. Full specifications of the inverter shall be supplied as part of the system documentation and submittals.
 - 2. Each inverter unit shall be solid state device capable of accepting the output of the photovoltaic panel and providing rated output within specified limits.
 - 3. The output frequency of the inverter shall be controlled by an oscillator. The oscillator shall be temperature compensated and be adjustable +/- 5 percent of rated frequency. The oscillator shall hold the inverter output frequency to +/- 0.1 percent for both steady state and transient conditions. Drift shall not exceed +/- 0.1 percent during a 24 for period. Total frequency deviation, including short time fluctuations and drift, shall not exceed +/- 0.1 percent from the rated frequency.
 - 4. Electronic controls shall be incorporated to provide individual phase voltage compensation to obtain phase balance under all conditions including up to 50 percent load unbalance.
 - 5. For parallel operation, all inverter units shall automatically load share at all times. The output currents of the individual PV modules shall be no more than +/- 5 percent unbalanced.
- D. Isolation Transformer:
 - 1. An isolation transformer shall be part of the system for interfacing to the building's electrical system.
 - 2. AC wiring shall run from the output of the inverter(s) to a disconnect, then to an isolation transformer, then to building electrical service.

PART 3 EXECUTION

3.01 EQUIPMENT DETAILS

- A. All materials and parts comprising the photovoltaic system shall be new, of current manufacturer, of a high grade and free from all defects and imperfections and shall not have been in prior service, except as required during factory testing.

- B. All active electronic devices shall be solid state. All semiconductor devices shall be hermetically sealed. Vacuum tubes shall not be used for any purposes. All relays shall be dust tight.
- C. All outdoor enclosures should be at minimum rated NEMA 3R.

3.02 WIRING

- A. All bolted connections of bus bars, lugs and cables shall be in accordance with requirements of Uniform Electrical Code and other applicable standards. All electrical power connections are to be torqued to the required value and marked.

3.03 EXAMINATION

- A. Examine roof to verify installation tolerances for glass and locations of junction boxes and path for routing wiring.

3.04 PREPARATION

- A. Prepare framing to receive PV modules in accordance with manufacturer's instructions and to comply with system design and accepted shop drawings.

3.05 VENTILATION

- A. Adequate ventilation shall be provided to insure that all system components are operated within their environmental ratings.
- B. Temperature sensors shall be provided to monitor temperature of indoor system components. Upon detection of temperatures in excess of any component manufacturer's recommended ambient working temperature, the sensors shall trigger audible and visual alarms.

3.06 INSTALLATION

- A. The roof shall be inspected prior to installation of PV array. Minor repairs or services, if any, will be completed prior to installation.
- B. Individual PV modules shall be laid out on the rooftop. PV modules and micro-inverters shall be wired together using quick-connect electrical plugs.
- C. The terminal and interconnecting conduit and wire harnesses shall then be installed.
- D. The complete grounding system shall then be installed. After inspectors from all jurisdictions having authority, including the electrical utility, have verified the work, the PV system shall be connected to AC service.
- E. Install PV modules by qualified PV system subcontractor in accordance with the system design criteria and in accordance with accepted shop drawings.
- F. Install components and wired complete system by qualified licensed electrician and connect to building electrical system as shown or indicated on Electrical Drawing or Specifications.
- G. After the PV glass is installed by PV system subcontractor, electrical contractor must place each connector into gap between glass lights, complete plug connections and test for proper voltage.

3.07 MONITORING AND TESTING

A. Monitoring:

1. A Data Acquisition System (DAS) shall be provided. The DAS shall allow measurement of:
 - a. Ambient temperature
 - b. Wind speed
 - c. Solar irradiation
 - d. System power output
2. The DAS shall include a data logger, modem for data retrieval, NEMA 4 enclosure, dry bulb measuring device, anemometer, solar sensor and radiation shield.

B. Testing and Commissioning:

1. Photovoltaic modules shall be tested in factory for design performance.
2. Inverter shall be factory tested for performance, and results shall be included in the O & M manual.
3. System testing of installed photovoltaic array shall be performed in the field on all system strings and reported to the Owner.
4. PV module manufacturer who has provided design, preinstallation instructions and onsite construction supervision shall provide commissioning and startup testing services to assist subcontractors in starting up and commissioning system.
5. Provide training of Owner and Owner's facilities operations staff at completion of entire system installation after startup, testing and commissioning of system and coordination with other applicable building systems.

END OF SECTION

SECTION 27 51 16**PUBLIC ADDRESS AND MASS NOTIFICATION SYSTEMS****PART 1 GENERAL****1.01 SUMMARY**

- A. Section includes amplifier and control equipment, input equipment, and reproducer equipment.
- B. Related Sections:
 - 1. Section 27 05 26 - Grounding and Bonding for Communications Systems.
 - 2. Section 27 05 33 - Conduits and Backboxes for Communications Systems.
 - 3. Section 27 05 53 - Identification for Communications Systems.

1.02 SYSTEM DESCRIPTION

- A. Public address system for voice and music.
- B. Input components:
 - 1. Cassette tape player.
 - 2. Compact disc player.
 - 3. DVD player
 - 4. AM/FM tuner.
 - 5. Microphone.
- C. Features:
 - 1. Interface to local autonomous sound system.
 - 2. One-way paging by zone.
 - 3. Emergency paging override.
 - 4. Distribution of background music.

1.03 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate electrical characteristics and connection requirements. Indicate layout of equipment mounted in racks and cabinets, component interconnecting wiring, and wiring diagrams of field wiring to speakers and remote input devices.
- C. Product Data: Submit catalog data showing electrical characteristics and connection requirements for each component.
- D. Test Reports: Indicate procedures and results for specified field testing and inspection.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

- F. **Manufacturer's Field Reports:** Indicate activities on site, adverse findings, and recommendations.

1.04 CLOSEOUT SUBMITTALS

- A. **Section 01 70 00 - Execution and Closeout Requirements:** Closeout procedures.
- B. **Project Record Documents:** Record actual locations of speakers, control equipment, and outlets for input/output connectors.
- C. **Operation and Maintenance Data:** Submit instructions for adjusting, operating, and extending system, and repair procedures and spare parts documentation.

1.05 QUALIFICATIONS

- A. **Manufacturer:** Company specializing in manufacturing products specified in this section with minimum three years documented experience and with service facilities within 100 miles of project.
- B. **Supplier:** Authorized distributor of specified manufacturer with minimum three years documented experience.
- C. **Installer:** Authorized installer of specified manufacturer with service facilities within 100 miles of Project.

1.06 PRE-INSTALLATION MEETINGS

- A. **Section 01 30 00 - Administrative Requirements:** Pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.

1.07 MAINTENANCE SERVICE

- A. **Section 01 70 00 - Execution and Closeout Requirements:** Maintenance service.
- B. Furnish service and maintenance of public address and music equipment for three years from Date of Substantial Completion.
- C. Response to service calls within 48 hours.

PART 2 PRODUCTS

2.01 AMPLIFICATION AND CONTROL EQUIPMENT

- A. **Manufacturers:**
 - 1. Bogen Model PCM 2000.
 - 2. **Substitutions:** Section 01 60 00 - Product Requirements.
- B. **Product Description:** Amplifier, pre-amplifier, and control units to accomplish specified inputs and features.

- C. Microphone Inputs: Two low impedance inputs with 600 microvolt sensitivity and noise level at least 55 dB below rated output.
- D. Auxiliary Inputs: One high impedance input with 0.4 volt sensitivity and noise level at least 70 dB below rated output.
- E. System Frequency Response: 50 - 15,000 Hz., plus or minus 2 dB.
- F. System Output: 8 ohms 25 volts.
- G. Volume Controls: One for each input and one master volume.
- H. Program Selector: Furnish program and mode selector switches.
- I. System Cabinet: Wall mounted.

2.02 AM/FM TUNER

- A. Product Description: Tuner with 525 - 1605 kHz AM and 88 - 108 MHz FM tuning range.

2.03 TAPE PLAYER

- A. Product Description: Cassette player.
- B. Tape Speed (Play): 1-7/8 inches for each second.
- C. Crosstalk: 45 dB minimum.
- D. Response: 100 - 7000 Hz, plus or minus 3 dB.
- E. Signal/Noise Ratio: Less than 60 dB.
- F. Speed Accuracy: plus 3, minus 2 percent.
- G. Wow and Flutter: Less than 0.35 percent rms.
- H. Fast Forward Time: 135 seconds maximum, with 60 minute cassette.
- I. Rewind Time: 90 seconds maximum, with 60 minute cassette.

2.04 COMPACT DISC DECK

- A. Product Description: 3-1/2 inch compact disc player.
- B. DVD player

2.05 MICROPHONE

- A. Product Description: Desk type low impedance microphone with push-to-talk switch.
- B. Directional Response: Omnidirectional.

2.06 SPEAKERS

- A. Product Description: 8 inch coaxial speaker with integral crossover circuit.
- B. Power Rating: 20 watts.
- C. Frequency Range: 45 to 18,000 Hz.
- D. Sound Pressure Level: 95 dB at 3 feet with 1 watt input.
- E. Magnet: 10 ounces low frequency unit. Material: Ceramic.
- F. Dispersion: minus 3 dB at 90 degrees, minus 5 dB at 110 degrees.

2.07 MATCHING TRANSFORMERS

- A. Product Description: Matching transformer tapped from 0.5 to 4 watts in 1watt steps, with primary/secondary ratio to match amplifier to speaker impedances.

2.08 VOLUME PADS

- A. Product Description: Transformer type rated 30 watts.

2.09 EQUIPMENT RACK

- A. Product Description: Wall mounted equipment rack.
- B. Equipment Mounting Width: 19 inch
- C. Equipment Mounting Height: 66 inches minimum.
- D. Finish: Gray enamel finish.
- E. Include front and rear hinged and latched door.
- F. Include six receptacle multi-outlet assembly inside rack.

2.10 ANTENNA

- A. Product Description: Folded dipole FM antenna.
- B. Impedance: 300 ohm with matching transformer for 75 ohm coaxial cable.
- C. Construction: Tubular metal elements.
- D. Wind Resistance: Withstand 100 mph wind.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Mounting Heights: Coordinate locations of outlet boxes specified in Section 27 05 33 to obtain mounting heights as indicated on Drawings.
 - 1. Wall-mounted Speaker: 9 feet above finished floor.
 - 2. Microphone Outlets: 2 feet above finished floor.
- B. Connect reproducers to amplifier with matching transformers.
- C. Install equipment racks in location shown; arrange for adequate ventilation and access.
- D. Install engraved plastic nameplates in accordance with Section 27 05 53.
- E. Ground and bond public address and music equipment in accordance with Section 27 05 26.

3.02 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Measure and record sound power levels at designated locations.

3.03 MANUFACTURER'S FIELD SERVICES

- A. Section 01 40 00 - Quality Requirements: Manufacturer's field services.
- B. Include services of technician employed by manufacturer to supervise installation, adjustments, final connections, system testing, and Owner training.
- C. Verify installation is complete and performs according to specified requirements.

3.04 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Adjust transformer taps for appropriate sound level.
- C. Adjust devices and wall plates to be flush and level.

3.05 DEMONSTRATION AND TRAINING

- A. Furnish 8 hours of instruction each for two persons, to be conducted at project site with manufacturer's representative.

END OF SECTION

SECTION 28 16 00**INTRUSION DETECTION SYSTEM****PART 1 GENERAL****1.01 SCOPE OF WORK**

- A. All applicable portions of Section 26 05 03 shall apply to this section as though written herein completely.
- B. The County has decided to standardize on using Bosch security equipment throughout the County. No substitutions are permitted.

1.02 RELATED WORK

- A. Document affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and sections of Division 1 and 26 of these specifications.
- B. The work described by this part includes the furnishing of all materials, equipment, supplies, labor and the performing of all operations necessary for the installation of complete and operating systems
- C. All conduits, outlet boxes, back boxes, junction boxes, terminal cabinets, backboards, wiring, cables, equipment, devices, etc., shall be furnished and installed complete under this section. Conduit and junction box sizes shall be determined by the Installing Communications Contractor for the particular wire and cable fills required for the systems installed. (Conduit sizes shall comply with the National Electrical Code). The entire responsibility of the system, including the installation, operation, function, testing and maintenance for one (1) year after final acceptance under this section shall be the responsibility of the communications contractor.
- D. The Installing Electronic Systems Contractor shall furnish and install all equipment, cables, devices, and other materials even though not specifically mentioned herein, which are necessary for the proper integration of the system so that the system shall perform the functions listed herein in compliance with all specified requirements.

1.03 GENERAL REQUIREMENTS

- A. The Installing Electronic Systems Contractor shall hold a valid State of California C-10 License, shall have completed at least 20 projects of equal scope, shall have been in business of furnishing and installing communication systems of this type for at least five years, and capable of being bonded to assure the owner of performance and satisfactory service during the guarantee period.
- B. The Installing Electronic Systems Contractor shall be a factory authorized distributor and warrantee station for the brand of equipment offered and shall maintain a fully equipped service organization capable of furnishing adequate repair service to the equipment. The Contractor shall maintain a spare set of all major parts for the system at all times. All circuit boards, amplifiers and control sub systems shall be 100% backed up with stock at contractor's shop.
- C. The vendor shall allow enough time in the bid to do a needs assessment process to ensure the database programming and features of all the systems will meet the desired functions of the facility administrative staff.

1.04 SUBMITTAL AND MANUALS

- A. Comply with all requirements of the General Conditions, Supplementary Conditions and applicable sections of Divisions 1 and 26 of these specifications.
- B. Additional requirements of this section are:
 - 1. Within thirty-five (35) calendar days after the date of award of the Contract, the Contractor shall submit to the Architect for review, eight copies of a complete submission.
 - 2. The submission shall consist of five major sections with each section separated with index tabs. Each page in the submission shall be numbered chronologically and shall be summarized in the index.
 - 3. The first section shall be the "Index" which shall include the project title and address, name of the firm submitting the proposal and name of the Architect.
 - 4. The second section shall include a copy of the Installing Communication Contractors valid C-10 California State Contractors License, letters of factory authorization and guaranteed service, list of 20 projects of equal scope and list of proposed instrumentation to be used by the Contractor.
 - 5. The third section shall contain the comparative specification listing, including a complete listing of the characteristics of the equipment to be furnished next to all of the specified equipment's features and functions as stated in the specifications and data sheets.
 - 6. The fourth section shall contain an original factory data sheet for every piece of equipment in the specifications.
 - 7. The fifth section shall contain a wiring designation schedule for each circuit leaving each piece of equipment and drawings showing system wiring plans.
- C. The Contractor shall provide two copies of an "Operating and Servicing Manual" for the system. The manuals shall be bound in flexible binders. All data shall be printed material or typewritten. Each manual shall include the following: Instructions necessary for the proper operation and servicing of the system; complete as-built installation drawings of the system; a wiring destination schedule for each circuit leaving for each piece of equipment; a schematic diagram of major components with all transistor and IC complements and replacement number.

PART 2 PRODUCTS

2.01 INTRUSION ALARM SYSTEM

- A. Description:
 - 1. The system shall consist of door switches and motion detection devices connected to detect intrusion into the covered areas. The system shall be zoned or as indicated on the drawings and have a control panel capable of providing alarm and trouble signals, by zone, for connection to the County equipment or transmitted as per County requirements. System on-off and access control from remote equipment furnished by the County or by a remote push button key pads.
 - 2. Each zone shall be a separate compartment and can have a key pad mounted as shown. A master key pad position shall be provided as shown in the administrative area.
- B. Products:
 - 1. Provide Radionics 9412 control panels or equal by DMP XR500 with annunciation of each zone separately. Provide D1260 alpha remote controls as shown on plans.
 - 2. Provide Radionics D8129 module to interface with CCTV Security System, as required.

3. Wall-mounted PIR/Microwave motion detectors shall be Bosch ISM-BLD1-P-F1 with B328 mounting plate. Use DSC BV500 if shown ceiling mounted. Provide each device with a D9127U POPIT module to be located in the Signal IDF's.
 4. Door Switches: Sentrol 1078 series with mounting as necessary to adapt to doors furnished. Provide each device with a D9127U POPIT module to be located in the Signal IDF's.
 5. Motion Sensor Cable shall be Thompson 393U22BE or equal, 4-conductor 22AWG solid cable with a beige jacket. Door Contact Cable shall be Thompson 393T22BR or equal, 2-conductor 22AWG solid with a brown jacket. Keypad Cable shall be Thompson 393L18OR or equal, 2-pair 18AWG with an orange jacket. Home-run each device to the nearest Signal IDF.
 6. Power supplies for motion detectors shall be Altronix SMP3PM-CTX, 12vdc located in Signal Rooms. Provide a minimum of one (1) power supply per building.
 7. Protect the roof hatches (if there are any) in the building with Sentrol 2505A magnetic contacts and annunciate separately as a day zone to indicate opening and closing of all hatches during the day and alarm at night.
 8. Provide all necessary hardware and software for a complete and working system.
- C. Testing: System shall detect the entry through a door switched door and/or the motion of a body taking not more than four steps in an area secured with motion detection equipment where entry doors or windows are possible access. System shall be complete and properly operating prior to calling for the test. The inspector, contractor and engineer shall walk test system at County's option and contractor shall make minor satisfactory adjustments to the system in the presence of the inspector. Contractor shall coordinate the time of test with the County inspector. This test shall be performed during a time when there is no other person(s) on the site.

PART 3 EXECUTION

3.01 INSTALLATION

- A. The wiring of the system shall be executed in accordance with the drawings and the equipment manufacturer's wiring diagrams. Should any variations in these requirements occur, the contractor shall notify the Architect before making any changes. It shall be the responsibility of the factory authorized distributor of the approved equipment to install the equipment and guarantee the system to operate as per plans and specifications.
- B. Furnish all conductors, equipment plugs, terminal strips, etc., and labor to install a complete and operable system.
- C. The cables within the rack or cabinets shall be carefully cabled and laced with No. 12 Cord waxed linen lacing twine or t&b model ty-rap Series 500 cable straps. All cables numbered for identification.
- D. Splices of conductors in underground pull boxes are not permitted.
- E. The labor employed by the contractor shall be regularly employed in the installation and repair of communication systems and shall be acceptable to the owner and architect to engage in the installation and service of this system.

- F. The contractor shall thoroughly clean all equipment and materials. All exposed parts of the equipment, cabinets, and other equipment shall be left in a clean condition, unblemished and free of all dirt, dust, smudges, spots, fingerprints, etc., the contractor shall remove all debris and rubbish occasioned by the electronic systems work from the site. The contractor shall thoroughly clean all buildings of any dirt, debris, rubbish, marks, etc. caused by the performance of this work.
- G. The contractor shall provide not less than eight (8) hours for instruction of personnel in the operation and maintenance of the systems. This instruction time shall be divided a directed by the Owner.

3.02 WARRANTY

- A. The entire system shall be warranted free of mechanical or electrical defects for a period of one (1) year after final acceptance of the installation. Any material showing mechanical or electrical defects shall be replaced promptly at no expense to the purchaser.
- B. The contractor shall maintain a competent service organization and shall, if requested, submit a service maintenance agreement to the owner after the end of the guarantee period.
- C. A typewritten notice shall be posted at the equipment rack which shall indicate the firm, address and telephone number to call when service is necessary. The notice shall be mounted in a neatly finished metal frame with a clear plastic window and securely attached to the inside of the door.

3.03 TESTING

- A. Provide all instruments for testing and demonstrating in the presence of the Owner's inspector that the frequency response is as stated in the factory data sheets. Check all circuits and wiring to verify they are free of shorts and grounds.
- B. The Owner reserves the right to make independent tests of all equipment furnished to determine whether or not the equipment complies with the requirements specified herein and to accept or reject any or all of the equipment on the basis of the results thereby obtained.

END OF SECTION

SECTION 28 31 00**ANALOG ADDRESSABLE FIRE ALARM****PART 1 GENERAL****1.01 SCOPE**

- A. The complete installation of fire alarm devices and accessories shall be Silent Knight 5820XL Series 24VDC analog addressable fire alarm system with SpectrAlert synchronized notification. The Fire Alarm Control Panels (FACP) is a microprocessor-based, network capable and complete with an integral DACT that is UL listed for Remote Station, Proprietary and Central Station fire alarm systems. The FA System shall be compliant with UL 864, 9th edition.
1. The fire alarm system shall be provided and installed by a Silent Knight Certified Installer. Systems provided and/or installed by anyone other than a Silent Knight Certified Installer shall be considered in non-compliance with this specification and subject to replacement at the expense of the Division 26 contractor.
 - a. The Silent Knight Certified Installer shall furnish all labor, materials, appliances, cabling, tools, equipment, facilities transportation and services necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of all equipment, wiring, programming, configuration, testing, training required by this Section, complete as shown on the applicable Contract Drawings and/or specified herein.
 - 1) This specification provides the requirements for the installation, programming, configuration, testing and maintenance of a complete analog addressable fire alarm system. This system shall include, but not be limited to:
 - a) Fire Alarm Control Panel (FACP)
 - (1) Modules as required.
 - b) Annunciator/keypad bus
 - c) Wiring
 - d) Conduit
 - e) Associated peripheral devices
 - f) Other relevant components and accessories required to provide a complete and operational analog addressable reporting Life Safety System.
- B. The fire alarm system shall be capable of providing, at a minimum, the following:
1. Fire Alarm Control Panel (FACP):
 - a. Integral Digital Alarm Communications Transmitter (DACT).
 - b. Network Interface capability via copper and/or fiber optic network.
 2. Analog addressable initiation devices.
 3. Analog addressable control modules.
 4. Notification appliances:
 - a. Compatible with combination horn/strobe two wire circuit.
 5. Notification Appliance Circuit (NAC) remote power supply.
 - a. Combination horn/strobe two wire circuit.
 - b. Built-in synchronization capabilities.
 6. Internet Protocol (IP) connectivity for remote access capability via LAN/WAN network.

- C. Any material and/or equipment necessary for the proper operation of the system, which is not specified or described herein, shall be deemed part of this Specification.
- D. Contractor shall offer code required fire alarm system inspection and maintenance contract.

1.02 QUALIFICATIONS

A. Equipment:

1. This specification is based on the equipment of manufacturer(s) who have been approved by the Owner and the Manufacturer(s) herein named shall be considered as meeting the requirements of this specification.
2. The equipment manufacturer shall be a United States manufacturer, who has been regularly engaged in the manufacture of fire alarm systems for at least thirty (30) years.
3. Equipment provided for this project shall be the product of Silent Knight. No substitutions shall be approved.
4. It is the Contractor's responsibility to meet the entire intent of these specifications. Deviations from the specified items shall be at the risk of the Contractor until the date of final acceptance by the Architect, Engineer and the Owner's representative. All costs for removal, relocation or replacement of a substituted item shall be at the risk of the Division 26 Contractor.
5. All equipment shall conform to applicable codes and ordinances.
6. All equipment shall be California State Fire Marshal (CSFM) listed.
7. All equipment shall bear the label of a Nationally Recognized Testing Laboratory (NRTL) such as Intertek Testing Services NA, Inc. (ITSNA - formerly ETL) or Underwriters Laboratories Inc. (UL) and be listed by their re-examination service.

B. System Supplier/Installer:

1. The system shall be provided and installed by a Silent Knight Certified Installer who is trained and certified by the Manufacturer in the proper installation, programming, configuration, testing, service and maintenance of the system.
2. Subsequent to a successful bid the System Supplier/Installer shall submit a qualification documentation package which shall include the following:
 - a. Underwriters Laboratories (UL) Listing indicating current status as a UL Listed Central Station Fire Service – Local Service (UUFX-L) installation company.
 - b. Evidence of current status as the Silent Knight Certified Installer.
 - c. Certificates indicating that a minimum of four (4) technicians have attended and completed all requirements and received certification from the manufacturer's installation and service school.
 - d. A list of twenty (20) completed projects of equal scope, with associated Owners Representative contact names and telephone numbers.
 - e. Evidence of current State of California Contractor's License, C-10.
 - f. Evidence of current State of California Alarm Company Operator License, ACO.
 - g. A minimum of four (4) National Institute for Certification in Engineering Technologies (NICET) certificates in "Fire Protection Engineering Technology – Fire Alarm Systems". NICET certificates shall include at a minimum (1) Level 3 and (2) Level 2.
3. Per California codes all individuals involved in the installation of the fire alarm system shall hold a valid State of California, Division of Apprenticeship Standards (DAS), Fire/Life Safety Technician Certification.
 - a. Evidence of DAS certification shall be provided immediately upon request at the project site.

4. The System Supplier/Installer shall show satisfactory evidence, upon request, that he maintains a fully equipped service organization capable of furnishing adequate inspection, service and maintenance of the system.
 - a. The System Supplier/Installer shall maintain at his facility the necessary spare parts in the proper proportion as recommended by the manufacturer to maintain and service the equipment being supplied.
5. The System Supplier/Installer shall be prepared to offer a service contract for the maintenance of the system beyond the warranty period.
6. The System Supplier/Installer shall be an established fire alarm systems contractor that has and currently maintains a locally run (within 100 miles of the job site) and operated business for at least twenty (20) years.
7. The System Supplier/Installer shall employ a minimum of four (4) Silent Knight factory trained technicians and a 24 hour emergency service department.
8. The System Supplier/Installer shall designate one person to act as the project manager having total responsibility for coordination, communications and project technical integrity. This project manager shall have a minimum of three (3) years experience as a supervisor and installer of the systems specified herein.

1.03 RELATED SPECIFICATIONS

- A. The conditions of the General Contract (General, Supplementary, and other Conditions) and the Division 1 - General Requirements specifications are hereby made a part of this Section.
 1. Section 26 05 00 – Common Work Results on Electrical
 2. Section 26 05 03 – Equipment Wiring Connections
 3. Section 26 05 19 – Low-Voltage Electrical Power Conductors and Cables
 4. Section 26 05 33 – Raceway and Boxes for Electrical Systems
 5. Section 26 27 16 – Electrical Cabinets and Enclosures
- B. Related Work by Others:
 1. Reference Part 3, sub-section 3.1B of this specification.

1.04 RELATED DOCUMENTS

- A. In the event of a conflict between this specification and the construction drawings this specification shall take precedence.

1.05 APPLICABLE CODES & STANDARDS

- A. 2010 Building Standards Administrative Code, Part 1, Title 24, California Code of Regulations
- B. 2010 California Building Code (CBC) Part 2, Title 24, California Code of Regulations (2009 International Building Code)
- C. 2010 California Electrical Code (CEC) Part 3, Title 24, California Code of Regulations (2008 National Electrical Code)
- D. 2010 California Mechanical Code (CMC) Part 4, Title 24, California Code of Regulations (2009 Uniform Mechanical Code)
- E. 2010 California Plumbing Code (CPC) Part 5, Title 24, California Code of Regulations (2009 Uniform Plumbing Code)

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F. 2010 California Fire Code (CFC) Part 9, Title 24, California Code of Regulations (2009 International Fire Code)

G. NFPA Standards

1. The fire alarm system shall comply with the applicable provisions of the following current National Fire Protection Association (NFPA) standards:
 - a. NFPA 12 Carbon Dioxide Extinguishing Systems
 - b. NFPA 72, National Fire Alarm Code 2002
 - c. Central Station Fire Alarm Systems
 - d. Local Fire Alarm Systems
 - e. Auxiliary Fire Alarm Systems
 - f. Remote Station Fire Alarm Systems
 - g. Proprietary Fire Alarm Systems
 - h. NFPA 90A, Installation of Air Conditioning and Ventilating Systems
 - i. NFPA 101, Life Safety Code - Safety to Life from Fire in Buildings and Structures
 - j. NFPA 750 Water Mist Fire Protection Systems
 - k. NFPA 2001 clean Agent Fire Extinguishing Systems

H. ADA - Americans with Disabilities Act

I. CAC – California Administrative Code, Title 24

J. U.L. Standards

1. The system shall comply with the applicable provisions of the following U.L. Standards and Classifications:
 - a. UL 268, Smoke Detectors for Fire Alarm Signaling Systems
 - b. UL 464, Audible Signal Appliances
 - c. UL 521, Heat Detectors for Fire Protective Signaling Systems
 - d. UL 864, Control Units for Fire Protective Signaling Systems
 - e. UL 1481 Power Supplies for Fire Alarm Systems
 - f. UL 1971, Emergency Devices for the Hearing Impaired
 - g. UOJZ, Control Units, System
 - h. SYZV Control Units, Releasing Device
 - i. UOXX, Control Unit Accessories, System
 - j. SYSW Accessories, Releasing Device Service

1.06 SUBSTITUTIONS

A. The Fire Alarm System shall be Silent Knight. Substitutions shall be per Division 01.

1.07 SUBMITTALS

A. Within thirty-five (35) calendar days after the date of the award of the contract, the Contractor shall submit to the Architect for review, eight (8) copies of a complete Submittal Package. The Submittal Package shall consist of the following sections, with each section separated with index tabs.

1. Title Page:
 - a. Project Title
 - b. Project address

- c. Architect's name and address
 - d. Contractor's name and address
2. Index of Submittal Contents:
 - a. Each Section of the Submittal Package shall be numbered chronologically and shall be summarized in the Index.
 3. Certifications:
 - a. Index of Certification Section Contents
 - b. Valid State of California Contractors License
 - c. Manufacturer's Certifications
 - 1) Authorized Distributor
 - 2) Factory Trained Technician
 - d. UL (Underwriters Laboratories Inc.) Listing
 - e. NICET Certifications
 - f. California DAS, Fire/Life Safety Technician Certifications
 4. Project List:
 - a. A substantial list (minimum of 20) of completed projects equal in scope to that specified herein.
 - 1) Contact information shall be made available upon request.
 5. Product Data:
 - a. Index of Equipment Data Sheets
 - b. Manufacturer's Data Sheets including cable types
 - c. Applicable Listings and Approvals

PART 2 PRODUCTS

2.01 SYSTEM REQUIREMENTS

A. Basic Performance:

1. The fire detection and alarm system shall continually supervise and monitor the integrity of conductors: initiating device circuits (IDC); notification appliance circuits (NAC); and signaling line circuits (SLC); per the requirements of NFPA 72.
 - a. Loss of signal from any of these circuits will activate a trouble indication, both audible and visual, at the local FACP.
2. System shall be fully programmable and configurable on site to accommodate system expansions and facilitate changes in operation.
3. All software programs shall be stored in non-volatile programmable memory within the FACP.
 - a. Loss of primary and secondary power shall not erase the instructions stored in the memory.
 - b. System programming shall be password protected.
4. Alarm, supervisory and trouble signals from analog addressable devices shall be encoded onto NFPA Style 4 (Class B) signaling line circuits (SLC).
5. Initiation device circuits (IDC) shall be wired NFPA Style B (Class B)
6. Notification appliance circuits shall be wired NFPA Style Y (Class B).
7. A single ground or open on any system SLC, IDC or NAC shall not cause a system malfunction, loss of operating power or the ability to report an alarm.
8. Alarm signals arriving at the main FACP shall not be lost due to a power failure.

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9. The system shall be provided with sufficient battery capacity to operate the entire system upon loss of 120 VAC power in a normal supervisory mode for a period of twenty four (24) hours with five (5) minutes of alarm indication at the end of this period. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic. Batteries, once discharged, shall recharge at a rate to provide a minimum of 70% capacity in twelve (12) hours.

B. System Functional Operation:

1. The actuation of any approved alarm initiating device shall automatically initiate the following functions:
 - a. Alarm LED on the FACP shall flash.
 - b. Local audible piezo electronic signal in the FACP shall sound.
 - c. The alarm condition description, including the type of point and the location within the protected premises, shall be displayed on the LCD display at the FACP and, where applicable, the remote annunciator(s).
 - d. System shall transmit the condition to an off-site supervising station. Supervising station shall be approved per 2007 CFC 907.2.3.5.
 - e. Printing and history storage equipment shall log the information associated with the condition, including the time and date of the alarm occurrence.
 - f. System output programs configured via control-by-event (CBE) programming to be activated by the particular point in alarm shall be executed, and the associated system output (alarm notification appliances and relays) shall be activated on either local outputs or points located on other network nodes.
2. The actuation of any approved supervisory alarm initiating device shall automatically initiate the following functions:
 - a. Supervisory LED on the FACP shall flash.
 - b. Local audible piezo electronic signal in the FACP shall sound.
 - c. The supervisory condition description, including the type of point and the location within the protected premises, shall be displayed on the LCD display at the FACP and, where applicable, the remote annunciator(s).
 - d. System shall transmit the condition to an off-site supervising station. Supervising station shall be approved per 2007 CFC 907.2.3.5.
 - e. Printing and history storage equipment shall log the information associated with the condition, including the time and date of the alarm occurrence.
 - f. System output programs configured via control-by-event (CBE) programming to be activated by the particular point in alarm shall be executed, and the associated system output (alarm notification appliances and relays) shall be activated on either local outputs or points located on other network nodes.
3. Whenever a trouble condition is detected and reported the FACP shall automatically initiate the following functions:
 - a. Trouble LED on the FACP shall flash.
 - b. Local audible piezo electronic signal in the FACP shall sound.
 - c. The trouble condition description, including the type of point and the location within the protected premises, shall be displayed on the LCD display at the FACP and, where applicable, the remote annunciator(s).
 - d. System shall transmit the condition to an off-site supervising station. Supervising station shall be approved per 2007 CFC 907.2.3.5.
 - e. Printing and history storage equipment shall log the information associated with the condition, including the time and date of the alarm occurrence.

- f. System output programs configured via control-by-event (CBE) programming to be activated by the particular point in alarm shall be executed, and the associated system output (alarm notification appliances and relays) shall be activated on either local outputs or points located on other network nodes.

C. Remote Monitoring Connection:

- 1. The fire alarm system shall be connected via Digital Alarm Communicator Transmitter (DACT) over telephone lines to a UL Listed Central Station Monitoring Company.
 - a. The fire alarm control panel shall provide an integral Digital Alarm Communicator Transmitter (DACT) for signaling to a UL Listed Central Station Monitoring Company. The DACT shall contain a "Dialer-Runaway" feature preventing unnecessary transmissions as the result of intermittent faults in the system and shall be Carrier Access Code (CAC) compliant, accepting up to 20-digit central station telephone numbers.
 - b. The fire alarm system shall transmit alarm, supervisory alarm and trouble signals with the alarms having priority over the trouble signal.

D. Internet Protocol (IP) Connectivity for Remote Access:

- 1. The system shall be capable of remote access via LAN/WAN network.
 - a. Remote access features and functions shall include the following:
 - 1) Perform programming of the main processor including all system features and functions noted elsewhere in this specification.
 - 2) The capability to perform system diagnostics and access integral system report software regarding the current system status.
 - b. External Device Server:
 - 1) Shall support RS-232, RS-422 and RS-485 serial connections
 - 2) Shall configure via HTTP, DHCP, Telnet or serial
 - 3) Shall be capable of Flash ROM upgrades
 - 4) Network Interface – (10Base-T or 10Base-T/100Base-TX) Ethernet
 - 5) Serial Interface – DB25F, RS-232/RS-422/RS-485 serial port with DCE configuration.
 - 6) Shall be capable of modem emulation and accept modem AT commands on the serial port to establish a network connection to the system.
- 2. The contractor shall provide all active electronics, software and peripheral equipment for a complete and operable system.
- 3. Systems not capable of remote access requirements of this specification will not be considered acceptable.

2.02 SYSTEM COMPONENTS

A. Fire Alarm Control Panel (FACP):

- 1. Silent Knight 5820XL.

B. Initiating Devices:

- 1. Addressable Sensors:
 - a. Analog Photoelectric Smoke Sensors:
 - 1) Silent Knight Model #SD505-APS.
 - a) California State Fire Marshal (CSFM) Listing No. 7270-0559:129

- b) Analog photoelectronic sensors shall have a low profile and be capable of being set at four sensitivity settings of: "LOW, LOW MEDIUM, MEDIUM, MEDIUM HIGH, and HIGH" levels.
- c) Automatic and manual functional sensitivity and performance tests shall be possible without the necessity of generating smoke. This method shall test all sensor circuitry and a "Failed Test" indication shall display for any failed test.
- d) Two LEDs providing 360-degree visibility of operating status and alarm indication shall be provided on each sensor. The LEDs shall pulse periodically indicating that the sensor is receiving power and communication is taking place. This feature shall be field programmable. Upon alarm, these LEDs shall light continuously. An alarm output shall be available for remote annunciation.
- e) The system shall check the sensitivity of each sensor periodically. If a sensor alarm threshold sensitivity has changed, due to aging and/or dust accumulation, the system shall automatically compensate for this change (drift compensation).
- f) Each sensor shall allow for the setting of two sensitivity levels. These levels may be programmed so that when the building is occupied, a sensor will be less sensitive than when the building is unoccupied. This feature permits sensors to be more reliable and at the same time reduces/minimizes unwanted alarms. This feature shall also provide for programmable weekend days, where the sensor will remain at an unoccupied sensitivity level.
- g) The sensor screen and cover assembly shall be removable for field cleaning.
- h) Each sensor shall be interchangeable via adapter and twistlock mounting base, to ensure matching the proper sensor to the potential hazards of the areas being protected. In all cases the system shall recognize when an improper sensor type has been installed in a previously programmed sensor type location.
- i) The sensor shall contain, in addition to the above, a 135o FT thermal sensor.

2. Conventional Detectors:

- a. Combination Fixed Temperature/Rate of Rise Heat Detectors:
 - 1) Silent Knight - Model No. SD505-AHS.
 - 2) California State Fire Marshal (CSFM) Listing No. 7270-0559:127..
 - 3) Combination fixed temperature and rate-of-rise thermal detectors.
 - 4) 194°F. temperature rating.
 - 5) Maximum UL spacing of 50' x 50' on 10' high ceiling.
 - 6) The detectors shall be installed where indicated on the plans.
- b. Addressable High Temperature Detector:
 - 1) Silent Knight Model No. IDP-HEAT-HT.
 - 2) California State Fire Marshal (CSFM) Listing No. 7272-0559:147
 - 3) Variable high temperature detector.
 - 4) Temperature detection at 135°F – 190°F.
 - 5) Shall be installed where indicated on plans.

C. Notification Devices:

- 1. Programmable Electronic Horn – Outdoor Weatherproof:
 - a. System Sensor Model No. H12-24K:
 - 1) California State Fire Marshal (CSFM) Listing No. 7135-1653:116.

- 2) Electronic horns shall operate on 24 VDC nominal.
 - 3) Shall be suitable for mounting on the wall.
 - 4) Shall be surface mounted.
 - 5) Finish shall be red.
 - 6) All exterior mounted horns shall be weatherproof.
2. Visual Strobe Appliance:
- a. System Sensor Model No. S2415/30/75/110:
 - 1) California State Fire Marshal (CSFM) Listing No. 7320-1653:183.
 - 2) Shall operate on 24 VDC nominal.
 - 3) Shall be single-candela rating devices.
 - a) Candela ratings shall be 15, 30, 75 or 110.
 - b) Intensity shall be as specified on the drawings.
 - 4) Shall meet the requirements of the ADA and UL 1971.
 - a) The maximum pulse duration shall be 2/10ths of one second.
 - b) The flash rate shall be one flash per every second.
 - 5) Finish shall be red.
 3. Combination Audible/Visual Horn/Strobe Appliance – Indoor Wall Mount:
 - a. System Sensor Model No. P2415/30/75/110:
 - 1) California State Fire Marshal (CSFM) Listing No. 7135-1653:147.
 - 2) Shall meet the requirements of Section 3 listed above for visibility.
 - 3) Audible (horn) and visual (strobe) devices shall operate on the same two wire circuit and shall be capable of audible silencing.
 - 4) Finish shall be red.
 4. Ceiling mount devices shall be of the same manufacturer as the devices indicated above and shall be approved for the application required.

D. Accessory Equipment:

1. Notification Appliance Circuit (NAC) Remote Power Supply:
 - a. Silent Knight Model No. RPS 5496:
 - 1) California State Fire Marshal (CSFM) Listing No. 7170-0559:143.
 - 2) The Remote Power Supply is a device designed for use as either a remote 24 volt power supply or used to power Notification Appliances.
 - 3) The Remote Power Supply shall offer up to 8.0 amps of regulated 24-volt power. It shall include an integral charger designed to charge sealed lead-acid storage batteries and to support 60-hour standby.
 - 4) The Remote Power Supply input trigger shall be a Signaling Line Circuit from the fire alarm control panel. Four outputs shall be available for connection to the Notification devices. All four outputs shall be capable of accommodating both Class B and Class A Notification Appliance Circuits.
 - 5) The Remote Power Supply shall include the ability to delay the AC fail delay per 1993 NFPA requirements.
 - 6) The Remote Power Supply shall provide integral synchronization and shall be capable of accommodating Audible and Visual devices, combined on each individual Notification Appliance Circuit, with the capability of silencing of Audible devices while Visual Devices remain in operation.

2.03 CABLE/WIRE

- A. All fire alarm system cable and/or wire shall be run in conduit or raceways.

- B. Signaling Line Circuit (SLC) and Annunciator Data Cable:
1. Indoor dry location:
 - a. Belden Model No. 5220UJ or approved equal.
 - 1) California State Fire Marshal (CSFM) Listing No. 7161-0060:103.
 - 2) 16/2 conductor cable, FPL rated, non-plenum, complete with red PVC jacket.
 2. Outdoor wet location:
 - a. Burton Cable Model No. 18JE2-0 or approved equal
 - 1) California State Fire Marshal (CSFM) Listing No. 7161-1495:101.
 - 2) 16/2 conductor cable, FPL rated, complete with black underground/direct burial, sunlight resistant rated PVC jacket.
- C. Initiating Device Circuit (IDC), Notification Appliance Circuit (NAC) and 24 volt DC auxiliary power.
1. Speaker circuits:
 - a. Belden Model No. 5320FJ or approved equal.
 - 1) California State Fire Marshal (CSFM) Listing No. 7161-0060:103.
 - 2) 18/2 conductor cable, FPL rated, shielded, non-plenum, complete with red PVC jacket.
 2. All other locations:
 - a. #12 AWG THHN/THWN.
 - 1) California State Fire Marshal (CSFM) Listing not applicable.

PART 3 EXECUTION

3.01 DIVISION OF WORK

- A. All equipment shall be installed in strict accordance with the manufacturer's installation documentation. Any deviation shall require the Contractor to correct the installation without impact to the construction schedule and at no additional cost to the Owner.
- B. While all work included under this specification is the complete responsibility of the contractor, the division of actual work listed following shall occur.
1. All conduits with pull cords, all electrical pull boxes, grounding rods, all outlet boxes, terminal cabinets, backboards, etc., which form part of the rough-in work shall be provided and installed completely by the Division 26 Contractor. Coordinate as required for proper installation.
 2. The balance of the system, including installation of initiating devices, notification appliances, cabling and equipment, making all connections, etc., shall be performed by the System Supplier/Installer (reference Part 1, Section 1.2B of this specification).
 3. All 120VAC power conductors and conduits associated with power circuits to all low voltage system equipment locations shall be provided and installed by the Division 26 Contractor.
 4. An insulated stranded copper ground wire shall be provided from each equipment rack to the building grounding system, in compliance with CEC Article 250, by the Division 26 Contractor.
 5. Labeling of pullboxes and terminal cabinets shall be provided and installed by the Division 26 Contractor.

3.02 INSTALLATION

- A. All work shall be completed in strict accordance with all applicable codes and ordinances, by a Silent Knight Platinum Distributor.
1. Per California codes all individuals involved in the installation of the fire alarm system shall hold a valid State of California, Division of Apprenticeship Standards (DAS), Fire/Life Safety Technician Certification.
 - a. Evidence of DAS certification shall be provided immediately upon request at the project site.
 - 1) Failure to provide evidence of DAS certification shall mandate immediate removal of said individual from the project site.
- B. Cable/Wire:
1. All cable/wire for the fire alarm system shall be new, unless otherwise noted on plans.
 2. Raceways containing conductors serving the fire alarm system shall not contain any other conductors. No AC current carrying conductors shall be allowed in the same raceway with DC fire alarm system conductors.
 3. System cable/wire and equipment installation shall be in accordance with good engineering practices and in accordance with the California Electrical Code (CEC). All cable/wire shall test free from all grounds and shorts.
 4. All fire alarm system cable/wire shall be labeled at all points of termination. All labeling shall be based on the room numbers as provided by the Owner or his representative.
 5. Protection and Dressing of Cables:
 - a. Cables mounted on backboards and within equipment racks, etc., shall be grouped and securely attached to the backboard or enclosure in horizontal and vertical bundles in a neat workmanlike manner using Thomas & Betts "Ty-Rap", Panduit cable mounts and Allen-Tel cable management or equal. Edge protection material ("cat-track") shall be installed on edges of holes, lips of ducts or any other point where cables or harnesses cross metallic edge.
 6. Underground Cables:
 - a. Any cable/wire pulled through manholes or pullboxes located below grade shall be continuous with no splices. The cable/wire shall be intact with no cuts in the protective outer jacket.
 - b. Shall be approved for use in underground applications.

3.03 SYSTEM START-UP

- A. All start-up programming and system commissioning shall be performed by a Silent Knight Certified Installer.

3.04 SYSTEM VERIFICATION

- A. Subsequent to system start-up the system installer shall perform a pre-test to verify that the following features are functioning properly.
1. All notification appliances
 2. All initiation devices
 3. All control modules
 4. All monitor modules
 5. Communication link to monitoring service

3.05 ACCEPTANCE TESTING

- A. The system installer shall, in the presence of the Owner's representative and the Inspector of Record (IOR), perform 100% testing as noted in System Verification above.
- B. References:
 - 1. CFC 907.17 – Acceptance Tests and CFC 907.18 – Record of Completion.
 - 2. NFPA 72 Chapter 10 – Inspection Testing and Maintenance.

3.06 IN SERVICE TRAINING

- A. The Contractor shall instruct personnel designated by the Owner in the proper use, basic care and maintenance of the system beyond the warranty period. Contractor shall provide up to eight hours of in-service training with this system.

3.07 FACTORY TRAINING & CERTIFICATION

- A. The manufacturer shall provide factory certified training to two (2) technicians from the County. These technicians shall be trained and certified as manufacturers certified technicians capable of performing any work on the system after the installation of the system.
- B. All cost for training including travel, lodging, meals and per diem shall be included in the Fire Alarm Contractor's bid for this project.

3.08 CONTRACT CLOSE-OUT DOCUMENTATION

- A. Contractor shall provide the following:
 - 1. One reproducible hard copy of project record drawings.
 - 2. One copy of manufacturer's maintenance and operation manuals.
 - 3. One copy of system warranty

3.09 WARRANTY

- A. The Contractor shall warrant the equipment to be new and free from defects in material and workmanship, and will, within one year from the date of installation, repair or replace any equipment found to be defective. This warranty shall not apply to any equipment that has been subject to misuse, abuse, negligence or unauthorized modification.

3.10 MANUFACTURER'S FIELD SERVICES

- A. The contractor shall, at the owner's request, make available a service contract offering continuing factory authorized service of this system upon expiration of the initial warranty period.
- B. The system manufacturer shall maintain engineering and service departments capable of rendering advice regarding installation and final adjustment of the system.

END OF SECTION

SECTION 31 10 00**SITE CLEARING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete all clearing and grubbing together with the removal and disposal of items, as shown on the drawings and as specified herein, complete.
 - 1. Remove all trees, plants and site materials that have been designated for demolition, after receiving approval from Owner's Representative.

1.02 SAFETY AND PROTECTION

- A. **Traffic:** Conduct demolition operations and removal of debris to ensure minimum interference with existing or Contractor installed temporary roads, streets and other adjacent occupied or used facilities. Do not close or obstruct streets without written permission from Owner. Provide temporary barricades, fences, canopies, railings and other safeguards to eliminate hazards to persons and property without interference to use of adjacent property, public rights-of-way, utilities and structures. Provide any signs or lights deemed necessary by the Owner.
- B. **Dust:** Prevent the spread of dust and flying particles. Sprinkle rubbish and debris with water and keep dust to minimum. Meet the requirements of the South Coast Air Quality Management District and applicable City, County, and State Laws.
- C. **Fire Protection:** Maintain adequate fire protection, including extinguishers and operative water hose lines during demolition.
- D. **Materials and debris** shall not be disposed of by burning at the demolition sites
- E. **Explosives:** The use of explosives is not permitted.
- F. Demolition operations shall be conducted in conformance with the applicable requirements of Article 31, Demolition, of the Construction Safety Orders of the Occupational Health and Safety.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION**3.01 CLEARING AND GRUBBING**

- A. Verify all trees and shrubs to be removed with Owner's Representative prior to starting any demolition work.

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- B. Clearing: Fell trees, dispose of the trees and other vegetation designated for remove together with the downed timber, snags, brush and rubbish, occurring within the construction limits. All limbs, branches, and roots damaged during construction, together with those required to be trimmed, shall be neatly cut next to the bole of the tree or main branch or root under the direction of a certified Arborist.
- C. Grubbing: Remove and dispose of all stumps above grade, all matted roots and all roots larger than 3 inches in diameter to a depth of 12".
- D. Removal: All cleared and grubbed plants and construction debris shall be promptly removed completely away from the Project site. Do not store or permit materials to accumulate on the Project site.
 - 1. Do not burn materials or debris on the premises.
 - 2. Remove all debris from the Project site to a legal dumping area.

3.02 TREE AND TREE STUMP REMOVAL

- A. Trees and tree stumps designated for removal shall be removed to 2 feet below finish grade minimum.

END OF SECTION

SECTION 31 22 00**GRADING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Work in this section includes, but is not necessarily limited to providing grading consisting of excavating and removing from the site unsuitable material; excavating; preparing areas to be filled; placing and compacting fill materials; and all other work necessary to conform with lines, grades, and slopes shown on the Drawings, as specified herein, and as needed for complete and proper excavation and grading operations.

1.02 REFERENCES

- A. Standards and Organization – Referenced American Society for Testing and Materials (ASTM) Standards
- B. Standard Specifications for Public Works Construction (Greenbook) latest Edition
- C. Caltrans Standard Plans Latest Edition
- D. California Manual on Uniform Traffic Control Devices (CA MUTCD, as amended for use in California) Latest Edition

1.03 DEFINITIONS

- A. Fill: Fill materials placed to raise the natural grade of the site or to backfill excavation.
- B. On-Site Material: Soil material which is obtained from the required excavation on the site.
- C. Imported Material: Soil material which is imported in from off-site areas.
- D. Select Material: On-site or imported material which is approved for use as structural fill.
- E. Subgrade: The uppermost surface of an excavation.
- F. Structures: Buildings, footings, foundations, retaining walls, tanks, mechanical and electrical appurtenances, or any other man-made stationary features constructed above or below ground surface.

1.04 QUALITY ASSURANCE

- A. Require continuous inspection for fill placement and compaction observations will be made by the Owner's Soil Engineer during the excavating, filling and compacting operations.
- B. Require continuous inspection for fill placement and compaction by Soil Engineer will make field density tests in accordance with ASTM D 1556-90. Density tests shall be made in the compacted materials below the surface where the surface is disturbed. When these tests indicate that the density of any layer of fill or portion thereof is below

the specified density, the particular layer or portions shall be reworked until the specified density has been obtained.

- C. Required inspection and testing will be paid for by the Owner.

1.05 SOILS REPORT

- A. A soils report for the project entitled, "Geotechnical Exploration Proposed Mead Valley Library" prepared by Leighton Consulting, Inc., and dated October 4, 2010 is available at the Architect's Office. The information is not intended as representations or warranties of the continuity of such conditions between soil borings. The Owner will not be responsible for interpretations or conclusions drawn there from. The data are made available for the convenience of the Contractor.
- B. Contractor shall examine aforementioned soils report and familiarize himself with its contents.
- C. Additional test borings and other exploratory operations may be made by Contractor at no cost to the Owner.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Provide approved borrow soil materials from off-site when sufficient approved soil materials are not available from excavations.
- B. Satisfactory Soil Materials: Excavated or imported soil material free of rock or gravel larger than 3-inches (50mm) in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter; and suitable for fill as determined by the Soils Engineer.
- C. Backfill and Fill Materials: Satisfactory soil materials.
- D. Topsoil: Sandy loam material with 100% passing through a 1" sieve.
- E. Concrete: Structural concrete with a compressive strength of 2,000psi for fill to correct unauthorized excavation. Structural strength of 3,000psi for existing concrete hardscape areas impacted by the work.

PART 3 EXECUTION

3.01 STAKING AND GRADES

- A. Lay out work; establish necessary markers, benchmarks grading stakes, and other stakes as required.
- B. Existing and finish elevations are shown on the drawings, and unless inconsistencies therein are brought to the attention of the Engineer in writing prior to commencement of construction, the Contractor will be held responsible for the proper location and elevation of all work.

- C. The contractor shall replace all existing concrete within the trenched concrete areas from nearest existing score line to score line. This same requirement applies for existing Portland Cement Concrete slab removals.

3.02 PROTECTION OF EXISTING

- A. Protect shrubs, lawn, and other features remaining as portion of final landscape.
- B. Protect benchmarks, fences, roads, sidewalks, pavements, and curbs which are to remain.
- C. Protect above or below grade utilities which are to remain.
- D. Protect facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by demolition and construction operations.
- E. Repair or replace all damage.

3.03 PREPARATION

- A. Over-excavate areas to receive structures or pavement as by the soils report, bring to a near optimum moisture content, scarify and recompact to at least 90 percent relative compaction (ASTM D 1557-91) prior to refilling the excavation to grade with properly compacted fill.
 - 1. No clearing or grading operations shall be performed without the presence of the Soils Engineer.
 - 2. All areas to be graded shall be stripped of significant vegetation and other deleterious materials.
 - 3. The proposed building area shall be over-excavated per soils report and Soils engineer.
 - 4. Imported fill shall be inorganic, granular soils, free from rocks or lumps greater than three-inch maximum dimension. Sources for import fill shall be inspected and approved by the Soils Engineer prior to their use.

3.04 EXCAVATION

- A. Excavate for foundations, pits, trenches, footings, floor slabs, concrete walks, curbs, paving, to the lines and levels required, indicated, and specified herein, and provide shoring, bracing, cribbing, pumping, and planking required. The bottoms of trenches shall be level, tamped firm, clean and free from debris or foreign matter. Include the watering of footing trenches for settlement as may be directed by the Geotechnical Engineer. Keep excavations free from standing water at all times.
- B. Should excavations for footings, through error, be excavated to a greater depth than indicated or directed, such additional depth shall be filled with "lean-mix" concrete.
- C. Excavated earth material which is suitable for structural fill or backfill, as determined by the Soil Engineer, shall be conditioned for re-use and properly stockpiled for later filling and backfilling operations. Condition by spreading in layers not to exceed 6 inches, each lift brought to near optimum moisture content, and compacted to a relative compaction of at least 90 percent (ASTM D 1557-91). Remove and dispose of off site rocks and aggregate, exceeding 3 inches in the largest dimension, and deleterious material.

- D. Remove abandoned sewers, piping, and other utilities encountered in the progress of the excavation and plug the ends in an approved manner. Stage on-site connections to maintain continuous utility service conveyance.
- E. Immediately report to the Engineer, and authorities having jurisdiction, active sewers, water and gas pipes, electric power, light or telephone poles, conduits, or wires, and other active utility lines encountered, which conflict with the Work. Allow the Owner and proper authorities free access to take what measures they deem necessary to repair relocate or remove the obstruction as determined by the Engineer.

3.05 COMPACTED FILLS

- A. Preparing Areas to be Filled:
 - 1. Remove objectionable material from the surface upon which the fill is to be placed and remove or compact loose and porous soils to the depths specified. Plow or scarify the surface to depths specified.
 - 2. After the foundation for the fill has been cleared, plowed or scarified, disc or blade until it is uniform and free from clods, bring to the proper moisture content and compact as specified for fill.
- B. Placing, spreading, and Compacting Fill Material:
 - 1. Place the fill material in layers that when compacted to not exceed 6 inches. Spread each layer evenly and thoroughly mix during the spreading to obtain uniformity of material in each layer.
 - 2. Aerate the fill material when the moisture content is above that specified by the Soils Engineer, by blading, mixing or other satisfactory methods until the moisture content is as specified.
 - 3. Add water to the fill material when the moisture content is below that specified by the Soils Engineer, until the moisture content is as specified.
 - 4. Thoroughly compact each layer to the specified density after it has been placed, mixed and spread evenly. Accomplish compaction by sheepsfoot rollers, vibratory roller, multiple-wheel pneumatic-tired rollers or other types of acceptable compacting equipment. Use equipment of such design that it will be able to compact the fill to the specified density. Compaction shall be continuous over the entire area and the equipment shall make sufficient trips to insure that the desired density has been obtained throughout the entire fill.
 - 5. Reshape the surface as indicated after the subgrade for the slabs on ground has been compacted and trenches backfilled, and prior to placement of under floor granular base. Eliminate high or low spots. Thoroughly compact the finish subgrade by rolling, vibrating and tamping to a uniform dense surface. Protect the subgrade from, displacement by equipment or other operations.
 - 6. Apply landscaping protection on graded slopes such as wildflower, jute mesh or other approved method.

3.06 TRENCHING AND BACKFILLING

- A. Backfill trenching within the pipe trench with structural fill meeting the requirements. Place backfill material in lift thickness appropriate to the type compaction equipment utilized and compact to a minimum degree of compaction of 90% by mechanical means. Utility trenches extending below 1:1 (horizontal: vertical) projection from the outer edge of

a foundation should be backfilled with lean concrete (3-sack) within the influence zone of the foundation.

- B. Place backfill in 8-inch layers, level and tamp in place. Jetting will not be permitted; excessive puddling will not be permitted. Compact all layers as specified herein.

3.07 PROTECTION OF WORK

- A. During construction properly grade excavated surfaces to provide positive drainage and prevent ponding of water. Do not permit water to accumulate in excavations. Control surface water to avoid damage to adjoining properties, or to finished work on the site. Take remedial measures to prevent erosion of freshly graded areas and slopes, until such time as permanent drainage and erosion control measures have been installed.
- B. Protect open excavations, trenches, and the like with fences, covers, and railings as required to maintain safe pedestrian and vehicular traffic passage. Prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.
- C. After completion of grading and the Soils Engineer has finished his observations of the work, no further excavation or filling shall be done except under the observation of the Soils Engineer.

3.08 FINISH GRADING

- A. Fine grade to bring areas to required lines and grades. The subgrade elevation within the building area for slabs on grade (without a base course) shall be within 0.10 feet along a 10 foot straight edge.
- B. Slope finish grades to drain surface water away from buildings, walks, paving, and other structures. Generally, grade with uniform slope between points where elevations are given, or between such points and existing grades.

3.09 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.10 COMPLETION REQUIREMENTS

- A. Cleanup: Leave entire graded portions of the site "rake-clean" and ready to for utility and landscaping improvements. All other areas adjacent to existing hardscape improvements shall be broom swept, light pressure washed, and left clean with no visual evidence of construction operations.
- B. Disposal: Pick up and transport unsuitable, deleterious excess material and debris to an off- site legal disposal area.

END OF SECTION

SECTION 32 11 00**BASE COURSE****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Work in this section includes, but is not necessarily limited to Installation of base material and improvements as indicated, specified, and required.

1.02 REFERENCES

- A. Standards and Organization – Referenced American Society for Testing and Materials (ASTM) Standards
- B. Standard Specifications for Public Works Construction (Greenbook) Latest Edition
- C. Caltrans Standard Plans Latest Edition
- D. California Manual on Uniform Traffic Control Devices (CA MUTCD, as amended for use in California) Latest Edition

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Untreated Base Materials
 - 1. Crushed Aggregate Base.
 - 2. Water: Clean, fresh and potable.
- B. Materials generated on site shall not be used as a base course material.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Base material shall be inspected for gradation and material content prior to installation. The owner may choose to have additional tests performed by a geotechnical engineer, retained by the Owner, before installation.

3.02 INSTALLATION

- A. Install base course material in layers not exceeding 4 inches in thickness, unless required otherwise. Grade and compact to indicated levels or grades, cut and fill, water and roll until the surface is hard and true to line, grade and required section. Provide a relative compaction of at least 95 percent, unless otherwise required.
- B. Grade base course to elevations indicated on Drawings, ready to receive surfacing, in accordance with Section 30 22 00: Grading.

3.03 PROTECTION OF WORK

- A. Protect the Work of this section until Substantial Completion.

END OF SECTION

SECTION 32 12 00**FLEXIBLE PAVING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Work in this section includes, but is not necessarily limited to paving for playground, parking areas, areas, between buildings, synthetic track surfacing adjacent to planting and turf areas as indicated and related paved improvements as indicated, specified, and required.

1.02 REFERENCES

- A. Standards and Organization – Referenced American Society for Testing and Materials (ASTM) Standards
- B. Standard Specifications for Public Works Construction (Greenbook) Latest Edition
- C. Caltrans Standard Plans Latest Edition
- D. California Manual on Uniform Traffic Control Devices (CA MUTCD, as amended for use in California) Latest Edition

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Provide materials of the class, grade, or type indicated on the Drawings, conforming to relevant provisions of the Standard Specifications for Public Works Construction.

PART 3 EXECUTION**3.01 ON-SITE ASPHALT CONCRETE PAVEMENT WORK**

- A. Thickness of Surfacing: Unless otherwise indicated on Drawings or specified, install bituminous surfacing to a compacted thickness of 2 inches.
- B. Provide surfacing material over base course as specified in Section 32 11 00: Base Course.
- C. Surfaces of walls, concrete, masonry, or existing bituminous surfacing indicated to be in direct contact with installed bituminous surfacing shall be cleaned, dried and uniformly coated with an asphaltic emulsion film.
- D. Thicken edges of bituminous surfacing that do not abut walls, concrete, or masonry, and edges joining existing bituminous surfaces. Remove headers at existing bituminous surfacing where new bituminous surfacing is to be installed. Thicken edges an additional 2 inches and taper to the indicated or specified thickness 6 inches back from such edges.

- E. Provide adequate protection for concrete, planting areas, and other finish Work adjacent to areas indicated to receive bituminous surfacing.
- F. Placement
1. Do not install bituminous surfacing when atmospheric temperature is below 40 degrees F; or when fog or other unsuitable weather conditions are present. Temperature of mixture at time of installation shall not be lower than 260 degrees F in warm weather or higher than 320 degrees F in cold weather.
 2. Where 2-inch or 3-inch thick surfacing is indicated or specified, install surfacing in one course. Where surfacing is indicated or specified 4 inches or more in thickness, except for thickened edges, install bituminous surfacing in courses of approximately equal thickness, each course not exceeding 2-1/2 inches in thickness unless otherwise required by the Architect.
- G. Spreading
1. Install bituminous surfacing in a manner to cause least possible handling of mixture. In open areas and wherever practicable, install by mechanical means with a self-propelled mechanical spreader. In confined or restricted areas, install mixture with hot shovels and rakes, and smooth with lutes.
- H. Rolling
1. Finish roll with a self-propelled tandem roller weighing at least 8 tons. Break down roll with a self-propelled roller weighing between 1-1/2 tons and 8 tons.
 2. Roll in a manner that preserves flow lines and the established finished grades. Break down roll in areas adjacent to flow lines parallel to flow lines. Break down roll after bituminous surfacing is installed without shoving or cracking of mixture under roller. Continue finish rolling until surfacing is unyielding, true to grade, and meets requirements for specified smoothness. Areas inaccessible to finish roller may be finish rolled with breakdown roller or tamped with hot tamping irons and smoothed with hot smoothing irons or hand roller.
 3. Where bituminous surfacing abuts concrete, masonry, walks or concrete paving, tamp joint smooth, if necessary, as described above to obtain a uniformly even joint, true to line and grade. Tamp and smooth to properly compact.
 4. Compacted bituminous surfacing shall be provided with a bulk specific gravity of at least 2.31 when tested in accordance with ASTM D 1188.

3.02 TOLERANCE

- A. Smoothness: Surface of bituminous surfacing after rolling, shall be even, smooth and uniform in texture with no voids or rock pockets, free of roller marks or other irregularities, and not varying by more than 0.03 foot, except at local depressions or raised areas as indicated, when a 10 foot straightedge is placed on surface.
- B. Grade: Finished grade shall not vary more than 0.02 foot above or below required grade. Variations within prescribed tolerance shall be compensating so that average grade and cross-section are provided.

3.03 FINISH

- A. Surface Sealing

1. Surface Preparation
 - a. Thoroughly wash surfaces with water to remove dirt, debris, excessive oil and grease, or other foreign matter.

2. Application
 - a. Install seal coat in strict accordance with manufacturer's written directions and recommendations.
 - b. Install 2 coats of surface seal to new bituminous surfacing. First coat shall be installed before flood testing. Clean surface and allow to dry before installing second coat. Second coat shall be installed after bituminous surfacing has passed flood test.
 - c. Where new bituminous surfacing is installed adjacent to existing bituminous surfacing, overlap surface seal a minimum of 12 inches onto existing bituminous surfacing.
 - d. Where existing bituminous surfacing is indicated to be patched and sealed, install 2 coats of surface seal after patching

3.04 PROTECTION OF SURFACES

- A. Protect sealed and unsealed surfaces from damage and traffic during performance of the Work of this section and until surface seal has thoroughly set and cured. Do not permit traffic of any kind for at least 24 hours after completion of installation.

- B. Protect the Work of this section until Substantial Completion.

END OF SECTION

SECTION 32 13 00**RIGID PAVING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Work in this section includes, but is not necessarily limited to concrete paving, driveway aprons, curbing/gutters, and related concrete improvements as indicated, specified, and required.

1.02 REFERENCES

- A. Standards and Organization – Referenced American Society for Testing and Materials (ASTM) Standards
- B. Standard Specifications for Public Works Construction (Greenbook) Latest Edition
- C. Caltrans Standard Plans Latest Edition
- D. California Manual on Uniform Traffic Control Devices (CA MUTCD, as amended for use in California) Latest Edition

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Concrete
 - 1. Portland cement.
 - 2. Aggregates from approved source to insure uniform quality and grading. Deliver so that moisture content variations will not decrease production of reasonably uniform concrete.
 - 3. Water: Clean, fresh and potable.
- B. Expansion and Control Joints
 - 1. Curbs and gutters: Asphalt impregnated fiber filler material, 1/2 inch thick.
 - 2. Control joints for concrete walks and exterior concrete pavement: As shown on siteplan. Control joints shall be a formed joint. Tops of joints shall be installed flush with the concrete surface. Depth of joint shall be a minimum of 1/4 the thickness of slab. Use control joints on all curbs, curbs and gutters, and cross gutters at maximum intervals of 16 feet on center. Sawed joints may be used in lieu of the above, providing they are at least one inch deep.
- C. Concrete Wheel Stops
 - 1. Precast concrete using smooth metal forms, 2,000 psi concrete, with one No. 3 horizontal reinforcement bar; 6 inches high, sides battered, 6 inch top, 8 inch bottom, ends vertical, with edges rounded (3/4 inch radius).

- D. Striping and Markings
 - 1. Accessible parking spaces shall be marked in accordance with CBC Section 129B.5.
 - 2. Truncated Dome Tactile Warnings shall be in accordance with CBC Section 1133B.8.5.

PART 3 EXECUTION

3.01 ON-SITE CONCRETE WORK

- A. Construct all site concrete of 2,500psi concrete unless otherwise indicated or specified. Provide reinforcing bars or mesh where indicated. Form accurately to profiles shown, using wood, metal or plastic forms as approved. Place and handle concrete in manner that will avoid segregation of ingredients.
- B. Concrete Curbs: Provide 1/2" thick expansion joints at beginning and at end of curves, intersections, and 20-foot intervals between, set plumb, square, and to same profile as the curbs. Edge curb tops to 1/2" radius and vertical joints to 1/4" radius.
- C. Concrete Gutters: Provide 1/2" thick expansion joints as above for curbs.
- D. Combination Curb and Gutter: As above for curbs and gutters, including expansion joints.
- E. Concrete Walks: Provide 1/2" expansion joints as specified for curbs and where walks abut rigid structures, aligned with joints in curbs where adjoining.
- F. Control Joints: Provide for concrete walks and exterior concrete pavement as indicated. Install tops of the joints flush with the concrete surface and depth of joint a minimum of 1/4 the thickness of slab.

3.02 FINISH

- A. Walks and Pavement: Finish concrete as noted on drawings. Score walks and or pavement in direction and pattern indicated on drawings.
- B. Gutters: Light broom finish with 3 inch wide steel trowel finish at flow line.
- C. Curbs: Steel trowel finish, followed by fine hair brush finish.
- D. Ramps, Stair Tread and Landings: Medium broom finish on surfaces < 6% slope. Heavy broom finish on surfaces > 6% slopes.
- E. 'Smooth Finish' concrete means that the concrete is to be steel troweled to a smooth finish.

3.03 CURING

- A. Concrete work shall be properly cured and protected against injury and defacement of any nature during construction operations. If weather is hot or surface has dried out, spray surface with fine mist of water, starting not later than 2 hours after final troweling. Surface of finish shall be kept continuously wet for at least 10 days. Wetting is considered emergency work and shall be performed on weekends and holidays if necessary.

- B. In lieu of water curing, within 24 hours after finishing, the concrete may be cured with an approved clear liquid curing compound, applied in accordance with the manufacturer's recommendations.

3.04 FLOOD TEST

- A. All concrete gutters and concrete pavement shall be given a flood test. All concrete work, where water ponds and does not run off, shall be removed by the Contractor to the nearest score or joint line and replaced to provide proper drainage.

END OF SECTION

SECTION 33 11 00
WATER DISTRIBUTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This Section describes materials and installation of PVC water pipe, fittings, hydrants, thrust blocks, and accessories for pressure flow and all appurtenant work as indicated on the plans, as specified in this section and as directed by the Engineer.

1.02 REFERENCES

- A. Eastern Municipal Water District Standards and Specifications.
- B. Standard Specifications for Public Works Construction (Greenbook) Latest Edition
- C. California Plumbing Code Latest Edition
- D. National Fire Protection Association Standards (NFPA 24) Latest Edition
- E. American Water Works Association Standards (AWWA) Latest Edition

1.03 SUBMITTALS

- A. Product data for each type of manufactured material and product included.

1.04 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of embedded utilities and components that are concealed from view.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Polyvinyl Chloride (PVC) pipe, AWWA C900, Class 150.
- B. Ductile Iron (DIP) pipe.

2.02 ACCESSORIES

- A. Valves and Fittings: Conform to AWWA specifications. All valves and fittings shall be designed for an operating pressure larger than the design pressure of lines on which they are installed.
- B. Thrust Blocks: Provide on water lines at bends, tees, and hydrants. Use 2,500psi concrete. Locate and place in accordance with standard practice.

2.03 HYDRANTS

- A. As required by utility company and/or local fire authority.

2.04 PIPE IDENTIFICATION

- A. Metallic-Lined Underground Warning Tapes: Polyethylene plastic tape with metallic core, 6 inches wide by 4 mils thick, solid blue in color with continuously printed caption in black letters "CAUTION-WATER LINE BURIED BELOW".

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated.
- B. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

- A. Hand trim excavations to required elevations.
- B. Correct over excavations with sand fill material.
- C. Remove large stones or other hard matter which could damage pipe or impede consistent backfilling or compaction.

3.03 INSTALLATION

- A. Pipe
 1. Install water distribution system to connect to building water supply connection, of size and in locations indicated.
 2. Maintain separation of water piping from sewer piping in accordance with code.
 3. Form and place concrete thrust restraints at each change in direction of pipe.
 4. Install in accordance with AWWA M23.
 5. Install sand on sides and over top of pipe. Provide top cover to minimum compacted thickness of 12 inches..
 6. Do not displace or damage pipe when compacting.
 7. Install warning tape during backfilling of trench for water distribution pipe. Locate tape 8 inches below finished grade directly over piping.
- B. HYDRANTS
 1. Install in accordance with AWWA M17.
 2. Set hydrants plumb and locate nozzles perpendicular to roadway.
 3. Set hydrants at grade with nozzles at least 20 inches above ground.

3.04 PROTECTION OF WORK

- A. Protect open excavations, trenches, and the like with fences, covers, and railings as required to maintain safe pedestrian and vehicular traffic passage.

- B. Protect pipe from damage or displacement until backfilling operation is in progress.

END OF SECTION

SECTION 33 30 00

SANITARY SEWER

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This Section describes materials and installation of non-pressure sewer pipe, fittings, and accessories for gravity flow and all appurtenant work as indicated on the plans, as specified in this section and as directed by the Engineer.

1.02 REFERENCES

- A. Eastern Municipal Water District Standards and Specifications.
- B. Standard Specifications for Public Works Construction (Greenbook) Latest Edition
- C. California Plumbing Code Latest Edition.

1.03 SUBMITTALS

- A. Product data for each type of manufactured material and product included.

1.04 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of embedded utilities and components that are concealed from view.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Vitrified Clay (VCP) pipe

2.02 FITTINGS

- A. Same material as pipe, molded or formed to suite pipe size and end design, in required "T" bends, elbows, cleanouts, reducers, traps, and other configurations required.

2.03 MANHOLES AND CLEANOUTS

- A. Lid and Frame: Cast-iron construction, removable lid, closed lid design, nominal frame and lid diameter as indicated.
- B. Shaft Construction and Cone Top Section: Reinforced pre-cast concrete pipe sections, lipped male/female dry joints; cast steel ladder rungs into shaft sections at 12-inches nominal shaft diameter as indicated.
- C. Base Pad: Cast-in-place concrete, leveled top surface to receive concrete shaft sections, sleeved to receive sewer pipe sections.

- D. Cleanouts: Cast-iron ferrule and countersunk brass cleanout plug, with round cast-iron access frame and heavy-duty secured, scoriated cast-iron cover.

2.04 PIPE IDENTIFICATION

- A. Metallic-Lined Underground Warning Tapes: Polyethylene plastic tape with metallic core, 6 inches wide by 4 mils thick, solid blue in color with continuously printed caption in black letters "CAUTION-SANITARY SEWER LINE BURIED BELOW".

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated.
- B. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

- A. Hand trim excavations to required elevations.
- B. Correct over excavations with sand fill material.
- C. Remove large stones or other hard matter which could damage pipe or impede consistent backfilling or compaction.

3.03 INSTALLATION

- A. Pipe
 - 1. Install sanitary sewerage system to connect to building sanitary drain, of size and in locations indicated.
 - 2. Place pipe on minimum 4-inch deep bed of sand.
 - 3. Lay pipe to slope noted with maximum variation from true slope 1/8 inch per 10 feet.
 - 4. Install sand on sides and over top of pipe. Provide top cover to minimum compacted thickness of 12 inches.
 - 5. Do not displace or damage pipe when compacting.
 - 6. Install warning tape during backfilling of trench for sanitary sewer pipe. Locate tape 8 inches below finished grade directly over piping.
- B. Manholes
 - 1. Form bottom of excavation clean and smooth to correct elevation.
 - 2. Form and place cast-in-place concrete base pad, with provision for sanitary sewer pipe end sections.
 - 3. Establish elevations and locations for pipe inlets and outlets as indicated.
 - 4. Mount lid and frame level in grout, secure to top cone section to elevation indicated.
- C. Cleanouts

1. Install cleanouts and extension from sewer pipe to cleanout at grade indicated.
2. Set cleanout frame and cover in concrete block 18 x 18 x 12 inches deep.
3. Set top of cleanouts flush with paved surfaces. If in unpaved areas, set top 1 inch above surrounding grades.

3.04 PROTECTION OF WORK

- A. Protect open excavations, trenches, and the like with fences, covers, and railings as required to maintain safe pedestrian and vehicular traffic passage.
- B. Protect pipe from damage or displacement until backfilling operation is in progress.

END OF SECTION