FORMAL CONTRACT DOCUMENTS AND SPECIFICATIONS

Library Technical Services T.I. Project

CITY OF COMMERCE

2535 COMMERCE WAY
COMMERCE, CA. 90040
TEL: (323) 722-4805

Prepared Under the Supervision of:
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Director of Public Works and Development Services

Prepared and Issued by:
Public Works and Development Services Department

Date Issued:
December 21, 2016

BIDS DUE: February 2nd by 12:00 pm

Mandatory Pre-Bid Meeting: January 12th at 10:00 am

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CITY OF COMMERCE
NOTICE INVITING SEALED BIDS
LIBRARY TECHNICAL SERVICES T.I. PROJECT

NOTICE IS HEREBY GIVEN that sealed bids will be received by the City of Commerce ("City"), on behalf of the Public Works and Development Services Department, for the above stated project.

1. **DATE OF THIS REQUEST: December 21, 2016**

2. **DUE DATE:** Sealed bids shall be submitted on or before **12:00 PM, February 2, 2017.** ***Late proposals will not be considered.***

3. **DESCRIPTION OF WORK:** The work to be performed and executed under these specifications consists of furnishing all labor, services, materials, tools, equipment, supplies, transportation, utilities, incidentals and all other items and facilities necessary for the acceptable completion of all work necessary to complete the project as represented on the drawings and specifications.

4. **LOCATION:** 2535 Commerce Way, Commerce, CA 90040

5. **BID DOCUMENTS**:
   Contract Documents, Specifications, and Drawings are available at the City of Commerce website, http://www.ci.commerce.ca.us/Bids.aspx . There is no charge to download the documents.

6. **BID DELIVERY:** Bids must be prepared on the approved bid forms in conformance with the Instructions to Bidders and submitted in a sealed envelope plainly marked on the outside: "**"Library Technical Services T.I. Project – Do Not Open With Regular Mail."** Bids may be mailed or delivered by messenger to: City of Commerce, Attn: City Clerk, 2535 Commerce Way, City of Commerce, California 90040.

Bids will be publicly opened and read aloud.

7. **PRE-BID MEETING:** All bidders must attend a **MANDATORY** pre-bid meeting which will be held at the **City of Commerce, Council Chambers, located at 2535 Commerce Way, Commerce, CA. 90040** on **January 12, 2017 at 10:00 A.M.** Please RSVP in writing via e-mail to Paul Banuelos, Project Manager (Consultant) at pbanuelos@swinerton.com with a copy to Gina Nila, Deputy Director of Public Works Operations at ginan@ci.commerce.ca.us. Please include company name, contact information and phone number.

8. **BID BOND:** Bids must be accompanied by a bid bond, made payable to the City of Commerce for an amount no less than ten percent (10%) of the bid amount.

9. **BID INQUIRIES:** All questions regarding this bid shall be directed via email, no later than **January 19, 2017 at 12:00 pm**, to Paul Banuelos, Project Manager (Consultant) at pbanuelos@swinerton.com with a copy to Gina Nila, Deputy Director of Public Works Operations at ginan@ci.commerce.ca.us. ***It is the responsibility of the bidder to confirm transmission of correspondence.***

10. **CONTRACTOR'S LICENSE:** Bidder may only bid on work for which Bidder is properly licensed by the Contractors' State License Board. The successful bidder shall be licensed in accordance with provisions of the Business and Professions Code and shall possess a Class B license or a

combination of appropriate Class licenses at the time this contract is awarded. The successful Contractor and his subcontractors will be required to possess business licenses from the City of Commerce. No contract will be awarded to a bidder who is not licensed in accordance with the law under the provisions of Division III, Chapter 9, of the California Business and Profession Code at the time of the award.

11. **REQUIREMENTS:** All bidders are required to comply with all applicable California competitive bidding and labor compliance laws including, but not limited to, active solicitation of subcontract bids from minority-owned businesses, women-owned businesses, and businesses owned by disabled veteran's. Compliance with California prevailing wage rates and apprenticeships employment standards established by the State Director of Industrial Relations is required.

The City reserves the right to reject any or all bids, to waive any irregularity, and to take all bids under advisement for a period of thirty (30) days.

BY ORDER OF the City Council of the City of Commerce, California on **December 21, 2016.**

_____ _____

Gina Nila, Deputy Director of Public Works Operations DATE

SECTION 00200
INSTRUCTIONS TO BIDDER'S

1. GENERAL

Bidder shall examine these instructions carefully and be responsive to conditions with which must be complied with prior to bid. Bidders shall be aware of the requirements of codes referenced in the Bidding Requirements and in the Contract Documents.

2. BID DOCUMENTS

Contract Documents, Specifications, and Drawings are available at the City of Commerce website, http://www.ci.commerce.ca.us/Bids.aspx . There is no charge to download the documents.

3. MANDATORY PRE-BID MEETING

It is the intent of this Contract that it be performed only by a Contractor having the special expertise and organizational capabilities necessary to accomplish the scope of work. All bidders must attend a **MANDATORY** pre-bid meeting which will be held at the **City of Commerce, Council Chambers**, located at 2535 Commerce Way, Commerce, CA. 90040 on **January 12, 2017 at 10:00 am.** Please RSVP in writing via e-mail to Paul Banuelos, Project Manager (Consultant) at pbanuelos@swinerton.com with a copy to Gina Nila, Deputy Director of Operations at ginan@ci.commerce.ca.us. Please include company name, contact information and phone number.

4. PROPOSAL FORMS

Bids shall be submitted in writing on forms provided by the City. All information requested therein must be clearly and legibly set forth in the manner and form indicated. The City will not consider any proposal not meeting these requirements.

5. DELIVERY OF PROPOSAL

Bids must be prepared on the approved bid forms in conformance with the Instructions to Bidders and submitted in a sealed envelope plainly marked on the outside: "**Library Technical Services T.I. Project – Do Not Open with Regular Mail".** Bids may be mailed or delivered by messenger to: City of Commerce, Attn: Purchasing Division of Finance, 2535 Commerce Way, City of Commerce, California 90040. Sealed bids for the project shall be submitted on or before: **February 2, 2017 at 12:00 pm, AT WHICH TIME THEY WILL BE PUBLICLY OPENED.** ***Late proposals will not be considered.***

6. BID BOND

Proposals must be accompanied by a proposal guarantee consisting of a bid bond payable to the City in the amount not less than ten percent (10%) of the total amount bid. Any proposal not accompanied by such a guarantee will not be considered. If a bidder to whom a contract is awarded fails or refuses to execute the contract documents or furnish the required insurance policies and bonds as set forth in those documents, the proposal guarantee shall be forfeited to the City. The proposal guarantees of all bidders will be held until the successful bidder has properly executed all contract documents.

7. EXAMINATION OF SITE

Bidders shall examine the site of the work and acquaint themselves with all conditions affecting the work. By submitting a bid, the Bidder shall be held responsible to have personally examined the site, to have carefully read the specifications, and to have satisfied itself as to its ability to meet all the difficulties attending the execution of the proposed contract before the delivery of this proposal, and agrees that if awarded the contract, will make no claim against the City based on ignorance or misunderstanding of the specifications, site conditions and/or contract provisions.

8. PRE-BID INQUIRIES

All questions regarding this bid shall be directed via email, no later than **January 19, 2017 at 12:00 am**, to Paul Banuelos, Project Manager (Consultant) at pbanuelos@swinerton.com with a copy to Gina Nila, Deputy Director of Operations Services at ginan@ci.commerce.ca.us. ***It is the responsibility of the bidder to confirm transmission of correspondence.***

9. AFFIRMATIVE ACTION

The City hereby notifies all qualified bidders that it will affirmatively insure that qualified minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the basis of race, color, national origin, ancestry, sex, religion, or handicap in consideration for an award. Attention is directed to the provisions of Section 1777.5 (Chapter 1411, Statutes of 1968) and 1777.5 of the Labor Code concerning the employment of apprentices by the Contractor's or any such subcontractors under hire. The bidders and the selected Contractor's shall not allow discrimination in employment practices on the basis of race, color, national origin, ancestry, sex, religion, or handicap.

10. CARTWRIGHT ACT REQUIREMENTS

In entering into a public works contract, or a subcontract, to supply goods, services, or materials pursuant to a public works contract, the Contractor's, or subcontractor's, offers and agrees to assign to the awarding body all rights, title and interest in, and to, all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public work's contract or subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor's, without further acknowledgment by the parties.

11. CONSTRUCTION SCHEDULE

In accordance with the provisions of Section 01321 of the Standard Specifications, and/or as may be provided for within the herein Special Provisions, after notification of award and prior to start of any work, the Contractor's shall submit to the Engineer for approval its proposed Construction Schedule. The selected Contractor shall complete the project within **75** work days of City's issuance of a Notice to Proceed.

12. WORKING HOURS

Working hours for this project will be:

Day Work: 7:00 am - 4:00 pm, Monday - Friday

No work will be allowed on legal holidays and weekends without prior approval by Director of Public Works and Development Services.

13. WITHDRAWAL OF PROPOSALS

A proposal may be withdrawn by a written request signed by the bidder. Such requests must be delivered to the City's designated official prior to the bid opening hour stipulated in the Notice Inviting Bids. Proposals may not be withdrawn after the bid opening hour stipulated in the Notice Inviting Bids without forfeiture of the proposal guarantee. The withdrawal of a proposal will not prejudice the right of the bidder to submit a new proposal, providing there is time to do so.

14. IRREGULAR PROPOSALS

Unauthorized conditions, limitations, or provisions attached to a proposal will render it irregular and may cause its rejection. The completed proposal forms shall be without interlineations, alterations, or erasures. Alternative proposals will not be considered unless specifically requested. No oral, telegraphic, or telephonic proposal, modification, or withdrawal will be considered.

15. DISQUALIFICATION OF BIDDERS

In the event that any bidder acting as a prime Contractor has an interest in more than one proposal, all such proposals will be rejected, and the bidder will be disqualified. This restriction does not apply to subcontractors or suppliers who may submit quotations to more than one bidder, and while doing so, may also submit a formal proposal as a prime Contractor.

16. DISCREPANCIES AND MISUNDERSTANDINGS

Before submitting a Proposal, Bidders must satisfy themselves by personal examination of the work site, Plans, Specifications, and other contract documents, and by any other means as they may believe necessary, as to the actual physical conditions, requirements and difficulties under which the work must be performed, and fully inform themselves as to all existing conditions and limitations, and shall include in the Proposal, the cost of all items necessary in the completion of the project. The Bidder shall not be allowed any extra compensation by reason of any matter or thing, concerning that which such the Bidder might have fully informed them prior to the bidding. No bidder shall at any time after submission of a proposal make any claim or assertion that there was any misunderstanding or lack of information regarding the nature or amount of work necessary for the satisfactory completion of the job.

Any errors, omissions, or discrepancies found in the Plans, Specifications, or other contract documents shall be called to the attention of the City. Should a Bidder find any ambiguity, inconsistency or error in the plans and project manual, or be in doubt as to their meaning, the Bidder shall notify the City, in writing as specified in the Notice Inviting Bids Section. Issues requiring clarification will be addressed in a written addendum response, sent to each Bidder, person or firm recorded by the City

as having attended the mandatory pre-bid meeting. Any addenda issued by the City during the time of bidding are to be included in the proposal from the Bidder, and shall become a part of the Bid documents. The Bidder shall acknowledge receipt of addenda on the proposal form in the space provided.

17. SOLE SOURCE PROVISIONS

In accordance with Section 3400 of the California Public Contract Code, no materials or equipment is intended to be identified as "sole source". All material and equipment is specifically identified as is **or equal**. Bidders are encouraged to propose alternates for evaluation by the City as being equal to that specified in the contract documents.

18. PERMITS AND LICENSES

The Contractor's shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work. The Contractor's shall pay for and obtain a City Business License. Permit Fees will be reimbursed per Contact Allowance Item.

19. CONTRACTOR'S LICENSE LAW

Bidder may only bid on work for which Bidder is properly licensed by the Contractors' State License Board. No contract will be awarded to a bidder who is not licensed in accordance with the law under the provisions of Division III, Chapter 9, of the California Business and Profession Code at the time of the award.

Bidders shall comply with and require all subcontractors to comply with all Federal, State and City Contractor's License Laws and be duly registered and licensed there under as required. Joint venture Bidders must possess a joint venture license. Each party to a joint venture shall be properly licensed for the Work of this Project.

20. EMPLOYMENT OF UNDOCUMENTED ALIENS

Pursuant to Section 6101 of the Public Contract Code, the City may not award a public works contract to a bidder or contractor, nor shall a bidder or contractor be eligible to bid for or receive a public works contract, who has, in the preceding five years, been convicted of violating a state or federal law respecting the employment of undocumented aliens.

21. CONTRACT BONDS

The successful Bidder is required to provide and pay for a performance and a payment bond. These bonds shall cover the faithful performance (100%) of the Contract for Construction and the payment of all obligations (100%) arising there under, in such form as the City may prescribe and with such sureties as they may approve. The successful Bidder shall require the attorney in fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his Power of Attorney indicating the monetary limit of such power.

The City reserves the right to reject any proposed bonding company without stating cause. In this event the successful Bidder shall provide an alternate bonding company whose selection is acceptable to the City.

Bonds shall conform to state statutes regarding performance bond and labor and material payment bond with amount shown on each part equal to 100% of the total amount payable by terms of the Contract for Construction. The surety company shall be licensed to do business in the state in which the project is located and shall be acceptable to the City. Bond amount shall be increased to include any Change Order(s) added to the contract to 100% total value amount of each Change Order. Bonds will be recorded along with a copy of the construction contract in the County Recorder Records by the General Contractor's with written proof submitted to the City.

22. INSURANCE

All bidders must be able to provide proof with bid submittal of a minimum of **$2,000,000** general/public liability insurance and additional **$5,000,000** umbrella / excess liability insurance. At time of contract, the City shall be named as "additional insured" on all policies required and contractor shall provide Additional Insured Endorsement as evidence of such. The liability insurance coverage values shall be:

- Public Liability and Property Damage Insurance in an amount of not less than TWO MILLION DOLLARS **($2,000,000);**
- Products/Completed Operations Hazard Insurance in an amount of not less than FIVE MILLION DOLLARS **($5,000,000);**
- Comprehensive Automobile Liability Insurance in an amount of not less than TWO MILLION DOLLARS **($2,000,000);**
- Contractual General Liability Insurance in an amount of not less than TWO MILLION DOLLARS **($2,000,000);**
- or GENERAL AGGREGATE LIABILITY in an amount of not less than TWO MILLION DOLLARS **($2,000,000).**

A combined single limit policy with aggregate limits in an amount of not less than Five MILLION DOLLARS **($5,000,000)** shall be considered equivalent to the said required minimum limits set forth herein above.

The City of Commerce requires a separate Certificate of Endorsement that enforces the general liability statement: "Additional insured endorsement names the City of Commerce as additional insured." The certificate should indicate that their insurance is primary and noncontributory.

Proof of Worker's Compensation Insurance is required.

Automobile and lease vehicle insurance; owned, not owned and hired. Insurance to include bodily injury, sickness and death of any person and property damage owned and un-owned per occurrence.

23. SOCIAL SECURITY ACT

The successful Bidder agrees to comply with and to require all of his subcontractor's to comply with all the provisions of the Act of Congress approved August 14, 1935, known and cited as the "Social Security Act" and also the provisions of the act of the State Legislature approved, and known as the State Unemployment Compensation Law and all other laws and regulations pertaining to labor and workmen and all amendments to such data, and the Contractor further agrees to indemnify and hold

harmless the City of Commerce of and from any and all claims and demands made against it by virtue of the failure of the Contractor's or any subcontractor's to comply with the provisions of any or all of said acts and amendments.

24. SALES AND USE TAX

The successful Bidder agrees to comply with and to require all of his subcontractors to comply with all the provisions of applicable state sales excise tax law and compensation use tax law and all amendments to same. The successful Bidder further agrees to indemnify and hold harmless the City of Commerce of and from any and all claims and demands made against virtue of the failure of the Contractor or any Subcontractor to comply with the provisions of any or all said laws and amendments. No mention shall be made in the proposal of Sales Tax, Use Tax, or any other tax, as all amounts bid will be deemed and held to include any such taxes which may be applicable.

25. WAIVER OF LIENS

The successful Bidder (General Contractor) is responsible for the payment of all bills for labor and materials furnished by the subcontractor, the suppliers, and the General Contractor on this project. The General Contractor shall deliver to the City unconditional Lien Waivers and/or Releases from himself and from each of his subcontractors and suppliers, and at such time he shall certify that he is submitting such lien waivers for all subcontractors and suppliers involved. If any liens are filed against the City property, the City may, at its option, demand General Contractor immediately provide a bond in accordance with state statutes.

26. LEGAL RESPONSIBILITIES

All proposals must be submitted, filed and executed in accordance with State and Federal laws relating to bids for contracts of this nature whether the same or expressly referred to herein or not. Any bidder submitting a proposal shall by such action thereby agree to each and all of the terms, conditions, provisions, and requirements set forth, contemplated, and referred to in the Plans, Specifications, and other contract documents, and to full compliance therewith.

27. AWARD OF CONTRACT TO LOWEST RESPONSIBLE BIDDER MANDATORY

The right is reserved to reject any and all bids and waive any irregularity in any bid received. Award of the Contract, if awarded, will be to the lowest responsible and responsive bidder whose Bid Form complies with all requirements prescribed. Such award, if made, will be made within 60 days after opening of bids.

If lowest responsible Bidder refuses or fails to execute the Contract, the Director of Community Development may award the Contract to the second lowest responsible Bidder. Such award, if made, will be made within 75 days after opening of bids.

If second lowest responsible Bidder refuses or fails to execute the Contract, the Director of Community Development may award the Contract to the third lowest responsible Bidder. Such award if made, will be made within 90 days after opening of bids.

The above time periods within which award of Contract may be made are subject to extension of such further period as may be agreed upon in writing between the Department of Community Development and the Bidder concerned.

When Project is segregated into more than one prime Contract, and a Bidder upon one of the prime Contracts fail or refuses to execute the Contract, then the time for award of such Contract will be extended as provided by this Article, and the time for award of each of the other segregated prime Contracts will be extended by an equivalent length of time, if required.

28. CALIFORNIA PREVAILING WAGE

Bidder agrees to comply with California Labor Code Sections 1771, 1775, 1776, 1777.5,1813, and 1815 to the performance of its work on this project. Specifically, the Bidder agrees to:

1. Pay all workers not less than the general prevailing rate of per diem wages for work of similar character in the locality in which the public work is performed.
2. Pay all workers not less than the general prevailing rate of per diem wages for holiday and overtime work fixed as provided in this chapter.
3. Adhere to the compliance measures outlined in LC 1775(b) for any second tier subcontractors that the contractor chooses to use on this project.
4. If requested, submit certified payroll records to the City on a weekly basis. Records shall be provided no later than 5 days following the last day of each workweek.
5. Comply with the applicable requirements and joint apprenticeship standards as required by LC 1777.5.

29. EMPLOYMENT OF APPRENTICES

Attention is directed to the provisions in Section 1777.5 of the California Labor Code concerning employment of apprentices by the Contractor's or any subcontractor's under him. The Contractor and any subcontractor under him shall comply with the requirements of said section in the employment of apprentices; however, the Contractor shall have full responsibility for compliance with said Labor Code section for all apprentice occupations, regardless of any other contractual or employment relationships alleged to exist.

30. SUBCONTRACTS

Bidders' attention is directed to other provisions of the Subletting and Subcontracting Fair Practices Act, beginning with Public Contract Code Section 4100, related to penalties for failure to comply with the Act by using unauthorized subcontractors or by making unauthorized substitutions. The Contractor is required to perform, with its own organization, Contract work amounting to at least twenty percent (20%) of the Contract Price. Failure to meet these requirements will result in disqualifying of the bid or termination of the contract. This provision supersedes any other provisions which specified a different subcontract requirement.

Proposed subcontractor's names, a general description of the work to be performed by each subcontractor's and the dollar amount for each subcontractor shall be submitted with the bid.

END OF SECTION

BID PROPOSAL FORM

PROJECT: LIBRARY TECHNICAL SERVICES T.I. PROJECT

BIDDER SHALL COMPLETE AND SUBMIT ALL DOCUMENTS AND ATTACHMENTS AS REQUIRED

SUBMITTED BY: _____
(Bidder's Name)

In accordance with the City of Commerce's Notice Inviting Sealed Bid Proposals, the undersigned BIDDER, hereby proposes to furnish all materials, equipment, tools, labor, and incidentals required for the above stated project as set forth in the Plans, Specifications, and contract documents therefore, and to perform all work in the manner and time prescribed therein.

BIDDER declares that this proposal is based upon careful examination of the work site, Plans, Specifications, Instructions to Bidders, and all other contract documents. If this proposal is accepted for award, BIDDER understands that failure to enter into a contract in the manner and time prescribed will result in forfeiture to the City of Commerce of the guarantee accompanying this proposal.

BIDDER understands that a bid is required for the entire work. The contract will be awarded on the prices shown on the bid schedule. It is agreed that the unit and/or lump sum prices bid include all appurtenant expenses, taxes, royalties and fees. In the case of discrepancies in the amounts bid, unit prices shall govern over extended amounts, and words shall govern over figures.

If awarded the Contract, the undersigned further agrees that in the event of the BIDDER'S default in executing the required contract and filing the necessary bonds and insurance certificates within ten working days after the date of the City of Commerce's notice of award of contract to the BIDDER, the proceeds of the security accompanying this bid shall become the property of the City of Commerce and this bid and the acceptance hereof may, at the City of Commerce's option, be considered null and void.

DELIVERED TO: City of Commerce
Attn: City Clerk
2535 Commerce Way
City of Commerce, California 90040

Bid shall be submitted in a sealed envelope and plainly marked on the outside "**LIBRARY TECHNICAL SERVICES T.I. PROJECT – Do Not Open with Regular Mail".**

BID DUE DATE: February 2, 2017 by 12:00 pm. ***Late proposals will not be considered.***

BID SCHEDULE

To the City of Commerce City Council, herein called the "Council": Pursuant to and in compliance with your Notice Inviting Bids and the other documents' relating thereto, the undersigned bidder, having familiarized himself with the work as per the paragraph, "Discrepancies and Misunderstandings," contained in the "INSTRUCTIONS TO BIDDERS" section, and with the terms of the contract, the local conditions affecting the performance of the contract, and the cost of the work at the place where the work is done, and with the drawings and specifications and other contract documents, hereby proposes and agrees to perform, within the time stipulated, the contract, including all of its component parts, and everything required to be performed, and to provide and furnish any and all of the labor, materials, tools, expendable equipment, and all applicable taxes, utility and transportation services necessary to perform the contract and complete in a workmanlike manner all of the work required for this contract in the City of Commerce, all in strict conformity with the Contract Documents on file at the office of the City Clerk of said City, per the following bid schedules:

DESCRIPTION OF WORK:

Approximately 1,610 square foot tenant improvement project of the City of Commerce Library Technical Service Offices. The scope will include selective demolition of cabinets, flooring, interior drywall partitions and ceilings. Interior barricades will be required to allow Library Staff access to their offices during the demolition and construction for this project. New interior finishes, lighting, tele/data rough-in, cabinets, solid surface countertops and window wall partition.

BID:

All applicable sales taxes, state and/or federal taxes and any other special taxes, patent rights or royalties are included in this proposal.

ITEM	DESCRIPTION	QUALITY	UNIT	UNITPRICE	TOTAL
1	INTERIOR BARRICADES	100%	L.S.		
2	SELECTIVE DEMOLITION	100%	L.S.		
3	WALL FRAMING, DRYWALL & PAINT	100%	L.S.		
4	CABINETS & COUNTERTOPS	100%	L.S.		
5	GLAZING	100%	L.S.		
6	DOORS, FRAMES & HARDWARE	100%	L.S.		
7	ACOUSTIC CEILING SYSTEM	100%	L.S.		
8	FLOORING	100%	L.S.		

ITEM	DESCRIPTION	QUALITY	UNIT	UNITPRICE	TOTAL
9	HVAC	100%	L.S.		
10	PLUMBING	100%	L.S.		
11	ELECTRICAL	100%	L.S.		
12	FINAL CLEAN-UP	100%	L.S.		

Total Bid for Schedule: $_____

Bid amount in words:_____

_____

Bid Alternates for City to Consider

ALT-1 Add	Solar Tubes and Roof Replacement	$	LS	
ALT-2 Add	Reduce exterior pair door opening to a single door opening including door, frame and hardware.	$	LS	
ALT-3 Add	Low Voltage Cabling including terminations	$	LS	

ADDENDA ACKNOWLEDGMENT

The Bidder acknowledges receipt of the following Addenda and has included their provisions in this Proposal:

Addendum No._____ Dated_____

Addendum No._____ Dated_____

Addendum No._____ Dated_____

Addendum No._____ Dated_____

REQUIRED DOCUMENTS

- ☐ BID PROPOSAL FORM
- ☐ BID BOND FORM
- ☐ PROPOSED SUBCONTRACTORS FORM
- ☐ BIDDER QUALIFICATION FORM
- ☐ BIDDER INFORMATION FORM
- ☐ NON COLLUSION AFFIDAVIT
- ☐ ONE ORIGINAL and TWO COPIES

SIGNATURE

IN WITNESS WHEREOF, BIDDER executes and submits this proposal with the names, titles, hands, and seals of all aforementioned principals.

Legal Name of Bidder: _____

Federal I.D. No.: _____ Contractor's License No.:_____

License Expiration Date:_____ License Classification: _____

Business Address _____
(Street and/or P.O. Box)

_____
(City) (State) (Zip)

E-Mail Address: _____

Business Telephone No.:_____Facsimile No.:_____

SIGN HERE ------>_____
Signature of Bidder - Print Name and Title of Bidder

Executed this_____day of_____, 20__ at_____`_____, California.

Subscribed and sworn to this _____ day of _____, 20__.

NOTARY PUBLIC _____

BID BOND
FOR
LIBRARY TECHNICAL SERVICES T.I. PROJECT
IN THE CITY OF COMMERCE

KNOW ALL MEN BY THESE PRESENTS that_____

_____,

as BIDDER, AND _____,

as SURETY, are held and firmly bound unto the City of Commerce, in the penal sum of

_____dollars

($_____), which is ten percent (10%) of the total amount bid by BIDDER to the City of Commerce for the above stated project, for the payment of which sum, BIDDER and SURETY agree to be bound, jointly and severally, firm by these presents. THE CONDITIONS OF THIS OBLIGATION ARE SUCH that, whereas BIDDER is about to submit a bid to the City of Commerce for the above stated project, if said bid is rejected, or if said bid is accepted and a contract is awarded and entered into by BIDDER in the manner and time specified, then this obligation shall be null and void, otherwise it shall remain in full force and effect in favor of the City of Commerce. IN WITNESS WHEREOF the parties hereto have set their names, titles, hands, and seals this _____ day of _____, 20_____.

BIDDER* _____

_____

SURETY*_____

_____

_____

*Provide BIDDER/SURETY name, address and telephone number and the name, title, address and telephone number for authorized representative.

Subscribed and sworn to this _____ day of _____, 20_____.

NOTARY PUBLIC _____

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PROPOSED SUBCONTRACTORS FORM

In compliance with the provisions of Section 4100 through 4114, inclusive, of the Public Contract Code, and any amendments thereto, each bidder shall set forth in its bid, the name and location of the-place of business of each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the Contractor, specially fabricates and Installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one half of 1 percent of the Contractor's total bid; and the portion of the work which will be done by each subcontractor under this act. The Contractor shall list only one subcontractor for each portion as is defined by the Contractor.

Name, address, and phone number of subcontractors, suppliers, vendors and **DIR Registration Number**	Name portion of work, materials, and/or equipment	Dollar Value of Sub-Contract	% of Total Bid Amount
	INTERIOR BARRICADES	$	%
	SELECTIVE DEMOLITION	$	%
	WALL FRAMING, DRYWALL	$	%
	PAINT	$	%
	CABINETS & COUNTERTOPS ***C-6 LICENSE***	$	%
	GLAZING	$	%
	DOORS, FRAMES & HARDWARE	$	%
	ACOUSTICE CEILING	$	%

	FLOORING	$	%
	HVAC	$	%
	PLUMBING	$	%
	ELECTRICAL ***C-10 ELECTRICAL LICENSE***	$	%
	FINAL CLEAN-UP	$	%
	SOLAR TUBES – ALT-1	$	%
	ROOFING – ALT-1	$	%
	REDUCE EXTERIOR PAIR DOORS TO SINGLE DOOR ALT-2	$	%
	LOW VOLTAGE CABLING – ALT-3	$	%
		$	%
		$	%
	Total	$	%

Note: The prime contractor is required to perform, with its own organization, contract work amounting to at least twenty percent (20%) of the Contract Price.

BIDDER QUALIFICATION FORM

The bidder is required to state what work of a similar character to that included in the proposed contract he has successfully performed and give references which will enable the City Council to judge of his responsibility, experience, skill, business and financial standing. **Minimum 5 references shall be provided that have been completed within the last five years.**

THE BIDDER MUST HAVE MINIMIUM OF 5 YEARS EXPERIENCE CONTRACTING UNDER THEIR CURRENT CONTRACTING LICENSE AND ON THE SAME SIZE AND TYPE OF PROJECTS.

Additional pages supporting this portion of the proposal may be attached.

Reference 1			
Project Name:			
Type of Work:			
Year Completed:			
Contract Amount:			
Name/ Address of Owner/Agency:			
Reference Contact:	Name:	Title:	Tel:
EMAIL ADDRESS:			

Reference 2			
Project Name:			
Type of Work:			
Year Completed:			
Contract Amount:			
Name/ Address of Owner/Agency:			
Reference Contact:	Name:	Title:	Tel:
EMAIL ADDRESS:			

Reference 3			
Project Name:			
Type of Work:			
Year Completed:			
Contract Amount:			
Name/ Address of Owner/Agency:			
Reference Contact:	Name:	Title:	Tel:
EMAIL ADDRESS:			

Reference 4			
Project Name:			
Type of Work:			
Year Completed:			
Contract Amount:			
Name/ Address of Owner/Agency:			
Reference Contact:	Name:	Title:	Tel:
EMAIL ADDRESS:			

Reference 5			
Project Name:			
Type of Work:			
Year Completed:			
Contract Amount:			
Name/ Address of Owner/Agency:			
Reference Contact:	Name:	Title:	Tel:
EMAIL ADDRESS:			

BIDDER INFORMATION FORM

BIDDER certifies that the following information is true and correct:

Bidder's Name_____

Form of Legal Entity (i.e., individual, partnership, corporation, etc.)

_____

If a Corporation, State of Incorporation (i.e., Calif.) _____

Business Address _____

_____

Telephone _____

State Contractor's License No. and Class _____

Original Date Issued_____Expiration Date _____
The following are the names, titles, addresses, and phone numbers of all individuals, firm members, partners, joint ventures, and/or corporate officers having a principal interest in this proposal:

_____

_____

_____

_____

_____

The date(s) of any voluntary or involuntary bankruptcy judgments against any principal having an interest in this proposal are as follows:

_____

_____

_____

All current and prior DBA'S, alias, and/or fictitious business names for any principal having an interest in this proposal are as follows:

_____

_____

_____

Previous contract performance history:

Was any contract terminated previously:_____

If the answer to the above is "yes", provide the following information:

Contract/project name and number: _____

Date of termination:_____

Reason for termination:_____

Owner's name:_____

Owner contact person and tel. no.:_____

IN WITNESS WHEREOF, BIDDER executes and submits this proposal with the names, titles, hands, and seals of all aforementioned principals this _____ day of _____, 20___.

BIDDER _____

_____

_____

_____

Subscribed and sworn to this _____ day of _____, 20___.

NOTARY PUBLIC_____

NON-COLLUSION AFFIDAVIT

_____, being first duly sworn, deposes and says
(Name of Affiant)

that he\she is _____ of _____
(Title) (Name of Bidder)

the party making the foregoing bid; that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Executed this _____ day of _____, 20_____ at _____.
(City, County and State)

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

By:_____

Title:_____

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CITY OF COMMERCE

STANDARD CONTRACT

C.I.P. NO. 2015-039

IN THE CITY OF COMMERCE, CALIFORNIA

THIS AGREEMENT is made and entered into this 00 day of MONTH 2016, by and between the CITY OF COMMERCE, a Municipal corporation (the "CITY") and CONTRACTOR NAME HERE ("CONTRACTOR").

RECITALS

WHEREAS, on Month 00, 2016, the City Council accepted the bid of CONTRACTOR as the lowest responsible, responsive bid received and directed that a written contract be entered into with CONTRACTOR for the PROJECT.

NOW, THEREFORE, in consideration of the promises and the mutual covenants and agreements herein contained, the parties do hereby agree as follows:

ARTICLE I. CONTRACT DOCUMENTS.

The CONTRACT DOCUMENTS for the PROJECT shall consist of the ~~Notice Inviting Sealed Bids~~, the Instructions to Bidders, Bidders Proposal, Addendums, General Specifications and all referenced specifications, details, standard drawings, and appendices, together with this Contract and all required bonds, and insurance certificates. All of the "Contract Documents" are intended to complement the other documents so that any work called for in one, and not mentioned in the others, or vice versa, is to be executed the same as if mentioned in all of said documents. The CONTRACT DOCUMENTS are incorporated herein by this reference and made part hereof as though they were fully set forth herein.

ARTICLE II. THE WORK.

For and in consideration of the payments and agreements to be made and performed by CITY, CONTRACTOR agrees to furnish all materials and perform all work required for the PROJECT and to fulfill all other obligations as set forth in the CONTRACT DOCUMENTS.

ARTICLE III. COMPENSATION.

CONTRACTOR hereby agrees to receive and accept the total amount of ENTER AMOUNT HERE, which is based on performing all of the work shown on Bidders Proposal as full compensation for furnishing all materials, performing all work, and fulfilling all obligations hereunder. Said compensation shall cover all expenses, losses, damages, and consequences arising out of the nature of the work during its progress or prior to its acceptance including those for well and faithfully completing the work and the whole thereof in the manner and time specified in the CONTRACT DOCUMENTS, and also including those arising from actions of the elements, unforeseen difficulties or obstructions encountered in the prosecution of the work, suspension or discontinuance of the work, and all other unknowns or risks of any description connected with the work. CITY shall herein retain ten percent (5%) of said price until said time as the provisions of Article XII herein have been met.

ARTICLE IV. UNDOCUMENTED WORKERS.

SAMPLE

CONTRACTOR hereby promises and agrees to comply with all of the provisions of Federal and/or State law as the same shall apply to this PROJECT pertaining to the employment of unauthorized aliens as defined therein. Should CONTRACTOR so employ unauthorized aliens for the performance of work and/or services covered by this Contract, and should the Federal Government impose sanctions against the CITY for use of unauthorized aliens, CONTRACTOR hereby agrees to, and shall, reimburse CITY for the cost of all such sanctions imposed, together with any and all costs, including attorneys' fees, incurred by the CITY in connection therewith.

ARTICLE V. NOTICE TO PROCEED.

CONTRACTOR shall commence work on the date specified in the Notice to Proceed to be issued to CONTRACTOR by the CITY and shall complete work on the PROJECT within sixty (60) calendar days from the commencement thereof.

ARTICLE VI. DISCOVERY OF HAZARDOUS OR LATENT CONDITIONS.

A. CONTRACTOR shall, without disturbing the condition, notify CITY in writing as soon as CONTRACTOR, or any subcontractor, agent or employees have knowledge and reporting is possible, of the discovery of any of the following conditions:

   1. The presence of any material that the CONTRACTOR believes is hazardous waste, as defined in Section 25117 of the Health and Safety Code;
   2. Subsurface or latent physical conditions at the site differing from those indicated in the specifications; or,
   3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract.

B. Pending a determination by the CITY of appropriate action to be taken, CONTRACTOR shall provide security measures (e.g., fences) adequate to prevent the hazardous waste or physical conditions from causing bodily injury to any person.

C. CITY shall promptly investigate the reported conditions. If CITY, through the City Engineer or his/her designee, and in the exercise of its sole discretion, determines that the conditions do materially differ, or do involve hazardous waste, and will cause a decrease or increase in the CONTRACTOR's cost of or time required for performance of any part of the work, then CITY shall issue a change order.

D. In the event of a dispute between CITY and CONTRACTOR as to whether the conditions materially differ or involve hazardous waste or cause a decrease or increase in the CONTRACTOR's cost of, or time required for performance of any part of the work, CONTRACTOR shall not be excused from any schedule completion date, and shall proceed with all work to be performed under the Contract. CONTRACTOR shall retain any and all rights which pertain to the resolution of disputes and protests between the parties.

ARTICLE VII. INDEMNIFICATION.

CONTRACTOR shall assume the defense of and indemnify and save harmless the CITY, its elective and appointive boards, officers, agents and employees, from all claims, loss, damage, injury and liability of every kind, nature and description, directly or indirectly arising from the performance of CONTRACTOR's work under this Contract; and from any and all claims, loss, damage, injury and

SAMPLE

liability, howsoever the same may be caused, resulting directly or indirectly from the nature of the work covered by the Contract; provided:

(a) That CITY does not, and shall not, waive any rights against CONTRACTOR which it may have by reason of the aforesaid hold-harmless agreement because of the deposit with CITY by CONTRACTOR, of any of the insurance policies hereinafter described herein.

(b) That the aforesaid hold-harmless agreement by CONTRACTOR shall apply to all damages and claims for damages of every kind suffered, or alleged to have been suffered, by reason of any of the aforesaid operations of CONTRACTOR or any subcontractor, regardless of whether or not such insurance policies shall have been determined to be applicable to any of such damages or claims for damages.

ARTICLE VIII. PERFORMANCE BOND.

CONTRACTOR, before commencing said PROJECT, shall furnish and file with CITY, a performance bond, or bonds in the sum of one hundred percent (100%) of the Contract price thereof conditioned upon the faithful performance of this Contract and upon the payment of all labor and materials furnished in connection with this Contract.

ARTICLE IX. INSURANCE REQUIREMENTS.

Prior to commencing work hereunder, CONRACTOR shall provide the CITY with proof of insurance naming the CITY and each of its directors, officers, agents, and employees as additional-named insureds on a policy or policies of insurance providing and maintaining the coverages set forth in the Insurance Schedule attached hereto as Exhibit A. CITY shall have the right to hold the policies and policy renewals, and CONTRACTOR shall promptly furnish to CITY all renewal notices and all receipts of paid premiums. In CITY may make proof of loss if not made promptly by CONTRACTOR.

ARTICLE X. LIQUIDATED DAMAGES.

The parties agree that it would be impractical and extremely difficult to fix the actual damages to the CITY in the event the PROJECT is not commenced and/or completed on or before the dates specified for commencement and completion of the PROJECT in the CONTRACT DOCUMENTS. The parties have considered the facts of breach of this Contract and have agreed that the liquidated damages sum hereinafter set forth is reasonable as liquidated damages in the event of a breach, and that said sum shall be presumed to be the amount of the damages sustained by the CITY in the event of such a breach. The parties therefore agree that in the event such work is not begun and/or completed and accepted by the times so specified in the CONTRACT DOCUMENTS, the sum of One thousand dollars ($1000) shall be presumed to be the amount of damages suffered by the CITY for each day's delay in the starting and/or completion and acceptance of said PROJECT after the dates specified in the CONTRACT DOCUMENTS for the start and/or completion thereof, and CONTRACTOR hereby agrees to pay said sum of One thousand dollars ($1000) as liquidated damages for each day of delay in the starting and/or completion and acceptance of said PROJECT beyond the date specified in the CONTRACT DOCUMENTS. Any and all such liquidated damage assessed shall be done so in accordance with that certain edition of the Specification for Public Works Construction, currently in effect as of the date of this Contract. The payment of such liquidated damages is not intended as a forfeiture or penalty within the meaning of California Civil Code § 3275 or § 3369.

SAMPLE

ARTICLE XI. COMPLIANCE WITH APPLICABLE LAWS.

CONTRACTOR hereby promises and agrees to comply with all of the provisions of all applicable state and federal laws in connection with the performance of its obligations under this Contract.

ARTICLE XII. NOTICE OF COMPLETION.

Upon completion of the PROJECT and acceptance of same by the City Council, the CITY Administrator shall have cause to be recorded a Notice of Completion with the office of the Los Angeles County Recorder; and, after thirty-five (35) days from the date said Notice of Completion is recorded, the Director of Finance of CITY shall release the funds retained pursuant to Article III hereof; provided there have been no mechanics' liens or stop notices filed against said work which have not been paid, withdrawn or eliminated as liens against said work.

ARTICLE XIII. NON-ASSIGNABILITY.

This Contract shall not be assignable, either in whole or in part, by the CONTRACTOR.

ARTICLE XIV. CUMULATIVE REMEDIES.

The provisions of this Contract are cumulative and in addition to and not in limitation of any rights or remedies available to CITY.

ARTICLE XV. ATTORNEY'S FEES.

If either party to this Contract is required to initiate or defend, or is made a party to, any action or proceeding in any way connected with this agreement, the party prevailing in the final judgment in such action or proceeding, in addition to any other relief which may be granted, shall be entitled to reasonable attorney's fees and costs. Attorney's fees shall include reasonable costs for investigating such action.

IN WITNESS WHEREOF the parties hereto have caused this Contract to be executed on the date first above written by their respective officers duly authorized in that behalf.

CITY OF COMMERCE	CONTRACTOR NAME
By: _____	By:_____
Ivan Altamirano, Mayor	Name, Title
ATTEST:	APPROVED AS TO FORM:
By: _____	By: _____
Lena Shumway City Clerk	Eduardo Olivo, City Attorney

SAMPLE

EXHIBIT A
INSURANCE REQUIREMENTS

On or before beginning any of the work called for by any term of this Contract, CONTRACTOR, at its own cost and expense, shall carry, maintain for the duration of this Contract, and provide proof thereof that is acceptable to CITY of its procurement of the insurance specified below from insurers and under forms of insurance satisfactory in all respects to CITY. Such insurance shall not be in derogation of CONTRACTOR's obligations to provide indemnity under this Contract.

1. **Comprehensive General Liability and Automobile Liability Insurance Coverage.**

   CONTRACTOR shall carry and maintain Comprehensive General Liability and Automobile Liability Insurance which provides the following:

   Minimum coverage: Bodily injury limits of $2,000,000 for each person and $2,000,000 for each occurrence; property damage limits of $2,000,000 for each occurrence, $2,000,000 aggregate.

   Products/Completed Operations Hazard Insurance in an amount of not less than FIVE MILLION DOLLARS ($5,000,000);

   A combined single limit policy with aggregate limits in an amount of not less than Five MILLION DOLLARS ($5,000,000) shall be considered equivalent to the said required minimum limits set forth herein above.

   If a Commercial General Liability Insurance form or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the work to be performed under this Contract or the general aggregate limit shall be at least twice the required occurrence limit. Such coverage shall include but shall not be limited to, protection against claims arising from bodily and personal injury, including death resulting there from, and damage to property resulting from activities contemplated under this Contract, including the use of owned and non-owned real property and automobiles. Insurance coverage shall not be subject to any type of pollution exclusion or owned property exclusions.

2. **Errors and Omissions Insurance Coverage.**

   CONTRACTOR shall carry and maintain Errors and Omissions Coverage Insurance which provides a minimum coverage of at least $1,000,000 for each occurrence, $2,000,000 aggregate, triggered by manifestation of injury.

3. **Worker's Compensation.**

   CONTRACTOR shall carry and maintain worker's compensation as required by the California Labor Code for all persons employed directly or indirectly in connection with this Contract by CONTRACTOR. To the extent that CONTRACTOR utilizes any subcontractor for the performance of any part of the work under this Contract, CONTRACTROR shall require and assure that such subcontractor also carry and maintain worker's compensation as required by the California Labor Code for all persons employed directly or indirectly in connection with this Contract.

SAMPLE

4. **Additional Insureds.**

The CITY, its officers, agents and employees must be named as additional insureds or as additional loss payees in all insurance policies required by this Contract. An endorsement to this effect shall be delivered to CITY prior to the commencement of any work. Satisfaction of any deductible requirement shall be the responsibility of CONTRACTOR. Such insurance shall be primary and noncontributory with any other insurance maintained by the CITY.

5. **Cancellation Clause.**

Each of the policies of insurance shall contain a clause substantially as follows:

It is hereby understood and agreed that this policy may not be canceled nor the amount of the coverage thereof be reduced until 30 days after receipt by the City Administrator of the written notice of such cancellation or reduction of coverage, as evidenced by receipt of a certified letter.

6. **Severability Clause.**

Each of the policies of insurance shall contain a clause substantially as follows:

The insurance afforded by this policy applies separately to each insured against whom a claim or suit is made or suit is brought, except with respect to the limit of the insurer's liability.

7. **Qualifications of Insurer.**

All policies of insurance shall be issued by an insurance company acceptable to CITY and authorized to issue said policy in the State of California.

8. **Approval of Insurer.**

The insurance carrier providing the insurance shall be chosen by CONTRACTOR subject to approval by CITY, provided that such approval shall not be unreasonably withheld.

9. **Payment of Premiums.**

All premiums on insurance policies shall be paid by CONTRACTOR making payment, when due, directly to the insurance carrier, or in a manner agreed to by CITY.

10. **Evidence of Insurance and Claims.**

CITY shall have the right to hold the policies and policy renewals, and CONTRACTOR shall promptly furnish to CITY all renewal notices and all receipts of paid premiums. In CITY may make proof of loss if not made promptly by CONTRACTOR.

END OF SECTION

SAMPLE

FAITHFUL PERFORMANCE BOND

FOR

PROJECT NAME: LIBRARY TECHNICAL SERVICES T.I. PROJECT
IN THE CITY OF COMMERCE

KNOW ALL MEN BY THESE PRESENTS that _____

_____, as CONTRACTOR

and_____, as SURETY,

are held and firmly bound unto the City of Commerce, in the penal sum of

_____dollars ($_____),
which is one-hundred percent (100%) of the total contract amount for the above stated project, for the payment of which sum, CONTRACTOR and SURETY agree to be bound, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that, whereas CONTRACTOR has been awarded and is about to enter into a Contract with the City of Commerce for the above stated project, if CONTRACTOR faithfully performs and fulfills all obligations under the contract documents in the manner and time specified therein, then this obligation shall be null and void, otherwise it shall remain in full force and effect in favor of the City of Commerce; provided that any alternations in the obligations or time for completion made pursuant to the terms of the contract documents shall not in any way release either CONTRACTOR or SURETY, and notice of such alternations are hereby waived by SURETY.

IN WITNESS WHEREOF the parties hereto have set their names, titles, hands, and seal this

_____day of _____, 20_____.

CONTRACTOR* _____

_____

SURETY* _____

_____

*Provide CONTRACTOR/SURETY name, address and telephone number and the name, title, address and telephone number for authorized representative.

Subscribed and sworn to this _____ day of _____, 20_____.

NOTARY PUBLIC _____

MATERIAL AND LABOR BOND
FOR

PROJECT NAME: LIBRARY TECHNICAL SERVICES T.I. PROJECT
IN THE CITY OF COMMERCE

KNOW ALL MEN BY THESE PRESENTS that _____

_____, as CONTRACTOR

and_____, as SURETY,

are held and firmly bound unto the City of Commerce, in the penal sum of

_____dollars ($_____),
which is one-hundred percent (100%) of the total contract amount for the above stated project, for the payment of which sum, CONTRACTOR and SURETY agree to be bound, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that, whereas CONTRACTOR has been awarded and is about to enter into a Contract with the City of Commerce for the above stated project, if CONTRACTOR faithfully performs and fulfills all obligations under the contract documents in the manner and time specified therein, then this obligation shall be null and void, otherwise it shall remain in full force and effect in favor of the City of Commerce; provided that any alternations in the obligations or time for completion made pursuant to the terms of the contract documents shall not in any way release either CONTRACTOR or SURETY, and notice of such alternations are hereby waived by SURETY.

IN WITNESS WHEREOF the parties hereto have set their names, titles, hands, and seal this

_____day of _____, 20____.

CONTRACTOR* _____

_____

SURETY* _____

_____

* Provide CONTRACTOR/SURETY name, address and telephone number and the name, title, address and telephone number for authorized representative.

Subscribed and sworn to this _____ day of _____, 20___.

NOTARY PUBLIC _____

SECTION 01100
SUMMARY

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes: Project information; Access to site; Coordination with occupants; Work restrictions.

B. Scope of project:

Approximately 1,610 square foot tenant improvement project of the City of Commerce Library Technical Service Offices. The scope will include selective demolition of exterior Kalwall facade, cabinets, flooring and interior drywall partitions. Interior barricades will be required to allow Library Staff access to their offices during the demolition and construction for this project. Exterior wall infill with metal stud framing and stucco system will be required along with new interior finishes and windows

1.02 PROJECT INFORMATION

A. Project Name – **LIBRARY TECHNICAL SERVICES T.I. PROJECT**

B. Capital Improvement Project - #TBD

C. Project Location: Veterans Park
6364 Zindell Avenue
Commerce, CA, 90040

D. Owner: City of Commerce – Owner's Representative:
1. Gina Nila, Deputy Director Public Works Operations
2535 Commerce Way, Commerce, CA 90040
Phone: (323) 722-4805
Email: ginan@ci.commerce.ca.us

E. Construction Manager:
1. Swinerton Management and Consulting
Paul Banuelos, Project Manager
Phone: (213) 814-8635
Email: pbanuelos@swinerton.com

F. Inspector of record:
1.To Be Determined

1.03 CORRESPONDENCE

A. All project correspondence for this project shall be addressed as follows:
City of Commerce
Attn: Gina Nila, c/o Paul Banuelos
2535 Commerce Way Commerce,
CA 90040

1.04 DEFINITIONS

A. “Architect” is the person or firm lawfully licensed to practice architecture under the laws of California.

B. “Building Inspector” – A person certified by the County who examines buildings and structures to ensure that their construction, alteration or repair complies with building codes, ordinances, and zoning regulations.

C. "CITY" means the City of Commerce or its duly authorized representatives.

D. "City Engineer" means the Director of Public Works and Developmental Services Department or its authorized representative.

E. “Construction Manager” - A duly authorized representative of the City of Commerce for this project. Construction Manager shall be the point of contact between the Contractor, Architect, and the City. All submittals, Requests for Information (RFI), Change Order Requests (COR's), and other written communication shall be submitted solely to the Construction Manager.

F. “Contract” - Collectively, the Contract Documents incorporate the respective rights and obligations of the Parties, and from time to time, such rights and obligations may be referred to in the Contract Documents as the "Contract."

G. "Contractor" - The person, firm or corporation entering into contract with the City for the performance of the work required by these specifications and the legal representative of said party or the agent appointed to act for said party in the performance of the work.

H. "Contract Documents" shall mean those physical documents as enumerated in City of Commerce Standard Contract, Specification Section 00500, Article I. The Contract Documents collectively form the contractual basis for construction of the Project. The Contract Documents may be amended or modified only by a Modification as defined in Specification Section 01250.

I. "Drawings" are the graphic and pictorial portions of the Contract Documents prepared by the Architect, wherever located and whenever issued. Collectively, the Drawings constitute the official plans for the Project and include working drawings, supplemental drawings or reproductions thereof which show the design, location and dimensions of the Work, including plans, elevations, sections, details, schedules and diagrams to be performed by Contractor.

J. “Inspector of Record” is an authorized representative, retained by the City, to oversee execution of the Work to assure compliance with all requirements of the Contract Documents.

K. "Modification" is (1) a written amendment to the Contract Documents signed by both Parties, (2) a Change signed by both Parties, (3) a written interpretation issued by the Architect or City pursuant to Specification Section 01250.

L. “Special Inspector” - A Special Inspector is a person certified by the County to perform special types of construction inspection. The definition is contained in section 1701.2 of the 2002 County of Los Angeles Building Code.

M. "Specifications" are that portion of the Contract Documents prepared by the City and Architect and consisting of the written requirements for materials, equipment,

construction systems, standards and workmanship for the Work, and performance of related services.

N. “Subcontractor" - A person or entity who has a direct contract with the Contractor to perform any of the Work at the Site. The term Subcontractor is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or its authorized representative.

1.05 ACCESS TO SITE

A. Contractor shall have full use of Project site as outlined in the construction drawings and phasing plan described in the specifications for construction operations during construction period. Contractor's use of Project site is limited by City's right to perform work or to retain other contractors on portions of Project and to continue day to day operations. All sequencing to be coordinated with the Construction Manager.

B. Limit use of Project site and only work in areas within the Contract limits. Do not disturb portions of Project site beyond areas in which the Work is indicated or as indicated on the drawings.

C. Driveways, Walkways and Entrances: Keep loading areas and entrances serving premises clear and available to City employees and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
   a) Schedule deliveries to minimize use of driveways and entrances by construction operations.
   b) Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
   c) No Contractor and/or subcontractor employee parking will be permitted in City owned parking lots.

D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weather tight condition throughout construction period. Repair any damage caused by construction operations.

1.06 PHASING SCHEDULE

A. The purpose for this schedule is to provide the contractor with the parameters of the operations of Veterans Park Community Center Building during the project. The contractor will work with the city to establish a final phasing schedule. Final Project phasing shall correlate with project CPM schedule.

B. All work shall be performed during the Contract durations and the contractor shall perform work in a manner which minimizes interruption or disruption to City operations.

C. Contract will be responsible to provide safe access to public area not under construction and shall provide directional way finding signs as needed.

1.07 COORDINATION WITH OCCUPANTS

A. City staff and the public will occupy the existing building during the entire construction period, but not the work site. The facility’s operating hours for public

access are Monday through Friday, 10:00 am to 8:30 pm and Saturday and Sunday, 10:00 am through 5:00 pm.

1. Maintain access to existing corridors during construction. Do not close or obstruct corridors or other occupied area without written permission from City and approval of authorities having jurisdiction.
2. Notify City at least 72 hours in advance of activities that will affect operations.
3. **Provide and maintain safe access to offices, restrooms, corridors, and publicly accessed areas.**

B. City reserves the right to occupy and to place and install or maintain equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy and/or maintenance activities do not interfere with completion of the Work. Such placement of equipment and occupancy shall not constitute acceptance of the total Work.

1. City will issue a Certificate of Substantial Completion for each portion of the Work to be occupied prior to City acceptance of the completed Work.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited occupancy.
3. Before limited occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, City will operate and maintain mechanical and electrical systems serving occupied portions of Work.

1.08 UTILITY SHUTDOWNS

A. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by City or others.

1. Contractor must maintain all utilities affected by the construction of this project in an operable and functioning condition (including irrigation systems) to sustain normal operations at all buildings, facilities, and services on the campus. All costs for providing temporary utilities shall be included in the base bid. Provide temporary utility services according to requirements indicated as necessary to avoid interruption.
2. Extreme attention and all necessary provisions must be exercised to maintain in full capacity at all times the telecommunication networks serving this project buildings, and other adjacent buildings which may be connected, when scheduled for occupancy by other or the City.

B. Utility shutdowns in support of this construction Project shall be coordinated with and approved by the City. At least 15 working days written notice prior to the desired shutdown is necessary due to the complexity of scheduling. Notice includes submission of a detailed plan describing work activity associated with all utility advance of any utility interruption to the City for approval identifying the sequence of events, responsible people, and shutdowns, including City form. The contents of the plan will be prepared in conjunction with the Construction Manager. Contractor shall not interrupt any utilities without prior notification or authorization by the City. Unavoidable disruptions shall be repaired immediately.

C. Shutdowns shall be arranged for holidays and off hours. Contractor shall pay all costs of his crews, including superintendents, for this work and bear reasonable City employee overtime costs and pay other costs associated with working other than normal work hours. Major outages shall be planned to occur during off periods or as approved by the City.

D. If any utility is interrupted which affects any occupied facility, Contractor shall provide a temporary connection to the affected utility / facility / area with the noted time frame with due diligence, at no additional cost to the City. If the Contractor does not perform repairs with due diligence within the noted time frames, the City will enforce the terms and conditions of the Contract General Conditions for Contractor's failure to perform work in a timely manner.

1. Fire Alarm System: Within 4 hours of occurrence (Provide immediate fire watch)
2. Security Alarm System: Within 4 hours of occurrence
3. Radio Communication System: Within 4 hours of occurrence
4. Telephone/Data Communications System: Within 4 hours of occurrence (Including payphones, fiber backbone, copper, etc.)
5. Energy Management Control System: Within 4 hours of occurrence
6. Exterior Lighting/Street Lighting: Within 4 hours of occurrence
7. Building Power: Within 4 hours of occurrence
8. Potable Water: Within 6 hours of occurrence depending on impact of loss of water
9. Gas: Within 4 hours of occurrence
10. Sewer: Within 24 hours of occurrence
11. Storm Drain: Within 48 hours of occurrence
12. Irrigation (including reclaimed water): Within 48 hours of occurrence - provide alternate methods of irrigation if needed during outages to prevent damage to landscape.

1.09 NOISE AND DUST CONTROL

A. Execute Work by methods to eliminate or minimize dust creation from construction operations. Contractor shall be responsible for complying with all applicable regulations regarding dust control.

B. Contractor shall protect adjoining property and nearby buildings, roads and other facilities and improvements from dust, dirt, debris and other nuisances arising out of Contractor's operations or storing practices and clean as necessary.

C. Provide positive means to prevent air-borne dust from dispersing into atmosphere. Use water mist, temporary enclosures and other suitable methods to limit the spread of dust. If necessary, a regular watering program shall be initiated to adequately control the amount of fugitive dust in accordance with applicable AQMD rules. All positive dust control measures shall hold airborne dust to a factor not greater than Step 1 on the Ringleman Scale (re. AQMD Reg. 403). Any exposed soil surfaces shall be sprayed with water at least daily as needed to mitigate dust.

D. Trucks hauling dirt to and from the site shall be covered in accordance with applicable state and local requirements. To reduce exhaust emissions, unnecessary idling of construction vehicles and equipment shall be avoided and vehicles and equipment shall be equipped with exhaust and noise mitigating devices and be kept in good working order.

E. The building will remain occupied and operational during construction. As such, the contractor shall carry on all work in a manner that will produce the least amount of noise at all times.

F. The City reserves the right to determine if work being performed by the Contractor is creating disruptions to the operations of the City and if so, to arrange with the Contractor alternate times or methods for completing the work at no additional cost to the City.

G. Construction operations generating excessive noise, such as use of pneumatic tools and powder actuated fastener equipment, shall be scheduled with the City. Provide the City with 24 hours notice prior to commencing such operations.

H. Equip jackhammers with exhaust mufflers and steel muffling sleeves. Use quiet type air compressors such as “whisperized” compressor. Close compressor hoods while equipment is in operations. Use electrically powered rather than gasoline or diesel powered forklifts.

I. Provide portable barriers around jack hammering. Barriers are to be constructed of ¾ inch plywood lined with 1-inch thick fiberglass on work side at minimum.

J. Locate all noise generating equipment in a remote location away from any occupied areas. Keep noisy equipment as far as possible from noise-sensitive sites boundaries. Do not leave machines idling. Use electric power in lieu of internal combustion engine or pneumatic power wherever possible. Maintain equipment properly to reduce noise from excessive vibration, faulty mufflers or other sources. Provide all engines with properly functioning mufflers.

K. Schedule noise generating operations so as to minimize their duration at any given location and to minimize disruption to the adjoining users. Notify the City a minimum of 72 hours in advance of performing work creating unusual noise and schedule such work at times mutually agreeable.

L. Do not play radio, tape recorders, televisions or other similar items at the job site.

1.010 WORK RESTRICTIONS

A. On-Site Work Hours: Limit work in the existing building to normal business working hours of **7:00 a.m. to 4:00 p.m.** Monday through Friday, excluding holidays and weekends. Night work will be allowed for certain phases of the project.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by City or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Construction Manager not less than two days in advance of proposed utility interruptions.
2. Obtain written permission from City before proceeding with utility interruptions.

C. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors or other disruption to City.

1. Notify City not less than two days in advance of proposed disruptive operations.
2. Obtain written permission before proceeding with disruptive operations.

END OF SECTION

SECTION 01250
CONTRACT MODIFICATION PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.02 SUBMITTALS

A. The Contractor shall keep an up-to-date Log showing current status of Potential Change Orders (PCO) and Changes authorized and/or pending; herein referred to as the "PCO Log". The PCO Log shall be kept up-to-date and reviewed monthly in coordination with City records.

B. The Contractor shall submit the proposed PCO Log format to City for approval prior to first monthly progress payment request.

C. The Contractor shall provide a copy of the current PCO Log with monthly progress payment requests.

1.03 CHANGES IN CONTRACT PRICE

A. Whenever corrections, alterations, or modifications of the work under this Contract are ordered by the City and increase the amount of work to be done, such added work shall be known as extra work: and when such corrections, alterations, or modifications decrease the amount of work to be done, such subtracted work shall be known as omitted work.

B. The difference in cost of the work affected by such change will be added to or deducted from the amount of said Contract price, as the case may be, by a fair and reasonable valuation, which shall be determined in one or more of the following ways as directed by the City:

1. By unit prices accepted by the City and stated in the Contract Documents;
2. By unit prices subsequently fixed by agreement between the parties;
3. By an acceptable lump sum proposal from the Contractor; or
4. By Force Account.

C. When required by the City, the Contractor shall submit, in a form prescribed by the City, an itemized breakdown with supporting data of the quantities and prices used in computing the value of any change that may be ordered.

D. The City will review the Contractor's proposal for the change and negotiate an equitable adjustment with the Contractor. After there is an agreement, the City will prepare and process a Field Directive and corresponding Change Order. All Field Directives and Change Orders issued by the City must be approved in writing before any work can be authorized.

E. The prices agreed upon and any agreed upon adjustment in Contract Time shall be incorporated in the written order issued by the Owner, which shall be written so as to indicate an acceptance on the part of the Contractor as evidenced by its signature. By signature after Change Order, the Contractor acknowledges that the adjustments to cost and time contained in the Change Order are in full

satisfaction and accord, payment in full, and so waives any right to claim any further cost and time impacts at any time during and after completion of the Contract for the changes encompassed by the Change Order.

1.04 NEGOTIATED CHANGE ORDERS

A. Whenever a revision to the contract scope of work results in a potential difference in the contract sum, the Contractor shall submit substantiating documentation with an itemized breakdown of Contractor and subcontractor direct costs, including labor, material, equipment rentals, and approved services, pertaining to such ordered work in the form and detail acceptable to the City. The direct costs shall include only the payroll cost for workers and foremen, including wages, fringe benefits as established by negotiated labor agreements or state prevailing wages, workers' compensation and labor insurance, and labor taxes as established by law. No other fixed labor burdens will be considered, unless approved in writing by the City; the cost of materials used and equipment delivered and installed in such work as substantiated by appropriate documents; the cost of construction machinery and equipment based on fair rental or ownership values acceptable to the City. Force Account Payment; and the cost of incidentals directly related to such work. The direct costs shall not include any labor or office costs pertaining to the Contractor's managers or superintendents, its office and engineering staff and office facilities, or anyone not directly employed on such work, nor the cost of small tools as all such indirect costs form a part of the Contractor's overhead expense.

B. Markups: The maximum percentage which will be allowed for the Contractor's combined overhead and profit will be.

1. For work by its own organization, the Contractor may add the following:

   - Direct Labor 15% percent maximum
   - Materials 15% percent maximum
   - Equipment (owned or rented) 15% percent maximum

2. For all such work done by subcontractors, such subcontractor may add the same percentages as the Contractor as listed in (1) above to its actual net increase in costs for combined overhead and profit and the Contractor may add up to five (5) percent of the subcontractor's total for its combined overhead and profit.

3. To the total of the actual costs and fees allowed herein under, not more than one (1) percent shall be added for additional bond and insurance other than labor insurance.

4. The above added fees represent the maximum which will be allowed, and they include the Contractor's and all subcontractors' indirect home office expenses; all costs for cost proposal preparation and record keeping; cost of general supervision, overhead, profit, and any other general expense.

C. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net increase, if any, for each area of work, i.e. direct labor, materials, equipment, and subcontractors. The amount of credit to be allowed by the Contractor to the Owner for any such

change which results in a net decrease in cost will be the amount of the actual net decrease and a credit in accordance with the markups allowed under the use of the method described in Section 001250 1.04 B. Force Account Payment. The Contractor shall not claim for anticipated profits on work that may be omitted.

1.05 FORCE ACCOUNT PAYMENT

A. If either the amount of work or payment for a Change Order cannot be determined or agreed upon beforehand, the Owner may direct by written Change Order or Field Directive that the work be done on a force account basis. The term "force account" shall be understood to mean that payment for work will be done on a time and expense basis, that is, on an accounting of the Contractor's forces, materials, equipment, and other items of cost as required and used to do the work. For the work performed, payment will be made for the documented actual cost of the following:

   1. Direct labor cost for workers, including foremen, who are directly assigned to the force account work: Direct labor cost is the actual payroll cost, including wages, fringe benefits as established by negotiated labor agreements or state prevailing wages, workers' compensation and labor insurance, and labor taxes as established by law. No other fixed labor burdens will be considered, unless approved in writing by the Owner.
   2. Material delivered and used on the designated work, including sales tax, if paid for by the Contractor or its subcontractor.
   3. Equipment rental, including necessary transportation for items having a value in excess of One Thousand Dollars ($1,000.00).

B. Markup shall be in accordance with Section 1.04 B.

C. The Owner reserves the right to furnish such materials and equipment as it deems expedient and the Contractor shall have no claim for profit or added fees on the cost of such materials and equipment.

D. For equipment; rental or equivalent rental cost will be allowed for only those days or hours during which the equipment is in actual use. Payment shall be based on actual rental and transportation invoices but shall not exceed the monthly rate in the Rental Rate Blue Book. Owner-operated and Contractor owned equipment rates shall not exceed the monthly rates as published in the State of California, Business, Transportation, and Housing Agency. Department of Transportation, Construction Program, Labor Surcharge & Equipment Rental Rates, latest Edition, plus the labor costs as provided above. The rental cost allowed for equipment will, in all cases, be understood to cover all fuel, supplies, repairs, ownership, mobilization, and incidental costs and no further allowances will be made for those items, unless specific agreement to that effect is made.

PART 2 – PRODUCTS - Not used

PART 3 – EXECUTION

3.01 COMMENCEMENT

A. Prior to the commencement of force account work, the Contractor shall notify the City of its intent to begin work. Labor, equipment and materials furnished on force account work shall be recorded daily by the Contractor upon daily report sheets approved by the City. The reports, if found to be correct, shall be signed by both the Contractor and City, or inspector, and a copy of which shall be furnished to the City no later than the working day following the performance of said work. The daily report sheet shall thereafter be considered the true record of force account work provided. If the City, or inspector, do not agree with the labor, equipment and or materials listed on the Contractor's daily force account report, the Contractor and Construction Manger, or inspector, shall sign-off on the items on which they are in agreement. The City shall then review the items of disagreement and will advise the Contractor, in wring, of its determination. If the Contractor disagrees with this determination, it shall have the right to file a claim notice.

B. The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of work paid for on a force account basis and the costs of other operations.

C. To receive partial payments and final payment for force account work, the Contractor shall submit, in a manner approved by the City, detailed and complete documented verification of the Contractor's and any of its subcontractor's actual costs involved in the force account pursuant to the pertinent Change Order or Field Order. Such costs shall be submitted within thirty (30) days after said work has been performed. No payments will be made for work billed and submitted to the City after the thirty (30) day period has expired.

D. The force account invoice shall itemize the materials used and shall cover the direct costs of labor and the charges for equipment rental, whether furnished by the Contractor, subcontractor, or other forces. The invoice shall be in a form acceptable to the City and shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated. Material charges shall be substantiated by valid copies of vendor's invoices.

E. When both additions and credits are involved in any one change, the combined overhead and prom shall be figured on the basis of the net increase, if any. The amount of credit to be allowed by the Contractor to the Owner for any such change which results in a net decrease in cost will be the amount of the actual net decrease and a credit in accordance with the markups allowed under the use of the method described in this Section. The Contractor shall not claim for anticipated profits on work that may be omitted.

3.02 TIME EXTENSIONS FOR CHANGE ORDERS

A. If the Contractor requests a time extension for the extra work necessitated by a proposed Change Order, the request must comply with Specification Section 01321.

END OF SECTION

SECTION 01290
PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

1.02 REQUIREMENTS

A. Contractor shall provide to the City a schedule of values allocated to the various portions of the Work (hereinafter, the "schedule of Values").

B. The Contractor shall coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule. The Schedule of Value items shall have a direct and understandable relation to the Project CPM Schedule. The Schedule of Values shall be used by the Contractor to produce a cost loaded CPM schedule and provide the City with Cash Flow Projections.

C. The Contractor shall correlate line items in the Schedule of Values with other required administrative schedules and forms, including:

1. The Contractor's Construction Schedule.
2. Application for Payment Form.
3. Alternates.
4. Allowances.
5. Unit Prices.
6. List of products.
7. List of principal suppliers and fabricators.

D. The Schedule of Values shall be sufficiently detailed such that no line item listed thereon exceeds $50,000, unless approved by City.

E. The Schedule of Values shall be used only as a basis for the Contractor's Applications for Payment. Bond charges and allowances, if any, shall appear separately in the Schedule of Values.

F. The Contractor shall include the following Project identification information on the Schedule of Values:

1. Project name and location.
2. City Project Number.
3. The Contractors name and address.

G. The Contractor shall arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:

1. Item number and Description
2. Related Specification Section
3. Name of subcontractor, manufacturer or fabricator
4. Change Orders
5. Dollar value

H. Principal subcontract amounts shall be broken down into separate line items.

I. Temporary facilities and other major cost items such as costs associated with fulfilling Project Requirements that are not a direct cost of actual work-in-place shall be shown as separate line items in the Schedule of Values.

J. For each part of the Work where an Application for Payment may include materials or equipment, either purchased or fabricated and stored on site but not yet installed, the Contractor shall provide separate line items for initial cost of such material and/or equipment, for each subsequent stage of completion, and for total installed value of that part of the Work.

K. The Contractor shall correlate the request for payment of stored on site materials in the Application for Payment against the agreed-upon breakdown of the Schedule of Values.

L. The City reserves the right not to process the Application for Payment if correlation with the Schedule of Values has not been submitted in conjunction with the Application for Payment.

1.03 SUBMITTALS

A. Schedule of Values: Within fifteen (15) days of the Notice to Proceed, but in any event prior to the Contractor's first Application for Payment, the Contractor shall submit the Schedule of Values in a format as prescribed by and to the level of detail specified by the City and the Architect. This format shall include, but not be limited to, AIA documents G702 and G703.

PART 2 - PRODUCTS

2.01 APPLICATIONS FOR PAYMENT

A. The format for Applications for Payment shall include, but not be limited to, AIA documents G702 ("Application and Project Certificate for Payment"), and G703 and shall include such further detail as acceptable to the City.

B. On or before the first (1st) day of each calendar month, the Contractor shall submit to the City an itemized Application for Payment for Work performed for the previous calendar month, supported by such data substantiating the Contractor's right to payment as the City may require.

C. The Application for Payment shall also include a retainage which shall be five percent (5%) of the amount of each progress payment.

D. An Application for Payment may not include requests for payment of amounts which the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.

E. The Contractor shall have the option to substitute securities for monies withheld from progress payments to ensure performance pursuant to the provisions of Section 22300 of the Public Contract Code of the State of California.

F. Each of the Contractor's Applications for Payment shall be consistent with previous applications and payments as approved by the City. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.

2.02 REQUIREMENTS FOR PAYMENT FOR MATERIALS

A. Unless otherwise provided in the Contract Documents, payments will be made on behalf of the City to the Contractor for materials or equipment not incorporated in the Work but delivered and suitably stored at the Site. Payments for materials or equipment stored on the Site shall be conditioned upon submission by the Contractor of bills of sale, or such other procedures satisfactory to the City, to establish the City's title to such materials or equipment, or to otherwise protect the City's interest, including applicable insurance and transportation to the Site for those materials.

PART 3 - EXECUTION

3.01 APPLICATION PROCESS

A. The Contractor shall complete every entry on the Application for Payment forms. Incomplete applications will be returned without action.

1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. The Contractor shall use updated schedules to match entries if revisions to such schedules have been made.
2. The Contractor shall include amounts of Change Orders issued prior to the last day of the construction period covered by the Application for Payment.
3. The Contractor shall submit three (3) executed copies of each Application for Payment to the City, including waivers of stop notices, liens and/or other attachments.

B. INITIAL APPLICATION FOR PAYMENT: The CONTRACTOR shall ensure that all administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment are accomplished, including the following:

1. List of Subcontractors;
2. List of principal suppliers and fabricators;
3. Submittal register;
4. Schedule of Values (as detailed herein);
5. Construction Schedule;
6. Schedule of principal products;
7. Schedule of unit prices;
8. Submittal Schedule (preliminary if not final);
9. List of the Contractor's staff assignments and principal consultants;
10. Copies of all permits as required;
11. Copies of authorizations and licenses from governing authorities for performance of the Work as required under the General Conditions;
12. Initial progress report;
13. Certificates of Insurance as required under the General Conditions;
14. Performance and payment bonds;

C. APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION: Following issuance of the Certificate of Substantial Completion by the City, the Contractor shall submit an Application for Payment at Substantial Completion. This application shall reflect any Certificates of Partial Substantial Completion previously issued by the City.

1. The Contractor shall complete the following administrative actions and submittals, in addition to those listed in the General Conditions, all of which shall precede or coincide with this application;

   a. List all incomplete items of Work, the value of each item of incomplete Work, and the extent to which each item of Work remains incomplete;

   b. Supply the City with confirmation of the Contractor's compliance with insurance change-over requirements;

   c. Submit all warranties from vendors and subcontractors, any maintenance manual, instructions and related agreements, equipment certifications and similar documents;

   d. Obtain and submit all documentation necessary to enable the City's full and unrestricted use of the Work and access to services and utilities, and to supply any change-over information useful or helpful to the City's occupancy, use, operation and maintenance;

   e. Deliver all tools, spare parts and required extra materials and similar items to the City;

   f. Make the final change-over of locks and transmit the keys to the City. Advise the City's personnel of the change-over in security provisions;

   g. Complete start-up testing of all systems, and complete instruction of the City's operating and maintenance personnel. Submit written start-up performance reports for each system;

   h. Discontinue and remove temporary facilities and services, along with construction tools and facilities, forms and similar items;

   i. Complete final cleaning requirements of the Contract Documents;

   j. Touch-up, repair and restore all marred exposed finishes;

   k. Obtain all final occupancy permits and similar approvals for the use of the facilities;

   l. Before Substantial Completion, inspect, test and adjust performance of every system or facility of the Work to ensure that overall performance is in compliance with terms of the Contract Documents; and

      1) Submit a report of such test results to the City.

      2) Instruct the City's operating personnel on operational requirements needed to maintain compliance.

      3) Report performance of completed installations after adjustment that appears unable to comply with the requirements of the Environmental Impact Statement.

D. APPLICATION FOR FINAL PAYMENT: The CONTRACTOR shall complete the following administrative actions and submittals, in addition to those in the General Conditions, all of which must precede or coincide with submittal of the Final Application for Payment:

1. Completion of Project Closeout requirements, set forth in the Contract Documents;
2. Completion of items as specified in the Contract Documents for completion after Substantial Completion;
3. Final stop notice and lien releases for the Contractor, Subcontractors and Sub-subcontractors retained by the Contractor on the Project;
4. Written assurance that warranty Work not complete and accepted will be completed by a stated date;
5. Transmittal of required Project Records to the City;
6. Certified property survey;
7. Proof that taxes, fees and similar obligations have been paid;
8. Removal of temporary facilities and services;
9. Removal of surplus materials, rubbish and similar elements;
10. As-built drawings submitted;

3.02 PAYMENTS WITHHELD

A. The City may withhold payment, in whole or in part, to such extent as may be reasonably necessary to protect the City from loss because of:

1. Defective Work not remedied;
2. Third party claims filed, or reasonable evidence indicating probable filing of such claims;
3. Failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
4. Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price:
5. Damage to the City or another contractor;
6. Reasonable evidence that the Work will not be completed within the Contract Time;
7. Persistent failure by the Contractor to carry out the Work in accordance with the Contract Documents.

3.03 FINAL PAYMENT

A. Neither the final payment nor the remaining retained percentage shall become due until the Contractor submits to the City:

1. An affidavit that all payrolls, bills for materials and equipment and other indebtedness connected with the Work for which the City or its property might in any way be responsible, have been paid or otherwise satisfied,
2. Consent of surety, if any, to final payment.
3. If required by the City, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of all stop notice or liens arising out of the Contract, to the extent and in such form as may be designated by the City.

B. Upon completion of the Project and acceptance of same by the City Council, the City Manager shall have cause to be recorded a Notice of Completion with the office of the Los Angeles County Recorder; and, after thirty-five (35) days from the date said Notice of Completion is recorded, the Director of Finance shall release the funds retained provided there have been no mechanics' liens or stop notices filed against said work which have not been paid, withdrawn or eliminated as liens against said work.

END OF SECTION

SECTION 01310
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative provisions for coordinating construction operations and project meetings.

1.02 GENERAL

A. Contractor shall carefully examine drawings relating to entire work with actual conditions so that work will be accommodated in spaces provided. General arrangement and location of elements of various systems is shown on the drawings or specified. Final locations, levels, etc., shall be governed by actual material size used, by building conditions encountered, and by work of all trades. Space conflicts and interferences shall be resolved before work is installed.

1.03 COORDINATION

A. Coordinate construction operations included to ensure efficient and orderly installation of each part of the Work. Contractor shall utilize the Contract Documents, submittals, and layout drawings of the various trades to check and coordinate the Work so that no interferences or conflicts between trades will occur. This checking and coordination shall be performed and completed before construction is commenced in each affected area.

B. Make adequate provisions to accommodate items scheduled for later installation. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Contractor shall coordinate electrical/mechanical work, particularly between general trades and mechanical/electrical trades so that sleeves, hangers, chases, openings, etc., required for pipe, conduit, and other installations of like character are duly and properly provided for and installed as work progresses.

1.04 PROJECT MEETINGS

A. Pre-Construction Scheduling Conference: Prior to issuance of a Notice to Proceed, the City will schedule a Pre-construction Scheduling Conference. At this meeting, the scheduling requirements as they apply to the contract will be reviewed. The Contractor shall be prepared to review and discuss the methodology and requirements for the schedule.

B. Pre-Construction Conference: Within thirty (30) Days after the Award of Contract or at least seven (7) Days prior to Notice to Proceed, the City will schedule a Pre-Construction conference. Attendees: The City, Architect, Design Consultants, the Contractor and its Project Manager, Superintendent, major Subcontractors, and other concerned parties shall each be represented at the conference.

Agenda: Items of significance that could affect progress including topics as:

Key personnel and contact information; Critical Work sequencing; Tentative demolition Work schedule; Site Access Office, Storage Areas; Parking; Equipment deliveries and priorities; RFI and Submittal procedures; Administrative Forms; Procedures for processing decisions and Change Orders; Procedures for processing Applications for Payment; Safety and Security procedures; Working Hours; and Preparation of Record Drawings.

C. Coordination Meetings: Supplement progress meetings and pre-installation meetings with coordination meetings as required to ensure careful coordination of various activities involved. Request representation at each meeting by every party involved in coordination or planning for construction activities involved.

D. Weekly Progress Meetings: The City will schedule and administer weekly progress meetings. Progress meetings shall be at the job site in office space provided by the City. Attendees: In addition to the City Staff and Consultants, the Contractor shall attend with applicable Subcontractors, or other entity concerned with current progress or involved in planning, coordination or performance of future activities, familiar with the Project and authorized to conclude matters relating to progress.

   Agenda items include reviewing, correcting or approving minutes of the previous progress meeting and reviewing other items of significance that could affect progress. Include topics for discussions as appropriate to the current status of the project such as: Two week look-ahead schedule; Coordination and Access Issues; Status of Submittals & RFIs; Temporary facilities and services; Hazards and risks; Quality and Work standards; Field Memos and Change Orders; Deliveries; and Payment Requests.

   For each weekly meeting the Contractor shall prepare a two week look-ahead schedule. This schedule shall show all items of Work to be performed in the two (2) weeks following the meeting and the work performed in the one week prior to the meeting. Include schedule activity numbers in the two-week look-ahead schedule. During the weekly progress meeting, review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead of or behind schedule. Determine how Work behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

E. Pre-installation Conferences: Conduct pre-installation conference at Project Site before each construction activity that requires co-ordination with other construction. A Pre-Installation Conference will be required a minimum of seven (7) days, but not more than fourteen (14) days, prior to beginning Portland Cement Concrete. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by installation and its coordination or integration with other materials and installations that have preceded or will follow. Advise City of scheduled meeting dates.

END OF SECTION

SECTION 01321
PROGRESS SCHEDULES AND REPORTS

PART 1 - GENERAL

1.01 PROGRESS SCHEDULE REQUIREMENTS

A. Work under this Contract shall be scheduled and progress monitored using a scheduling system showing relationships or dependencies between activities. The scheduling method to be used shall be a Critical Path Method “CPM” where: (1) activities are arranged based on activity relationships, (2) network calculations determine when activities can be performed, and (3) the critical path of the project will be determined and monitored. Scheduling system shall be broken into sub-activities which, as a minimum, shall include major suppliers, approvals, fabrication, delivery, and major subcontractors. Scheduling system shall indicate inter-relationships between trades, suppliers, and / or reviews.

B. Contractor shall be responsible for planning and scheduling the Work, and monitoring progress of Work with respect to the Schedule, including those of their subcontractors. Contractor shall establish and maintain, as part of their Project organization, personnel knowledgeable in use and application of schedules. Contractor shall identify, on their organization chart, the person responsible for producing and updating Schedule.

C. The City will use schedule for evaluating progress of work and to validate progress payments to be made to Contractor. Schedule, as updated every month, will be basis for determining impact of changes to Contract and delays.

D. Failure of Schedule to include an element of the Work required for performance of this Contract, or inaccuracy in Schedule, will not relieve Contractor from responsibility for accomplishing Work required for complete Contract on time as indicated in the Contract and will not constitute grounds for delay.

1.02 REFERENCES

A. The principles and definitions of the terms used herein shall be as set forth in the Associated General Contractors of America's publication "The Use of CPM in Construction," latest edition. To the extent there are any conflicts between the Associated General Contractors of America's publication and the Contract Documents, the Contract Documents shall govern.

1.04 SUBMITTALS

A. Prior to the Notice to Proceed, the Contractor shall submit to the Owner a Preliminary Construction Schedule for the first ninety (90) calendar days of Work. As well, the Preliminary Construction Schedule will include a general approach for the remainder of the work. The Preliminary Construction Schedule activities shall include, but are not limited to, the following:
   - Planning.

- Mobilization.
- Key shop drawing and sample submittals.
- Fabrication and delivery of key and long-lead procurement elements.
- Activities of Owners, utility providers, tenants, or other third parties.
- Specific phasing as suggested by city at the end of this section. Contractor and city to agree upon final phasing plan conforming to the requirements specified there in.

The Preliminary Construction Schedule represents the Contractor's planned means, methods, and sequences for performance of Work during the first 90-calendar days of Work, and shall be incorporated as the first 90-calendar days of the Contractor's Baseline Contract Schedule.

The Preliminary Construction Schedule shall be the initial basis for evaluating the progress of the Work performed during the first ninety (90) calendar days after Notice to Proceed. The Preliminary Construction Schedule shall be updated weekly until the Baseline Contract Schedule is submitted and approved.

B. Within thirty (30) days after Notice To Proceed, the Contractor shall submit to the Owner the Baseline Contract Schedule including the following:
   1. Bar-chart print with activities sorted by early start then by early finish.
   2. Bar-chart print with activities filtered by critical path.
   3. Bar-chart print that summarizes the current Baseline Contract Schedule with all Contract milestones shown.
   4. Written narrative accompanying the Baseline Contract Schedule submission. Refer to Section 01321 3.01 E for narrative outline. This narrative will explain the Contractor's approach for meeting all milestones and project completion dates. It should also include a clear description of the critical path activities from beginning to end.
   5. All Phasing plans
   6. Schedule to be cost loaded for coordination with payment requests.

C. The Owner shall review the Contractor's submission of the Baseline Contract Schedule within fifteen (15) days after receipt of the information listed in the paragraph above. The Owner will respond in writing to any comments on the schedule, and the Contractor shall revise the schedule, if appropriate, to incorporate the Owner's some or all the observations or comments. If the Owner fails to provide any comments within specified time period, the Baseline Contract Schedule as originally issued by the Contractor shall be the basis of monitoring and controlling the Project.

   1. Acceptance of Schedule by City, failure of Schedule to include an element of work, or inaccuracy in Schedule will not relieve Contractor from responsibility for accomplishing Work in accordance with the Contract.

D. All submittals to the Owner shall be accompanied by one (1) electronic copy of the schedule and four (4) copies of a bound report. Electronic copies shall contain all Schedule files

.

E. Daily Reports and Construction Photographs shall be submitted as per Specification Section 01321 3.02.

F. Phasing per SECTION 01100 SUMMARY

2.01 SCHEDULE DESCRIPTION

A. The Baseline Contract Schedule shall show the sequence and interdependence of activities required for complete performance of the Work, beginning with the date of the Notice to Proceed and concluding with the Contract Completion Date shown in the Contract Documents. The schedule shall reflect the Contractor's true plans for progressing and performing the work. The Baseline Contract Schedule shall be understood to be the Contractor's confirmation that the schedule meets the requirements of the Contract Documents, and that the Work will be executed in the sequence indicated in schedule.

B. The Contractor shall be responsible for the means, methods, and sequences shown in the Baseline Contract Schedule. Failure to include any element of work for performance of this Contract shall not excuse the Contractor from compliance with requirements of the Contract Documents. To the extent that there are any conflicts between the approved schedule and the requirements of the Contract Documents, the Contract Documents shall govern.

C. The Baseline Contract Schedule shall clearly indicate sequence of construction activities, grouped by applicable phase and sorted by areas, buildings, floors or facilities within the phase. It shall be constructed to show the order in which the Contractor proposes to carry out the Work. The Contractor shall utilize the Baseline Contract Schedule in planning, scheduling, coordinating, and performing the Work under the Contract (including all activities of subcontractors, equipment vendors, and Suppliers).

D. The Baseline Contract Schedule submitted to the Owner shall comply with all limits imposed by the scope of Work, with all contractually specified phasing, intermediate milestone and completion dates, constraints, and sequencing included in the Contract. The degree of detail shall include factors, including, but not limited to each of the following:

1. Start and completion of all items of work, their major components, and interim milestone completion dates, as determined by the Contractor and the Owner.
2. Substantial Completion dates and the Contract Completion Dates.
3. Type of Work to be performed, the sequences, and the labor trades involved.

4. Activities for:
    a. Submittal review and approvals
    b. Procurement and delivery of critical materials

5. Activities dependent on submittal acceptance and/or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.
6. As applicable, dates for start of equipment, testing of equipment, balancing equipment and final inspection and punch list corrections.
7. Deliveries or work of Owner Furnished Contractor Installed (OFCI) materials.
8. Approvals required by other agencies (e.g. State, City, Federal)
9. Plans for all subcontract Work.
10. Assignment of single responsibility for performing specific activities.
11. Access to and availability of work areas including all anticipated shutdowns.
12. Identification of interfaces and dependencies with preceding, concurrent and follow-on Contractors and utilities.
13. Critical tests, submission of test reports and test results.
14. All start up, testing, training required under the Contract.
15. Twenty calendar days for developing punch list(s), completion of punch list items, and final clean-up for Work or designated portion thereof.
16. Identification of any activity requiring unusual shift Work, such as two shifts, six (6) work day weeks, specified overtime, or Work at times other than regular work days or hours, shall be clearly identified in the Baseline Contract Schedule.
17. Unless otherwise approved by the City, no activity on schedule shall have duration longer than 10 calendar days, with exception of fabrication, procurement and submittal review activities. Activity duration shall be total number of actual days required to perform that activity including consideration of weather impact on completion of that activity.

E. Overall time of completion and time of completion for each milestone shown on the Schedule shall adhere to the specified Contract time, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by the City. Agreement shall be formalized by Change Order.

F. Schedule shall be the basis for evaluating job progress, progress payments, and time extension requests. Contractor shall develop Schedule and monitor actual progress as compared to Schedule.

G. Software: Contractor shall use scheduling software that meets industry standards.

H. Weather: Extensions of time to the Construction Schedule for weather shall only be allowed for unusually severe weather which shall not include the first twenty (20) days of rain delays in any calendar year January 1 to December 31. A minimum of twenty (20) calendar days for inclement weather shall be considered as included in the Contractor's project schedule in each calendar year.

I. Float Time: Float or slack time is defined as amount of time between earliest start date and latest start date or between earliest finish date and latest finish date of activities on Schedule. Since float time within the schedule is jointly

owned, no time extensions will be granted nor delay damages paid until a delay occurs which extends the work beyond the Contract completion date.

J. Default: Failure of Contractor to substantially comply with requirements of this Section shall constitute reason that Contractor is failing to prosecute Work with such diligence as will ensure its completion within Contract times and shall be considered grounds for termination or other remedy by the City pursuant to terms of this Contract.

K. Schedule activities shall be cost loaded and correlate with the Schedule of Values.

2.02 DELAYS

A. When the Contractor foresees a delay in the prosecution of the Work and, in any event, immediately upon the occurrence of a delay, the Contractor shall notify the City in writing of the probability of the occurrence and the estimated extent of the delay, and its cause. The Contractor shall take immediate steps to prevent, If possible the occurrence or continuance of the delay. The Contractor agrees that no claim shall be made for delays which are not called to the attention of the City at the time of their occurrence.

B. Non-excusable Delays: Non-excusable delays in the prosecution of the Work shall include delays which could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its subcontractors, at any tier level, or suppliers.

C. Excusable Delays: Excusable delays in the prosecution or completion of the Work shall include delays which result from causes beyond the control of the Contractor and Owner and which could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its subcontractors, at any tier level, or suppliers.

D. Abnormal Delays: Abnormal delays caused by acts of god, fire, unusual storms, floods, tidal waves, earthquakes, strikes, labor disputes, freight embargoes, and shortages of materials shall be considered as excusable delays insofar as they prevent the Contractor from proceeding with at least seventy-five (75) percent of the normal labor and equipment force for at least five (5) hours per day toward completion of the current critical activity item(s) on the latest favorably reviewed progress schedule.

E. Weather Delays: Should inclement weather conditions or the conditions resulting from weather prevent the Contractor from proceeding with seventy-five (75) percent of the normal labor and equipment force engaged in the current critical activity item for a period of at least live (5) hours per day toward completed of such operation or operations, and the crew is dismissed as a result thereof, it shall be a weather delay day. The Contractor may be granted a time extension for weather delays pursuant to Section 2.03 TIME EXTENSIONS. The Contractor will be granted a non-compensable time extension for weather caused delays which are over and above the weather allowance as provided for in Section 2.01 H. No time extensions for weather delays will be granted until the total number of weather days has exceeded the allowance.

F. Compensable Delays: Compensable delays in the prosecution or completion of the Work shall include delays that occur through no fault of the Contractor and prevent the Contractor from proceeding with at least seventy-five (75) percent of the normal labor and equipment force for at least five (5) hours per day toward completion of the current critical activity item(s) on the latest favorably reviewed progress schedule due to the following cause(s):

- Delays due solely to the actions and / or inactions of the Owner.
- Delays due to differing site conditions,
- Delays due to other Contractors employed by the Owner who interfere with the Contractor's prosecution of the Work as defined above.

2.03 TIME EXTENSIONS

A. Notice by Contractor: As a condition precedent to Contractor's right to an adjustment of the Contract Time, Contractor shall, within twenty-one (21) Days of the Discovery Date of the occurrence of circumstances causing a Compensable or Excusable Delay, notify the City and OAR in writing of the potential impact. The quantification of the potential delay shall be analyzed as described below under the Request for Extension section.

B. Request for Extension of Time: When an event is experienced that will affect the Baseline Contract, and a time extension is requested, the Contractor shall submit to the Owner, an Impacted Schedule, as defined here in this specification, accompanied with a written Time Impact Analysis, separate from the Monthly Status Schedule illustrating the impact of the delays.

1. Each Impacted Schedule shall include at least one Fragnet demonstrating how the event is impacting the Monthly Status Schedule. A Fragnet is defined as a sequence of new and/or activity revisions that are added to the current Monthly Status Schedule at the time the event is encountered to demonstrate the impact of the event, and the method for incorporating the event and its impact into the schedule.

2. Each Time Impact Analysis included in the Impacted Schedule shall demonstrate the estimated time impact based on the date of the event, the status of construction at that point in time, and the event time computation of all activities affected by the event, and its impact on the Monthly Status Schedule. The event times used in the Time Impact Analysis shall be those included in the latest update of the Monthly Status Schedule current at the time the event was encountered.

3. Both the Monthly Status Schedule and ""Impacted" Schedule will be submitted to the Owner on or before the 10th day of each month of the work. The Contractor shall also submit in writing a Change Order Request for all time extensions for the preceding month.

4. The Owner shall make approval or rejection of the Impacted Schedule (s) within fourteen (14) days after receipt of each Impacted Schedule. The

Owner will schedule a meeting with the Contractor to discuss the delays of the preceding month.

C. Time extensions will be granted only to the extent that the activity or activities affected exceed the total or remaining float along the critical path of activities at the time of the event. Float or slack time is not for the exclusive use or benefit of the Owner or the Contractor but is an expiring resource available to all parties as needed to meet Contract milestones and the Contract Completion Date. Time extensions shall not be granted nor delay damages paid until both of the following occur:

   a. A delay occurs that is beyond the control of, and without the fault or negligence of, the Contractor and its Subcontractors or Suppliers, at any tier.
   b. The delay extends actual performance of the Work beyond the applicable current Contract Completion or Interim Completion Milestones.

D. Upon mutual agreement by both Contractor and Owner, Fragnets illustrating the impact of an event shall be incorporated into the Monthly Status Schedule, and establish a new Baseline Contract Schedule on the project.

E. In the event the Contractor does not agree with the decision of the Owner regarding the impact of an event, it shall be resolved in accordance with the Contract terms and conditions.

PART 3 – EXECUTION

3.01 MONTHLY UPDATES AND PROGRESS PAYMENTS

A. Progress update shall be made monthly and must coincide with payment schedule; exact date to be mutually agreed to by Contractor and the City.

B. Five (5) days prior to the submittal of the Contractor's monthly payment request, Contractor shall submit to the City an up-to-date status report for the Contract. All Monthly Status Schedules shall be submitted in the same level of detail as the Baseline Contract Schedule. The schedule calculation mode must utilize the Retained Logic option. The Monthly Status Schedule shall show the activities or portions of activities completed during the reporting period. When completed, the current month's Monthly Status Schedule will be used for the period from the data date until its successor is submitted. The schedule information provided in the Monthly Status Schedule shall include all of the following:

   1. Actual start dates.
   2. Actual completion dates.
   3. Adjusted remaining duration.
   4. Incorporation of approved time extensions.
   5. Incorporation of changes issued or pending that can potentially impact the scheduled work.
   6. List of materials and/or equipment delivered for which Contractor is requesting payment and original invoice verifying cost.

7. Identification of processing errors, if any, on the previous update reports.
8. Resolution of conflict between actual Work progress and Schedule logic. When out of sequence activities develop in Schedule because of actual construction progress, Contractor shall submit revisions to Schedule logic to conform to current job status and directions.

C. The Monthly Status Schedule prepared by the Contractor shall include schedule revisions/changes, including but not limited to: logic, duration, status, additions and deletions. The Contractor shall incorporate such revisions prior to submitting the Monthly Status Schedule for the Owner's review. Upon request, the Contractor shall provide the Owner a report listing the changes made to the schedule. Submission of changes may be in the form of schedule comparison reports, marked-up networks, fragnets, or schedule abstracts.

D. Each of the following reports shall be required as part of the Monthly Status Schedule as a condition precedent to receipt of progress payments:

1. Bar-chart print with activities sorted by early start then by early finish.
2. Bar-chart print with activities filtered by critical path.
3. Bar-chart print that summarizes the current Monthly Status Schedule. All Contract milestones shall be shown.
4. Schedule Narrative Report (See Schedule Narrative Report Outline)
5. Electronic copy of schedule if requested.

The Monthly Status Schedule containing all of the information described above shall be available for review at the Jobsite.

E. The Monthly Updated Progress Schedule submittal to the Owner shall be accompanied by a Schedule Narrative Report. The narrative report shall describe the physical progress and major accomplishments during the current reporting period and include, but not be limited to, description of problem areas, current and anticipated delaying factors and their impact, explanation of corrective action taken and proposed revisions for recovery plan.

Narrative Report Outline:

- Introduction
- Schedule Milestones Comparison
  (Baseline Contract Schedule vs. Current Monthly Status Schedule)
- Description of longest / Critical paths
- Progress of the work for the current reporting period
- Work scheduled to occur during the next reporting period
- Current Delays with Cause and Planned Mitigation
- Potential Delays and Proposed Mitigation
- Impact of the delay on other activities, milestones, and completion dates
- Changes in construction sequences
- Summary

G. The City will review update information submitted by Contractor and meet with Contractor's representative to arrive at mutually agreed upon progress status. If agreement cannot be reached on any issue, the City's determination will be used for processing update.

3.02 DAILY REPORTS AND CONSTRUCTION PHOTOGRAPHS

A. Throughout the Project, the CONTRACTOR shall: (1) Prepare and distribute to the City and the OAR, as requested, a comprehensive log (hereinafter, the "Daily Report"), and (2) Take action to specifically alert the CITY and the OAR to items which could result in claims and/or delays. Prior to issuance of the Notice to Proceed, the Contractor shall submit to the City for approval a proposed Daily Report form.

The Daily Report should include the following information:

- Manpower / Personnel onsite by trade and hours
- Subcontractors working onsite
- Weather
- List of visitors
- Material/Supply deliveries received
- Work being performed and location of same.
- Daily equipment list
- Situations or circumstances which could delay work or give rise to claims for additional costs
- All tests and Inspections preformed
- Photographs of worked performed
- Other information as appropriate

Daily Reports shall be completed daily with copies provided to the City weekly.

B. Throughout the Project, the CONTRACTOR shall take and provide digital photographs of construction throughout progress of Work.

1. Each month, submit CD ROM containing all photographs taken from previous month. Photographs shall be taken from the same location each time for documentation purposes. Every room shall have a minimum of one photograph per month up to as many as are required to demonstrate work completed. Contractor shall photograph all pre existing conditions of the site, roof and interior area to receive new work.

2. Photos shall be grouped by work area and sorted by date taken.

3. Contractor shall photograph all pre existing conditions of the site and interior area to receive new work.

4. Photograph Prints: None required.

END OF SECTION

SECTION 01325
REQUEST FOR INFORMATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section covers general requirements for Contractor's requests for information (RFI).

1.02 CONTRACTOR'S REQUESTS FOR INFORMATION (RFI)

A. Submit a Request for Information when:

1. An unforeseen condition or constructability question occurs.
2. Questions regarding information in the Contract Documents arise.
3. Information not found in the Contract Documents is required.

B. Do not use RFI for the following purpose:

1. To request approval of submittals.
2. To request approval of substitutions.
3. To request changes to the Contract Documents and to confirm action taken by the Contractor for requested changes/substitutions to the Contract Documents.

C. Submit RFI within a reasonable time frame so as not to interfere with, or impede the progress of the Work.

D. When an answer to an RFI has an effect on cost or time, notify the City in accordance with the Contract Documents when the RFI is received. Notification shall occur prior to commencing such work. The Contractor shall not proceed with the work indicated by the RFI until a Change Order or other acceptable tracking device is prepared and approved.

E. When submitting an RFI, alert the City, in writing, to the time available before the response will cause an impact to the Project.

F. Submit the RFI as follows:

1. Submit a legible written request via email to the city on a form approved in advance by the City.

2. Each page of each attachment, including supporting documentation and/or photos shall bear the RFI number in the lower right corner.

3. Number submitted RFI'S consecutively.

4. Contractor shall sign all RFI forms. RFI from subcontractors or material suppliers shall be submitted through, and be reviewed by the Contractor prior to submittal to the City.

5. Allow a minimum of 5 working days for review and response time; the response time will be increased if more information is required, when the RFI is submitted out-of-sequence, or if in the opinion of the Architect, more time is needed to answer the RFI.

1.03 QUALITY ASSURANCE

A. Before submitting RFI, the Contractor shall verify that the information requested is not indicated in the Contract Documents, or cannot be determined from a careful review of same.

B. Where applicable, Contractor shall include a recommended solution with the RFI.

C. In all cases where a RFI is issued to request clarification of coordination issues, for example, pipe and duct routing, clearances, specific locations of work shown diagrammatically, and similar items, the Contractor shall fully lay-out a suggested solution using drawings or sketches drawn to scale, and submit with the RFI.

END OF SECTION

CITY OF COMMERCE
DEPARTMENT OF COMMUNITY DEVELOPMENT

REQUEST FOR INFORMATION *(RFI)*

DISTRIBUTION			

Contractor: _____

Project Name: _____ **RFI Number:** _____

Submitted by: _____ Date: _____

Phone: _____ _____

Issued To: **GINA NILA, OPERATIONS DEPUTY DIRECTOR** Contract No.: _____

SUBJECT:

Drawing / Detail Number: _____ Specification Section / Page Number: _____

REQUEST:

RECCOMENDATION:

Cost Impact: ☐ Yes ☐ No ☐ To Be Determined ☐ Check if additional pages are attached

Schedule Impact: ☐ Yes ☐ No ☐ To Be Determined

Request by:

Contractor's Signature ***Name (Printed)*** ***Date***

RESPONSE:

Cost Impact: ☐ Yes ☐ No ☐ To Be Determined ☐ Check if additional pages are attached

Schedule Impact: ☐ Yes ☐ No ☐ To Be Determined

Response by:

Signature ***Name (Printed)*** ***Date***

OWNER AUTHORIZATION (please check one):

☐ Proceed as noted above. NO COST. ☐ Submitt price PRIOR to proceeding.

☐ Proceed at Force Account. ☐ Other:_____
(Explain)

Response Reviewed and Approved by:

Owner Signature ***Name (Printed)*** ***Date***

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SECTION 01330
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for reviews by the City, including but not limited to:
   - Shop Drawings
   - Product Data
   - Samples
   - Certificates
   - Colors
   - Substitutions
   - Construction Waste Estimate / Recycled Content

1.02 SHOP DRAWINGS

A. “Shop drawings” are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

   1. Shop drawings shall be submitted in the following manner:

      a) For architectural work, the Contractor shall submit one (1) digital copy (where applicable) and three (3) hard copies to the Construction Manager for distribution

      b) For the work of consultants, namely; structural, mechanical, electrical, civil, plumbing, audio / visual systems and fire life-safety, the Contractor shall submit one (1) digital copy (where applicable) and three (3) copies to the Construction Manager for distribution

   2. The City will review and return two (2) copies to the Contractor.

   3. Shop drawings and product data shall be complete when submitted by the Contractor. No partial data or lists will be considered. The Contractor shall identify each drawing with the project number and title of Project.

   4. The Contractor shall note corrections or changes requested by the City on previous submission and shall note revisions. Corrections or changes indicated on shop drawings or product data shall not be considered as extra work. No final drawings will be considered approved unless it bears a review stamp of the Architect.

1.03 PRODUCT DATA

A. "Product Data" are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

   1. The Contractor shall submit manufacturer's literature as follows:

      a) Manufacturer's standard schematic drawings.

      b) Modify to delete information which is not applicable to the Project.

c) Supplement standard information to provide additional information applicable to Project.

2. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data:

   a) Clearly mark each copy to identify pertinent materials, products and / or models.

   b) Show dimension and clearances required.

   c) Show performance characteristics and capabilities.

   d) Show wiring diagrams and controls where applicable.

   e) Include calculations when applicable.

3. Safety Data Sheets (SDS): Include for materials which require manufacturer’s warnings and application instructions listed on SDS provided by the product manufacturer.

1.04 SAMPLES

A. "Samples" are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

1. Samples shall consist of physical examples furnished by the Contractor in sufficient size and quantity to illustrate materials, equipment or workmanship and to establish standards by which the Work will be judged.

2. Unless otherwise specified and within one (1) month from the Award Date, the Contractor shall submit samples in duplicate, of adequate size showing quality, type, color range, finish, and texture. The Contractor shall label each sample stating materials, type, color, thickness, and size.

3. The Contractor shall not order material until receipt of completed review of samples is submitted. The written completed review shall not be interpreted as a modification of any provision of the Contract Documents.

4. Where the Contract requires approved samples to be returned, the Contractor shall submit additional samples as required. The Contractor shall remove samples upon request. Field samples and mock-ups, when shown on the Drawings or otherwise specified in the Contract Documents:

   a) Erect at Project Site at a location acceptable to Architect.

   b) Construct each sample or mock-up complete, including Work of all trades required in finished Work.

   c) Remove the foregoing as directed.

   d) Mock-up Samples: The Contractor shall prepare mock-up samples as requested by the Architect to accurately reflect actual workmanship quality and installation of various building components on the project. Mock-ups may be actual components of the project.

1.05 CERTIFICATES

A. Where specifically indicated by pertinent Specification Sections, submit proper certification by recognized producer or association. Certifications shall attest to product's compliance with requirements of Contract Documents.

1.06 COLORS

A. Unless the precise color and pattern is specifically described in the Contract Documents, whenever a choice of color or pattern is available in a specified product, the Contractor shall submit accurate color charts and pattern charts to the Architect and the City for its review and selection.

B. The Contractor shall submit colors as described in Samples above. Failure to submit colors or patterns may be cause for rejection and replacement at no cost to City.

1.07 SUBSTITUTIONS

A. Refer to Section 01631 – “Equals and Substitutions”.

1.08 CONSTRUCTION WASTE ESTIMATE / RECYCLED CONTENT

A. Refer to Section 01505 – “Construction Waste Management”.

PART 2 - PRODUCTS

2.01 SUBMITTALS

A. Submittal Log: Within thirty (30) days after Notice to Proceed the Contractor shall submit a detailed listing of anticipated proposed submittals, shop drawings and samples. The listing shall be developed in a spreadsheet format and include:

1. Specification item number;
2. Item description;
3. Description of submittal;
4. Specification paragraph requiring submittal; and
5. Scheduled date of submittal.

B. Submittals shall include <u>6 copies.</u>

C. Submittals shall be numbered consecutively and be legible and complete in every respect.

D. If a Submittal includes variations from Contract requirements because of standard shop practices or other reasons, Contractor shall make specific mention of such variations in letter of transmittal, as well as on drawings. Unless specific changes have been noted and accepted, no deviations from Contract Documents will be permitted.

PART 3 - EXECUTION

3.01 REQUIREMENTS

A. The Contractor shall make all submittals of shop drawings, samples, mock-ups and other similar items, in strict accordance with the provisions of the General Conditions and this Section. All submittals shall be accompanied by a properly completed copy of the "Contractors Submittal Transmittal" form provided by the City (Refer to Section 01330A for Form).

B. The Contractor shall perform no portion of the work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed by the Architect. Such Work shall be in accordance with approved submittals.

C. By approving and submitting Shop Drawings, Product Data, Samples and similar submittal the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

D. The Contractor shall not be relieved of responsibility for deviations from requirements the Contract Documents by the Architect's review of Shop Drawings, Product Data, Sample or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approve to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

E. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals.

F. The Contractor agrees that:

   a) Submittals processed by the Architect and/or City are not Change Orders;

   b) The purpose of submittals by the Contractor is to allow a review of the integrity of the proposed submittals to demonstrate that the Contractor fully understands the design concept;

   c) Submittals demonstrate Contractors understanding by indicating which equipment and material it intends to furnish and install and by detailing the fabrication and installation methods it intends to use.

   d) Contractor further agrees that if deviations, discrepancies or conflicts between shop drawings and Contract Documents are discovered at any time, the Contract Documents shall control and be followed.

G. The Contractor shall make submittals far enough in advance of scheduled date of installation to provide required time for review, securing necessary approvals, possible revision and re-submittal, and for placing order and securing delivery.

H. In scheduling, the Contractor shall allow at least fourteen (14) days for Architect's review of routine submittals. All parties recognize that major submittals such as roof steel shall take considerably longer to review. Contractor shall identify any submittal that is a critical path item affecting the scheduled completion of the project with the City and the Architect in advance of transmitting the submittal.

I. Architect will review submittals for conformance with contract documents: Acceptance by Architect covers only such conformance. Effort will be made to discover errors, but responsibility for accuracy and correction and re-submittal shall be the Contractor's.

J. Acceptance of submittals will be general and shall not relieve Contractor from responsibility for proper fitting and construction of Work, nor from furnishing materials and work required by Contract which may not be indicated on submittals.

K. Upon receipt of a submittal from the Contractor, the Architect shall review, stamp, mark, initial, and date each submittal as follows:

1. "NO EXCEPTIONS TAKEN": This indicates that the submittal meets Contract Document requirements, the design intent, and the Architect has no objections to any of the information included with the submittal. The submittal will be distributed to the Contractor and City.

2. "REVISE AS NOTED – RESUBMITTAL NOT REQUIRED": This indicates that the submittal is essentially acceptable in terms of Project requirements and design intent, but some minor aspect is incorrect. Either the Architect has indicated a color or finish selection, or other comments have been added to the submittal. Resubmittal is not necessary; the submittal can be distributed to the Contractor and City and utilized as is.

3. "REVISE AS NOTED AND RESUBMIT": This indicates that major corrections to the submittal are necessary. It may also indicate that a few changes of major significance need to be made. In this case, the submittal shall be returned to the Contractor by the Architect with a copy of the transmittal to the City. The Contractor shall correct and resubmit as specified herein prior to commencing with the work indicated on the submittal. The Contractor shall have no basis for a claim of extra time or money due to "Revise and Resubmit" action by the Architect.

4. ”REJECTED": This indicates that the submittal is unacceptable. Reasons may include unacceptable manufacturer, incorrect model or product, or incomplete submittal as defined herein. The Architect shall note the reason for rejection and the submittal shall be returned to the Contractor with a copy of the transmittal to the City. The Contractor shall correct and resubmit as specified herein. The Contractor shall have no basis for a claim of extra time or money due to "Rejected" action by the Architect.

END OF SECTION

CITY OF COMMERCE

DEPARTMENT OF COMMUNITY DEVELOPMENT

CONTRACTORS SUBMITTAL TRANSMITTAL

DISTRIBUTION			

Project Name: _____ **Date:** _____

Owner Contact: _____ **Submittal No.:** _____

Contractor: _____ **Spec. Section:** _____

Submitted By: _____ Contract No.: _____

Phone: _____ Contractor Ref. No.: _____

Schedule Activity No.: _____ Drawing Reference: _____

FOR ALL CONTRACTOR SUBMITTALS, INCLUDING SHOP DRAWINGS, SAMPLES, CALCULATIONS, DATA OR OTHER

TO: CITY OF COMMERCE. Attn: Gina Nila
2535 Commerce Way
Commerce, CA. 90040

CHECK ONE - THIS IS:
- ☐ AN ORIGINAL SUBMITTAL
- ☐ A REVISION SUBMITTAL OF: _____
- ☐ AN O & M SUBMITTAL

Description of Submittal / Equipment / Supplier / Proposed Use	No. of Copies	A	B	C	D

WE HAVE VERIFIED THAT THIS SUBMITTAL MEETS ALL THE REQUIREMENTS SPECIFIED IN THE SPECIFICATIONS OR AS SHOWN ON THE DWGS. (NO EXCEPTIONS). **ADDITIONAL CONTRACTOR COMMENTS NOTED BELOW:**

CONTRACTORS SIGNATURE: _____

LEGEND: A - NO EXCEPTIONS TAKEN B - REVISE AS NOTED. RESUBMITTAL NOT REQUIRED
C - REVISE AS NOTED AND RESUBMIT D - REJECTED. RESUBMITTAL REQUIRED

REVIEWER REMARKS:

RESPONSE PREPARED BY: _____ **DATE:** _____

Corrections or Comments made relative to submittals during this review do not relieve the contractor from compliance with the requirements of the drawing and specifications. This check is for review of general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The contractor is responsible for correcting and correlating all quantities and dimensions; selecting required accessories, fabrication processes and techniques of construction; coordinating work with other trades and performing work in a safe and satisfactory manner.

OWNER AUTHORIZATION

Response Reviewed by:

Signature ***Name (Printed)*** ***Date***

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SECTION 01400
CONTRACTOR QUALITY CONTROL PROGRAM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for the Contractors Quality Control Program.

1.02 REQUIREMENTS

A. The Contractor shall establish, provide, and maintain an effective Quality Control Program that details the methods and procedures that will be taken to assure that all materials and completed construction conform to Contract drawings, Specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the Contract Specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

B. The intent of this section is to enable the Contractor to establish a necessary level of control that will:

1. Adequately provide for the production of acceptable quality materials.
2. Provide sufficient information to assure both the Contractor and the City that the Specification requirements can be met.
3. Allow the Contractor as much latitude as possible to develop his or her own standard of control.

C. The Contractor shall be prepared to discuss and present at the preconstruction conference his/her understanding of the quality control requirements.

D. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed and approved by the City.

E. The quality control requirements contained in this section and elsewhere in the Contract Specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements will be the responsibility of the City.

1.03 SUBMITTALS

A. The Contractor shall describe the Quality Control Program in a written document which shall be reviewed by the City prior to the start of any production, construction, or offsite fabrication. The written Quality Control Program shall be submitted to the City for review at least 7 calendar days before the Notice to

Proceed. The Quality Control Program shall be organized to address, as a minimum, the following items:

1. Quality control organization;
2. Submittals schedule;
3. Inspection requirements;
4. Quality control testing plan;
5. Documentation of quality control activities; and
6. Requirements for corrective action when quality control and/or acceptance criteria are not met.
7. Include all forms to be used throughout the project.

B. The Contractor is encouraged to add any additional elements to the Quality Control Program that he/she deems necessary to adequately control all production and/or construction processes required by this Contract.

PART 2 - PRODUCTS

2.01 DESCRIPTION OF PROGRAM

A. The Contractor shall establish a Quality Control Program to perform inspection and testing of all items of work required by the Specifications and Code, including those performed by subcontractors. This Quality Control Program shall ensure conformance to applicable Specifications and Plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the Specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

B. The Contractor's Quality Control Program shall be implemented by the establishment of a separate quality control personnel. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management / production and construction functions and personnel. The organizational chart shall identify all quality control staff by name and function, and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of work. If necessary, different technicians can be utilized for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the Quality Control Program, the personnel assigned shall be subject to the qualification requirements of this section. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization. The quality control organization shall consist of the following minimum personnel:

1. Program Administrator: The Program Administrator shall be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The

Program Administrator shall have a minimum of 5 years of experience in similar construction and shall have had prior quality control experience on a project of comparable size and scope as the Contract. Additional qualifications for the Program Administrator shall include at least one of the following requirements:

a. Professional Engineer w/ 1 yr of building experience acceptable to the City.
b. Engineer-in-training w/ 2 yrs of building experience acceptable to the City.
c. An individual w/ 3 yrs of similar experience acceptable to the Engineer, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.
d. Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).

The Program Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the Contract Plans and Specifications.

2. Quality Control Technicians. A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II or higher construction materials technician or highway construction technician and shall have a minimum of 2 years of experience in their area of expertise. The quality control technicians shall report directly to the Program Administrator and shall perform the following functions:

a. Inspection of all materials, construction, plant, and equipment for conformance to the Contract Documents, and as required.
b. Performance of all quality control tests as required by Specifications and any regulatory requirements. Certification at an equivalent level, by a state of nationally recognized organization will be acceptable in lieu of NICET certification.

C. Staffing Levels. The Contractor shall provide sufficient qualified quality control personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The Quality Control Program shall state where different technicians will be required for different work elements.

PART 3 - EXECUTION

3.01 INSPECTION REQUIREMENTS

A. Quality control inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor. Inspections shall be performed daily to ensure continuing compliance with Contract requirements until completion of the

particular feature of work. These shall include the following minimum requirements:

1. During plant operation for material production, quality control test results and periodic inspections shall be utilized to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the Specifications. All equipment utilized in proportioning and mixing shall be inspected to ensure its proper operating condition. The Quality Control Program shall detail how these and other quality control functions will be accomplished and utilized.

2. During field operations, quality control test results and periodic inspections shall be utilized to ensure the quality of all materials and workmanship. All equipment utilized in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the Specifications and are within the plan dimensions, lines, grades, and tolerances specified. The Program shall document how these and other quality control functions will be accomplished and utilized.

3.02 QUALITY CONTROL TESTING PLAN

A. As a part of the overall Quality Control Program, the Contractor shall implement a quality control testing plan, as required by the Specifications. The testing plan shall include the minimum tests and test frequencies required by each Specification item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes. The testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

1. Specification item number;
2. Item description (e.g., Plant Mix Bituminous Pavements);
3. Test type (e.g., gradation, grade, asphalt content);
4. Test standard (e.g., ASTM or AASHTO test number, as applicable);
5. Test frequency (e.g., as required by Specifications or minimum frequency when requirements are not stated); and
6. Responsibility (e.g., plant technician).

3.03 DOCUMENTATION

A. The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken. These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of

the Contract. Legible copies of these records shall be furnished to the City daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Administrator. Specific Contractor quality control records required for the Contract shall include, but are not necessarily limited to the following records:

B. Daily Inspection Reports. Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the City. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:

1. Specification item number and description;
2. Compliance with approved submittals;
3. Proper storage of materials and equipment;
4. Proper operation of all equipment;
5. Adherence to Plans and Specifications;
6. Review of quality control tests; and
7. Safety inspection.

C. The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed. The daily inspection reports shall be signed by the responsible quality control technician and the Program Administrator. The City shall be provided at least one copy of each daily report.

D. Daily Test Reports. The Contractor shall be responsible for establishing a system which will record all quality control test results. Daily test reports shall document the following information:

1. Specification item number and description;
2. Test designation;
3. Location and Date of test;
4. Control requirements;
5. Test results;
6. Causes for rejection;
7. Recommended remedial actions; and
8. Retests.

E. Test results shall be submitted to the City once completed. When required by the Specifications, the Contractor shall maintain statistical quality control charts. The daily test reports shall be signed by the responsible quality control technician and the Program Administrator.

3.04 CORRECTIVE ACTION REQUIREMENTS

A. The Quality Control Program shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance)

and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the Specifications. The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control. When applicable or required by the Specifications, the Contractor shall establish and utilize statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

3.05 SURVEILLANCE BY THE CITY

A. All items of material and equipment shall be subject to surveillance by the City at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable Specifications and Plans. In addition, all items of materials, equipment and work in place shall be subject to surveillance by the City at the site for the same purpose. Surveillance by the City does not relieve the Contractor of performing quality control inspections of either onsite or offsite Contractor's or subcontractor's work.

3.06 NONCOMPLIANCE.

A. The City will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the City or his/her authorized representative to the Contractor or his/her authorized representative at the site of the work, shall be considered sufficient notice.

B. In cases where quality control activities do not comply with either the Contractor's Quality Control Program or the Contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the City, the City may:

1. Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.

2. Order the Contractor to stop operations until appropriate corrective actions is taken.

END OF SECTION

SECTION 01425
TESTING AND INSPECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Testing and inspection requirements.

1.02 CITY INSPECTOR

A. An Inspector of Record (IOR) will be employed by the City. Additional certified inspectors may be employed and assigned to the work by the City in accordance with the requirements of California Building Standards Administrative Code.

B. The work of construction in all stages of progress shall be subject to the personal continuous observation of the IOR. He or she shall have free access to any and all parts of the work at any time. Contractor shall furnish the IOR reasonable facilities for obtaining such information as may be necessary to keep him fully informed respecting progress and manner of the work and character of materials.

C. The IOR is authorized to enforce compliance with the Contract Documents, to determine the acceptability of materials and the quality of Work. The IOR, or authorized agent, is authorized to sample and test all materials to be incorporated into the Work.

D. The presence of the Engineer or the IOR shall not relieve the Contractor of the responsibility for the proper execution of the Work in accordance with all requirements of the Contract Documents. Compliance is a duty of the Contractor, and any act or omission on the part of the Engineer or the IOR shall not avoid said duty. If the Contractor fails to replace any defective or damaged Work or material after reasonable notice, the Engineer may cause such Work or materials to be replaced. The replacement shall be deducted from the amount to be paid to the Contractor; otherwise the Contractor shall pay the City if there remains an insufficient amount or no amount to be paid by the City to the Contractor.

1.03 TESTS AND INSPECTIONS

A. As necessary, the City will select and provide an independent testing laboratory to conduct acceptance testing. Selection of materials required to be tested shall be by the laboratory or the IOR and shall not be by Contractor.

B. Quality Control Testing and Inspection shall be provided by the Contractor as specified in Section 01400.

C. Contractor shall notify the IOR with sufficient time, when the manufacture of those materials or components requiring testing by the approved testing laboratory or inspections is scheduled to commence. The City will then make arrangements for the IOR to attend. Unless obtained in writing in advance, a minimum of 72 hours notice shall be provided by the Contractor to the City. The Contractor shall be responsible for coordinating this process such that it does not adversely affect the approved work schedule. The Contractor shall obtain necessary notice time from manufacturers prior to submitting schedule.

C. Any material shipped by Contractor from the source of supply prior to having satisfactorily passed such testing and inspection, or prior to the receipt of notice from the IOR that such testing and inspection will not be required shall not be incorporated into the work.

D. Certifications from the steel fabricator shall be provided to the City for all steel delivered to the job site prior to requesting inspection.

1.04 REQUIRED TESTS AND INSPECTIONS

A. CCR Title 24 Tests and Inspections: Except as noted otherwise, these tests and inspections shall be performed by State's testing laboratory in conformance with State of California Code of Regulations (CCR), Title 24 as noted herein.

1. Earthwork (Chapter 18, Title 24)
   a. Earth Fill compaction.
   b. Inspection of footing excavations.
   c. Placing of backfill.

2. Concrete (Chapter 19, Title 24)
   a. Materials:
      (1) Portland Cement Tests.
      (2) Concrete Aggregates.
      (3) Reinforcing Bars.
      (4) Batch Plant Inspection.
      (5) Core tests, if necessary.
      (6) Admixtures.

   b. Concrete Quality:
      (1) Proportions of Concrete.
      (2) Strength Tests of Concrete.

   c. Concrete Inspection:
      (1) Job Site Inspection.
      (2) Batch Plant or Weighmaster Inspection.
      (3) Curing.
      (4) Construction Joints.

3. Masonry (Chapter 21, Title 24)
   a. Materials:
      (1) Masonry Units.
      (2) Portland Cement.
      (3) Mortar and Grout Aggregates.

   b. Masonry Quality:
      (1) Portland Cement.
      (2) Mortar and Grout.
      (3) Masonry Cores.

c. Masonry Inspection:
   (1) Reinforced Masonry.

4. Structural Steel (Chapter 22, Title 24)
   a. Materials:
      (1) Material Identification.
      (2) Structural Steel.

   b. Tests and Inspection of Structural Steel:
      (1) Tests of Structural and Cold Formed Steel.
      (2) Shop Fabrication Inspection.
      (3) Welding Inspection.
      (4) Welding of Reinforcing Bars.

1.04 TEST REPORTS

A. Test reports shall be forwarded to the IOR by the testing agency. Such reports shall include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations as required shall also be reported. Reports shall indicate the material or materials sampled and tested in accordance with the requirements of the current Los Angeles County Building Code and with the approved Specifications. Test reports shall show specified design strength. They shall also state definitely whether or not material or materials tested comply with requirements.

1.05 INSPECTION BY THE CITY

A. The Work shall be conducted under the general observation of the City Engineer or IOR to ensure compliance with the requirements of the Contract Documents. Such inspection may include mill, plant, and shop or field inspection, as required. The IOR shall be permitted access to all parts of the Work, including plants where materials or items are manufactured or fabricated. All materials and fabricated items furnished by the Contractor shall be subject to inspection. Contractor shall at all times maintain proper facilities and provide safe access for such inspection.

B. The City shall have the right to reject materials and workmanship, which are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected; rejected materials shall be removed from the premises without charge to the City. If Contractor does not correct such rejected work within a reasonable time, fixed by written notice, the City may correct same and charge the expenses to Contractor.

C. Should it be considered necessary or advisable by the City, at any time before final acceptance of the entire work, to make an examination of the work already completed, by removing or tearing out the same, Contractor shall promptly furnish necessary facilities, labor and materials on request by City.

D. If such work is found to be defective in any respect or does not pass tests due to fault of Contractor or his subcontractor, the Contractor shall defray all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and material involved in the examination and replacement shall be borne by the City.

E. No Work shall be backfilled, buried, cast in concrete, hidden or otherwise covered until it has been inspected by the IOR, and other Agencies for which a permit is required. Whenever the Contractor is ready to backfill, bury, cast in concrete, hide, or otherwise cover any Work under the Contract, the Contractor shall notify the IOR at least forty-eight (48) hours in advance to request inspection before beginning any such Work. Failure of the Contractor to notify the IOR at least forty-eight (48) hours in advance of any such inspections shall be cause for the IOR to require a delay in the progress of Work to allow time for such inspections and any remedial or corrective Work required. All costs of such delays, including its effect upon other portions of the Work, shall be borne by the Contractor.

F. Any Work covered in the absence of inspection shall be subject to uncovering at the sole expense of the Contractor. Where Work done without inspection can be uncovered, such as in concrete cast over reinforcing steel, all such Work shall be subject to demolition, removal, and reconstruction under proper inspection and Contractor shall bear all costs.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

A. All Work specified herein shall be performed in a workmanlike manner and shall be in accordance with applicable codes; OSHA regulations, ANSI Standards, NFPA Codes, and other applicable governing regulatory agencies, and conform to the rules and recommendations of franchised utility companies. The Contractor shall specifically comply with NFPA Code 241, "Building Construction and Demolition Operations," ANSI-A1 Series standards "Safety Requirements for Construction and Demolition," and NECA Electrical Design "Temporary Electrical Facilities."

B. Specific administrative and procedural minimum actions, as specified in this Section, are extensions of provisions in other Contract Documents. Nothing in this Section is intended to limit the types and amounts of temporary work required, and no omission from this Section will be recognized as an indication by the City or the Architect that such temporary activity is not required for successful completion of the Work and compliance with requirements of the Contract Documents. The Contractor shall determine its needs for temporary utility services and shall make arrangements with the City to obtain such services.

C. Contractor shall be responsible for all costs for installation, consumption and distribution of temporary electrical and water service.

D. Contractor shall remove temporary facilities and controls, including associated materials and equipment, when their use is no longer required and:

   1. Restore and recondition areas of the site damaged or disturbed by temporary facilities and controls or their installation.

   2. Remove and properly dispose of debris resulting from removal and reconditioning operations.

1.02 TEMPORARY UTILITIES

A. The Contractor, at its expense and in a manner satisfactory to the City, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance by the City, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

B. Electric Power and Lighting:

   1. Distribute electric power and lighting as required for the performance of the Work.

   2. Temporary work up to the City's Electrical system may be used for construction purposes.

C. Heat and Ventilation:

1. Provide temporary heat as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation and curing of materials, and to protect materials and finishes from damage due to improper temperature and humidity conditions.
2. Portable heaters shall be standard units complete with controls.
3. Provide adequate forced ventilation of enclosed areas as required for proper installation and curing of materials, to disperse humidity and to prevent hazardous accumulations of dust, fumes, vapors and gases.

D. Water:

1. Temporary hookup to the City's potable water system may be used for construction purposes by the contractor, as approved by the City.
2. The contractor, if necessary, shall install temporary branch piping with taps located so that water for construction purposes is available throughout the work area.
3. Contractor shall make potable water available for human consumption and hand washing.
4. Contractor shall provide temporary sanitary facilities.

E. Fire Protection:

1. Provide and maintain fire extinguishers, fire hoses and other equipment as necessary for proper fire protection during the progress of the Work. Such equipment shall be designated for use for fire protection only.

1.03 EXISTING UTILITIES AND SERVICES

A. No interruptions to the City's power, lighting, signal, telephone, alarms, sprinkler, water, sanitary or storm sewers will be permitted without the written permission of the City. Arrangements for interruptions shall be made with the City through the contractor and shall be of such time and duration as authorized. All such disruptions of services shall be limited to the minimum amount of time required to perform the Work on a continuous basis.

B. Utilities and/or other services which are shown, or not shown but encountered, shall be protected by the contractor from damage unless or until such utilities and / or services are abandoned. If the utilities and/or services are not abandoned at time of damage, the contractor shall immediately repair any damage caused by its operations and shall restore the utilities and / or services to an equal or better condition than that which existed prior to the damage. The contractor shall provide and maintain required temporary services while repairs to damaged services are being made, at no cost to the City.

C. The contractor shall provide and maintain proper shoring and bracing for existing underground utilities, sewers, and building foundations, encountered during its excavation work, to protect them from collapse or movement, or other type of damage until such time as they are to be removed, incorporated into the new

work or can be properly backfilled upon completion of new work. The contractor shall contact the appropriate utility companies for the location of existing underground services.

1.04 BARRIERS AND ENCLOSURES

A. Provide and maintain suitable temporary barriers as required to prevent public entry; protect the Work and existing facilities, persons, and trees and plants from damage or injury from construction operations.

B. Should regulatory requirements necessitate the construction of temporary barriers, barricades, or pedestrian walkways not indicated or specified, construct same at no increase in Contract Amount. Paint such items with primer and finish coat in color selected by the City.

C. Maintain temporary barriers in a structurally sound condition, with an orderly, neat appearance and relocate as required by the progress of the Work.

1.05 SECURITY

A. Secure, maintain and protect the Work, stored materials, equipment and temporary facilities until time of acceptance or such earlier time as City may choose to assume such responsibility.

B. Security and protection methods shall be subject to the City approval.

1.06 TEMPORARY CONTROLS

A. Noise and Dust Control:

1. The Contractor shall be responsible for complying with the requirements of the City and county having jurisdiction with regard to noise ordinances governing construction sites and activities. Construction equipment noise is subject to the control of the Environmental Protection Agency's Noise Control Program (Code of Federal Regulations, Title 40, Part 204). The Contractor shall be solely responsible for maintaining all areas of the Work free from all materials and products that by becoming airborne may cause respiratory inconveniences to personnel. Damages and/or any liability derived from the Contractor's failure to comply with these requirements shall be the sole cost of the Contractor, including all penalties incurred for violations of local, state and/or federal regulations.

2. The Contractor shall be fully and solely responsible for maintaining and up keeping all areas of the Work and Project Premises, outdoors and indoors, free from flying debris, grinding powder, sawdust, dirt and dust in general as well as any other product, product waste or work waste, that by becoming airborne may cause respiratory inconveniences to persons. Additionally, the Contractor shall take specific care to avoid deposits of airborne dust or other elements that may accumulate on top of equipment, on walls, on floors, furniture and/or any other permanent or movable items. Prior to the commencement of any Work, the Contractor shall determine the probabilities of creating such an environment and provide all of the necessary protective equipment and/or items to contain the dust or airborne elements under a complete and secured control. Such protection devices,

systems or methods shall be in accordance with the regulations set forth by the EPA and OSHA, and other applicable; State and/or Federal regulations.

3. The Contractor shall be the sole party responsible to clean up and remove any and all deposits of dust and other elements. Damages and/or any liability derived from the Contractor's failure to comply with these requirements shall be exclusively the cost of the Contractor, including, without limitation, any and all penalties that may be incurred for violations of local, state and/or federal regulations, and any amounts expended by the District to pay such damages shall be due and payable to the District.

B. Water: Surface and subsurface water and other liquids, shall not be permitted to accumulate in or about the Project site and vicinity thereof. Should such conditions develop, control the water or other liquid, and suitably dispose of it by means of temporary pumps, piping drainage lines, troughs, ditches, dams or other methods approved by the City.

1.07 FIELD OFFICES, PARKING AND STORAGE SHEDS

A. Owner Field Office: **NOT USED**.

B. Contractor's Field Office: The City has allocated an area to be used for the placement of the contractor field office and / or staging area. The contractor shall submit a proposed layout for the use of this area within five (5) days prior to the Notice to Proceed. The City will within five (5) days thereafter review and approve such plan. If additional area is needed, the contractor shall make arrangement secure property offsite.

C. Contractor vehicles will only be permitted to park within the contractor staging area. No contractor or subcontractor employee parking will be allowed in the City parking lot.

D. Field offices and storage sheds shall be removed from the site as soon as progress of the work permits.

E. The contractor staging area shall be delineated and secured with temporary chain link fencing and include visual obstruction screen.

F. The Contractor's Operations and Storage Yard and access thereto shall be kept neat and orderly throughout construction and all deficiencies in the maintenance of this area shall be promptly corrected by the Contractor.

G. The Contractor's Operations and Storage Yard shall be restored to a condition equal to the condition prior to the start of construction and equal to the condition of areas adjacent to the Site and approved by the Engineer. Stock piling of the earth and pavement material will not be permitted. Stock piling of all other material shall be at the discretion of the Engineer.

END OF SECTION

SECTION 01505
CONSTRUCTION WASTE MANAGEMENT

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Waste Management Objective for the Project:

1. Construction and Demolition (C & D) waste represents a significant part of the waste stream. Much of this material can be reused or recycled, conserving natural resources and saving landfill space. In response to State-mandated waste reduction goals and as part of the City's continued efforts to reduce landfill tonnage, the City adopted Ordinance No. 618 of the Commerce Municipal Code which went into effect January 31, 2009. The ordinance requires at least 50% of the total C&D debris generated by a Covered Project to be recycled or reused.

B. Administrative and Procedural Requirements for the Following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

1.02 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvages and Reuse: Recovery of demolition of construction waste and subsequent incorporation into the work.

1.02 PERFORMANCE REQUIREMENTS

A. General: Develop waste management plan that results in end-of-project rates for salvage/recycling of 50 percent by weight of total waste generated by the work.

B. Diversion from Landfill: Waste categories appropriate for diversion from landfills shall include, but not be limited to, the following:

1. Demolition Waste:
   - Land clearing debris
   - Soil
   - Wood: Clean dimensional wood, palette wood
   - Sheet Wood: Plywood, OSB and particle board
   - Concrete
   - Brick
   - Concrete Masonry Units (CMU)
   - Asphalt
   - Paper: Bond, Newsprint, Cardboard and paper packaging materials
   - Cement Fiber Products: Shingles, panels, and siding
   - Metals: Ferrous and Non-ferrous
   - Paint
   - Rigid Foam
   - Glass/Glazing
   - Plastics
   - Carpet and pad
   - Beverage containers
   - Insulation
   - Gypsum Board
   - Porcelain Plumbing Fixtures
   - Fluorescent Light Tubes (per Dept. of Toxic Substances Control regulations)
   - Concrete reinforcing steel
   - Wood trim
   - Structural and miscellaneous steel
   - Rough hardware
   - Roofing
   - Doors and frames
   - Door hardware
   - Metal studs
   - Acoustical tile and panels
   - Demountable partitions
   - Equipment
   - Cabinets
   - Plumbing fixtures
   - Piping
   - Supports and hangers
   - Valves
   - Fire sprinklers
   - Mechanical equipment
   - Refrigerants
   - Electrical conduit
   - Copper wiring

- Light fixtures
- Lamps
- Ballasts
- Electrical devices
- Switchgear and panel boards
- Transformers

2. Construction Waste:

- Lumber
- Wood sheet materials
- Wood trim
- Metals
- Roofing
- Insulation
- Carpet and pad
- Gypsum board
- Piping
- Electrical conduit
- Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
    a. Paper
    b. Cardboard
    c. Boxes
    d. Plastic sheet and film
    e. Polystyrene packaging
    f. Wood crates
    g. Plastic pails

1.03 REFERENCES

A. The following resources are provided to help contractors recycle, reuse, and donate project materials:
    - California Integrated Waste Management Board
        - www.ciwmb.gov/ConDemo/
        - www.ciwmb.gove/CalMax/
    - Donating reusable materials to Habitat for Humanity
        - www.habitat.org
    - Construction & Demolition Material Recycling Guide – available from the Community Development Department – Environmental Services Division

1.04 RELATED DOCUMENTS

A. Section 01505A: Construction & Demolition Waste Management Plan
B. Section 01505B: Construction & Demolition Management Report

1.05 SUBMITTALS

A. Material Management Plan: Submit 3 copies of plan within 7 days of date established for the Notice of Award.

B. WASTE MANAGEMENT REPORTS: Include separate reports for demolition and construction waste. Contractor shall submit one monthly C & D Waste Management Report with weight tickets for the reporting period to the Environmental Services Manager in the Community Development Department throughout the duration of the project and one final report with weight tickets for the final reporting period. The Report form will be provided by the Planning Division with the permit application. The following information must be included:

   1. The total quantity of each waste material generated and generated pint of waste.
   2. The total quantity of each waste material disposed of at a landfill or receiving facility. Attach copies of manifests and/or weight tickets identifying material and tonnage disposed from the receiving facility.
   3. For each material reused or recycled from the Project, include the total quantity generated and reused or recycled. Attach manifests and/or weight tickets identifying material and tonnage disposed from the receiving facility.
   4. Contractor shall edit and use forms included in Section 01505B, Waste Management Tonnage Report, or use them as a basis for Contractor's forms.

C. Forms: Prepare waste reduction progress reports on forms included at end of Part 3.

D. Waste Reduction Calculations: Before request for Substantial Completion, submit 3 copies of calculated end-of-project rates for salvage, recycling, and disposal as a percentage of total waste generated by the work.

E. Record of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

F. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is taxed exempt.

G. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifest, weight tickets, receipts, and invoices.

H. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

I. LEED submittal: LEED letter template for Credit MR 2.0 signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.

1.06 Waste Management Plan

A. General: Develop a plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Include separate sections in the plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identifications: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

   a. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this project, describe methods for preparing salvaged materials before incorporation into the work.

   b. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.

   c. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.

   d. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

   e. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

   f. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on project site where materials separation will be located.

D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:

   1. Total quantity of waste
   2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
   3. Total cost of disposal (with no waste management).
   4. Revenue from salvaged materials.
   5. Revenue from recycled materials.

6. Savings in hauling and tipping fees by donating materials
7. Savings in hauling and tipping fees that are avoided.
8. Handling and transportation costs. Include cost of collection containers for each type of waste.
9. Net additional cost or net savings from waste management plan.

E. Forms: Prepare waste management plan on forms included at end Part 3.

PART 2 – PRODUCTS

2.01 STEPS TO COMPLY

A. The City requires compliance with the C & D Recycling Ordinance. Failure to do so may result in a stop work order and a delay of final approval. The following steps must be followed in order to comply:

1. Obtain a C & D Waste Management Plan (C & D WMP) with the permit application from the Planning Division. See Section 01575A for application.

2. Determine if your project qualifies for C & D recycling as described in the C & D WMP.

3. Complete the C & D WMP which includes information on the project, the C & D Program, estimated C & D waste the project will generate, disposal methods planned, commitment by applicant/owner to comply with Ordinance No. 618, and City approval. Submit the C & D WMP to the Planning Division with your permit application.

4. Complete the C & D Management Report provided by the Planning Division to report all disposal and recycling activities monthly throughout the duration of the project and one final report at the completion of the project. Each report should include weight tickets from the disposal/recycling facilities used.

5. Receive final approval once the Environmental Services Manager verifies compliance with the C & D WMP at project completion and submission of all required reporting with supporting documentation.

2.02 WASTE MANAGEMENT

A. Manager: Contractor shall designate an on-site party (or parties) responsible for instructing workers and subcontractors, and overseeing and documenting results of waste management for the project.
B. Meetings: Contractor shall conduct waste management meetings with subcontractors who generate construction waste. Contractor shall present current status of the Waste Management Report at regular job-site meetings.

F. Materials Handling Procedures: Provide means by which waste materials will be protected from contamination and means to be employed in reuse or recycling of waste material consistent with requirements for acceptance by receiving facilities.

1. Separation Facilities: Contractor shall lay out and label a specific area to facilitate separation of materials for reuse and recycling. Recycling and waste bin areas shall be kept neat and clean and clearly marked in order to avoid contamination of materials.

2. Hazardous Wastes: Hazardous wastes shall be separated, stored, and disposed of according to applicable regulations and in accordance with specifications for such work as may be included in this Project.

3. Instruction: Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at appropriate stages of the Project.

PART 3 – EXECUTION

3.01 PLAN IMPLEMENTATION

A. General: Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the contract.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at the Project site.

1. Distribute waste management plan to everyone concerned within 3 days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling and disposal.

3.02 SALVAGING DEMOLITON WASTE

A. Salvaged items for reuse in the work:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Sale: Not permitted to be sold on project site.

C. Salvaged Items for Donation: Permitted on project site.

D. Salvaged Items for Owner's Use:
   1. Clean salvaged items.
   2. Pack or crate items
   3. Store items in a secure area until delivery to Owner.
   4. Transport items to Owner's storage area designated by Owner.
   5. Protect items from damage during transport and storage.

E. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

3.03 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverages containers used by on-site workers.

B. Recycling Receivers and Processors: Licensed entity normally engaged in the business of receiving, recycling, and processing waste materials with a minimum of 5 years of documented experience with the type of waste products to be processed under the provisions of this section.

C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall be shared equally by Owner and Contractor.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

   1. Provide approximately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
   2. Inspect containers and bins for contamination and remove contaminated materials if found.
   3. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   4. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
   5. Store components off the ground and protect from the weather.
   6. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.04 RECYLING DEMOLITION WASTE

A. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panels products, and treated wood materials.

B. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

C. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
D. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
E. Acoustical Ceiling Suspension Systems: Separate suspensions system, trim, and other metals form panels and tile and sort with other metals.
F. Carpet and pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
G. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
H. Plumbing Fixtures: Separate by type and size.
I. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
J. Lighting Fixtures: Separate lamps by type and protect from breakage.
K. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panel boards, circuit breakers, and other devices by type.
L. Conduit: Reduce conduit to straight lengths and store by type and size.

3.03 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bindle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets form Project site. For pallets that remain on-site, break down pallets not component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.04 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials form Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

B. Do not allow waste materials that are to be disposed of accumulate on-site. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

3.05 FORMS

A. Waste Management Plan Forms Attached:
   1. Construction Waste Reduction Progress Report.
   2. Demolition Waste Reduction Progress Report.
   3. Construction Waste Identification.
   4. Demolition Waste Identification.
   5. Construction Waste Reduction Work Plan.
   6. Demolition Waste Reduction Work Plan.
   7. Cost/Revenue Analysis of Construction Waste Reduction Work Plan.
   8. Cost/Revenue Analysis of Demolition Waste Reduction Work Plan.

END OF SECTION

CITY OF COMMERCE
CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

Submit to:
City of Commerce
Community Development Department
2535 Commerce Way
Commerce, CA 90040

Environmental Programs Contact:
Gina Nila, Manager
(323) 722-4805, ext. 2839

SECTION ONE: PROJECT INFORMATION

Project Address: _____

Project Size (Sq. Ft.) _____

Project Type: ☐ New Construction ☐ Remodel/Addition ☐ Demolition

☐ Public Project ☐ Residential ☐ Commercial

Project Description:

_____

_____

_____

Applicant's Name:_____

Mailing Address: _____ City: _____ State:_____

Zip: _____ Contractors Lic. No. _____ Class:_____Exp._____

Telephone No.: _____ Fax No.: _____

Email: _____

Check one: ☐ Owner ☐ Architect ☐ Builder ☐ Owner/Builder ☐ Other

---

Owner's Name: _____

Mailing Address: _____ City: _____ State: _____

Zip: _____

Telephone No.: _____ Fax No.: _____

Email: _____

SECTION TWO: WASTE MANAGEMENT REQUIREMENTS

Requirement:

At least 50% of the total Construction and Demolition (C & D) debris generated by a Covered Project must be reused or recycled from the following projects.

Covered Projects:

- All construction and tenant improvement projects requiring a permit pursuant to the Los Angeles County Building Codes.
- Projects either 10,000 square feet or greater or have an existing or projected value of $10,000 or greater.
- All demolition or grading projects of any valuation.
- All City-sponsored construction, demolition, and renovation projects.

Reporting:

Monthly disposal/recycling reports through the project duration and one final report at project completion are required. The report forms are attached and must be submitted with disposal and recycling facility weight tickets to the City of Commerce, Environmental Services Manager.

Exempt Projects:

- Work not requiring a building or demolition permit.
- Detached single family residential structures and associated detached or attached accessory structures unless they represent significant reconstruction/remodel as determined by the Building Official.
- Work requiring only a plumbing, electrical, or mechanical permit.
- Roofing projects that do not include removal of the existing roof.
- Demolition or construction required to protect public health or safety in an emergency, as defined in Public Resources Code Section 21060.3.

SECTION THREE: WASTE MANAGEMENT PLAN

Material Transportation: Check all that apply

Hauler ☐ Rolloff Box ☐ Self-haul ☐

If using a hauling or roll-off company, which company?

_____

_____

Check the materials you anticipate generating from the project and how you plan on disposing.

Category	*Material*	*Projected Tons** *2000 lbs. = 1 ton*	*Reuse* √	*Recycle* √	*Landfill* √
MIXED C & D	Mixed Debris				
INERTS	Asphalt				
	Bricks				
	Concrete				
	Dirt				
	Other				
NON-INERTS	Cardboard				
	Metals				
	Wood				
	Roofing				
	Carpet				
	Drywall				
	Green Waste				

Material	*Lbs./CY*		*CY/Tons*
Inert C & D Waste	*2000*	=	*1*
Mixed Non-Inerts – Uncompacted	*350*	=	*5.7*
Mixed Non-Inerts – Compacted	*750*	=	*2.7*

I agree to comply with the Waste Management Plan including recycling and/or reusing at least 50% of all C & D project debris, submitting monthly reports through the duration of the project and one final report at project completion with weight tickets from recycling and disposal facilities used in order to receive final approval. Failure to do so may result in a stop work order and a delay of final approval.

Applicant Signature _____ Date _____

SECTION FOUR: APPLICATION STATUS

Status: ☐ Permit Approved ☐ Approved with comments ☐ Denied

☐ Final Approval on completion of project and receipt of all reports and accompanying documentation

Signature _____ Date _____
Environmental Services Manager

A Materials Recovery Facility (MRF) to separate mixed loads for the purpose of recycling and reuse may be used to comply if a minimum 50% waste generation from the project site is recycled and/or

CITY OF COMMERCE
CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT REPORT

Submit to:
Community Development Department – Environmental Services Manager
2535 Commerce Way, Commerce, CA 90040

Project Address: _____ Project No. _____

Applicant's Name: _____ Telephone No.: _____

Email: _____

Requirement: Recycle and/or reuse at least 50% of the total C & D debris generated by a Covered Project and submit monthly disposal/recycling reports through the project duration and one final report no later than 30 days of project completion.

Material Transportation (Check all that apply) ☐ Hauler ☐ Rolloff Box ☐ Self-haul

If you used a hauling or roll-off company, which company?_____

☐ Monthly Report ☐ Final Report ☐ Original weight tickets are attached.

Category	***Material***	***Total Actual Tons Generated***	***Total Tons Reused √***	***Total Tons Recycled √***	***Total Tons Landfilled √***
MIXED C & D	Mixed Debris				
INERTS	Asphalt				
	Bricks				
	Concrete				
	Dirt				
	Other				
NON-INERTS	Cardboard				
	Metals				
	Wood				
	Roofing				
	Carpet				
	Drywall				
	Green Waste				
TOTAL (tons)					

Material	*Lbs./CY*		*CY/Tons*
Inert C & D Waste	*2000*	=	*1*
Mixed Non-Inerts – Uncompacted	*350*	=	*5.7*
Mixed Non-Inerts – Compacted	*750*	=	*2.7*

A Materials Recovery Facility (MRF) to separate mixed loads may be used to comply if a minimum of 50% waste generated from the project site is recycled and/or reused.

Applicant/Owner Signature _____ Date _____

Status Denied: ☐ Final Report Approved, weight tickets received. ☐ Denied, comments attached.

Signature _____ Date _____
Environmental Services Manager

CITY OF COMMERCE
CONSTRUCTION WASTE IDENTIFICATION

Submit to:
Community Development Department – Environmental Services Manager
2535 Commerce Way, Commerce, CA 90040

Project Address: _____ Project No. _____

Applicant's Name: _____ Telephone No.: _____

Email: _____

☐ Monthly Report ☐ Final Report ☐ Original weight tickets are attached.

Material Category	***Generation Point***	***Estimated Quantity of Materials Received (A)***	***Estimated Waste - % (B)√***	***Total Est. Quantity of Waste* (C=AxB)√***	***Est. Volume CY √***	***Est. Weight Tons***	***Remarks and Assumptions***
Packaging: Cardboard							
Packaging: Boxes							
Packaging: Plastic Sheet or Film							
Packaging: Polystyrene							
Packaging: Pallets or Skids							
Packaging: Crates							
Packaging: Paint Cans							
Packaging: Plastic Pails							
Site Clearing Waste							
Masonry or CMU							
Lumber: Cut-Offs							
Lumber: Warped Pieces							

Plywood or OSB (scraps)							
Wood Forms							
Wood Waste Chutes							
Wood Trim (cut-offs)							
Metals							
Insulation							
Roofing							
Joint Sealant Tubes							
Gypsum Board (scraps)							
Carpet and Pad (scraps)							
Piping							
Electrical Conduit							

**Insert units of measurements*

Applicant/Owner Signature _____ Date _____

Status Denied: ☐ Final Report Approved, weight tickets received. ☐ Denied, comments attached.Signature _____ Date _____

Environmental Services Manager

CITY OF COMMERCE
DEMOLITION WASTE IDENTIFICATION

Submit to:
Community Development Department – Environmental Services Manager
2535 Commerce Way, Commerce, CA 90040

Project Address: _____ Project No. _____

Applicant's Name: _____ Telephone No.: _____

Email: _____

☐ Monthly Report ☐ Final Report ☐ Original weight tickets are attached.

Material Category	***Generation Point***	***Estimated Quantity of Materials Received (A)***	***Estimated Waste - % (B)√***	***Total Est. Quantity of Waste* (C=AxB)√***	***Est. Volume CY √***	***Est. Weight Tons***	***Remarks and Assumptions***
Asphaltic Conc. Paving							
Concrete							
Brick							
CMU							
Lumber							
Plywood and OSB							
Wood Paneling							
Wood Trim							
Miscellaneous Metals							
Structural Steel							
Rough Hardware							
Insulation							
Roofing							
Doors and Frames							
Door Hardware							

Windows							
Glazing							
Acoustical Tile							
Carpet							
Carpet Pad							
Demountable Partitions							
Equipment							
Cabinets							
Plumbing Fixtures							
Piping							
Piping Supports and Hangers							
Valves							
Sprinklers							
Mechanical Equipment							
Electrical Conduit							
Copper Wiring							
Light Fixtures							
Lamps							
Lighting Ballasts							
Electrical Devices							
Switchgears and Panelboards							
Transformers							
Others:							

Applicant/Owner Signature _____ Date _____

Status Denied: ☐ Final Report Approved, weight tickets received. ☐ Denied, comments attached.Signature

_____ Date _____

Environmental Services Manager

CITY OF COMMERCE
COST/REVENUE ANALYSIS OF CONSTRUCTION WASTE REDUCTION WORK PLAN

Submit to:
Community Development Department – Environmental Services Manager
2535 Commerce Way, Commerce, CA 90040

Project Address: _____ Project No. _____

Applicant's Name: _____ Telephone No.: _____

Email: _____

☐ Monthly Report ☐ Final Report ☐ Original weight tickets are attached.

Material Category	***Total Quantity of Materials (vol. or weight) (A)***	***Est. Cost of Disposal (B)***	***Total Est. cost of Disposal (C=AxB)***	***Revenue From Salvaged Materials (D)***	***Revenue From Recycled Materials (E)***	***Landfill Tipping Fees Avoided (F)***	***Handling and Transportation Cost Avoided (G)***	***Net Cost Savings of Work Plan (H=D+E+F+G)***
Packaging: Cardboard								
Packaging: Boxes								
Packaging: Plastic Sheet or Film								
Packaging: Polystyrene								
Packaging: Pallets or Skids								
Packaging: Crates								
Packaging: Paint Cans								
Packaging: Plastic Pails								

Site Clearing Waste								
Masonry or CMU								
Lumber: Cut-Offs								
Lumber: Warped Pieces								
Plywood or OSB (scraps)								
Wood Forms								
Wood Waste Chutes								
Wood Trim (cut-offs)								
Metals								
Insulation								
Roofing								
Joint Sealant Tubes								
Gypsum Board (scraps)								
Carpet and Pad (scraps)								
Piping								
Electrical Conduit								

**Insert units of measurements*

Applicant/Owner Signature _____ Date _____

Status Denied: ☐ Final Report Approved, weight tickets received. ☐ Denied, comments attached.Signature _____ Date _____

Environmental Services Manager

CITY OF COMMERCE
COST/REVENUE ANALYSIS OF DEMOLITION WASTE REDUCTION WORK PLAN

Submit to:
Community Development Department – Environmental Services Manager
2535 Commerce Way, Commerce, CA 90040

Project Address: _____ Project No. _____

Applicant's Name: _____ Telephone No.: _____

Email: _____

☐ Monthly Report ☐ Final Report ☐ Original weight tickets are attached.

Material Category	***Total Quantity of Materials (vol. or weight) (A)***	***Est. Cost of Disposal (B)***	***Total Est. cost of Disposal (C=AxB)***	***Revenue From Salvaged Materials (D)***	***Revenue From Recycled Materials (E)***	***Landfill Tipping Fees Avoided (F)***	***Handling and Transportation Cost Avoided (G)***	***Net Cost Savings of Work Plan (H=D+E+F+G)***
Asphaltic Conc. Paving								
Concrete								
Brick								
CMU								
Lumber								
Plywood and OSB								
Wood Paneling								
Wood Trim								
Miscellaneous Metals								
Structural Steel								
Rough Hardware								
Insulation								
Roofing								

Doors and Frames								
Door Hardware								
Windows								
Glazing								
Acoustical Tile								
Carpet								
Carpet Pad								
Demountable Partitions								
Equipment								
Cabinets								
Plumbing Fixtures								
Piping								
Piping Supports and Hangers								
Valves								
Sprinklers								
Mechanical Equipment								
Electrical Conduit								
Copper Wiring								
Light Fixtures								
Lamps								
Lighting Ballasts								
Electrical Devices								
Switchgears and Panelboards								
Transformers								
Others:								

Applicant/Owner Signature _____ Date _____

Status Denied: ☐ Final Report Approved, weight tickets received. ☐ Denied, comments attached.Signature

_____ Date _____

Environmental Services Manager

Submit to:
Community Development Department – Environmental Services Manager
2535 Commerce Way, Commerce, CA 90040

Project Address: _____ Project No. _____

Applicant's Name: _____ Telephone No.: _____

Email: _____

☐ Monthly Report ☐ Final Report ☐ Original weight tickets are attached.

Material Category	***Generation Point***	***Estimated Quantity of Materials Received (A)***	***Estimated Waste - % (B)√***	***Total Est. Quantity of Waste* (C=AxB)√***	***Est. Volume CY √***	***Est. Weight Tons***	***Remarks and Assumptions***
Packaging: Cardboard							
Packaging: Boxes							
Packaging: Plastic Sheet or Film							
Packaging: Polystyrene							
Packaging: Pallets or Skids							
Packaging: Crates							
Packaging: Paint Cans							
Packaging: Plastic Pails							
Site Clearing Waste							
Masonry or CMU							
Lumber: Cut-Offs							
Lumber: Warped Pieces							

Plywood or OSB (scraps)							
Wood Forms							
Wood Waste Chutes							
Wood Trim (cut-offs)							
Metals							
Insulation							
Roofing							
Joint Sealant Tubes							
Gypsum Board (scraps)							
Carpet and Pad (scraps)							
Piping							
Electrical Conduit							

**Insert units of measurements*

Applicant/Owner Signature _____ Date _____

Status Denied: ☐ Final Report Approved, weight tickets received. ☐ Denied, comments attached.Signature _____ Date _____

Environmental Services Manager

CITY OF COMMERCE
DEMOLITION WASTE IDENTIFICATION

Submit to:
Community Development Department – Environmental Services Manager
2535 Commerce Way, Commerce, CA 90040

Project Address: _____ Project No. _____

Applicant's Name: _____ Telephone No.: _____

Email: _____

☐ Monthly Report ☐ Final Report ☐ Original weight tickets are attached.

Material Category	***Generation Point***	***Estimated Quantity of Materials Received (A)***	***Estimated Waste - % (B)√***	***Total Est. Quantity of Waste* (C=AxB)√***	***Est. Volume CY √***	***Est. Weight Tons***	***Remarks and Assumptions***
Asphaltic Conc. Paving							
Concrete							
Brick							
CMU							
Lumber							
Plywood and OSB							
Wood Paneling							
Wood Trim							
Miscellaneous Metals							
Structural Steel							
Rough Hardware							
Insulation							
Roofing							
Doors and Frames							
Door Hardware							

Windows							
Glazing							
Acoustical Tile							
Carpet							
Carpet Pad							
Demountable Partitions							
Equipment							
Cabinets							
Plumbing Fixtures							
Piping							
Piping Supports and Hangers							
Valves							
Sprinklers							
Mechanical Equipment							
Electrical Conduit							
Copper Wiring							
Light Fixtures							
Lamps							
Lighting Ballasts							
Electrical Devices							
Switchgears and Panelboards							
Transformers							
Others:							

Applicant/Owner Signature _____ Date _____

Status Denied: ☐ Final Report Approved, weight tickets received. ☐ Denied, comments attached.Signature _____ Date _____

Environmental Services Manager

CITY OF COMMERCE
COST/REVENUE ANALYSIS OF CONSTRUCTION WASTE REDUCTION WORK PLAN

Submit to:
Community Development Department – Environmental Services Manager
2535 Commerce Way, Commerce, CA 90040

Project Address: _____ Project No. _____

Applicant's Name: _____ Telephone No.: _____

Email: _____

☐ Monthly Report ☐ Final Report ☐ Original weight tickets are attached.

Material Category	***Total Quantity of Materials (vol. or weight) (A)***	***Est. Cost of Disposal (B)***	***Total Est. cost of Disposal (C=AxB)***	***Revenue From Salvaged Materials (D)***	***Revenue From Recycled Materials (E)***	***Landfill Tipping Fees Avoided (F)***	***Handling and Transportation Cost Avoided (G)***	***Net Cost Savings of Work Plan (H=D+E+F+G)***
Packaging: Cardboard								
Packaging: Boxes								
Packaging: Plastic Sheet or Film								
Packaging: Polystyrene								
Packaging: Pallets or Skids								
Packaging: Crates								
Packaging: Paint Cans								
Packaging: Plastic Pails								

Site Clearing Waste								
Masonry or CMU								
Lumber: Cut-Offs								
Lumber: Warped Pieces								
Plywood or OSB (scraps)								
Wood Forms								
Wood Waste Chutes								
Wood Trim (cut-offs)								
Metals								
Insulation								
Roofing								
Joint Sealant Tubes								
Gypsum Board (scraps)								
Carpet and Pad (scraps)								
Piping								
Electrical Conduit								

**Insert units of measurements*

Applicant/Owner Signature _____ Date _____

Status Denied: ☐ Final Report Approved, weight tickets received. ☐ Denied, comments attached.Signature _____ Date _____

Environmental Services Manager

CITY OF COMMERCE
COST/REVENUE ANALYSIS OF DEMOLITION WASTE REDUCTION WORK PLAN

Submit to:
Community Development Department – Environmental Services Manager
2535 Commerce Way, Commerce, CA 90040

Project Address: _____ Project No. _____

Applicant's Name: _____ Telephone No.: _____

Email: _____

☐ Monthly Report ☐ Final Report ☐ Original weight tickets are attached.

Material Category	*Total Quantity of Materials (vol. or weight) (A)*	*Est. Cost of Disposal (B)*	*Total Est. cost of Disposal (C=AxB)*	*Revenue From Salvaged Materials (D)*	*Revenue From Recycled Materials (E)*	*Landfill Tipping Fees Avoided (F)*	*Handling and Transportation Cost Avoided (G)*	*Net Cost Savings of Work Plan (H=D+E+F+G)*
Asphaltic Conc. Paving								
Concrete								
Brick								
CMU								
Lumber								
Plywood and OSB								
Wood Paneling								
Wood Trim								
Miscellaneous Metals								
Structural Steel								
Rough Hardware								
Insulation								
Roofing								

Doors and Frames								
Door Hardware								
Windows								
Glazing								
Acoustical Tile								
Carpet								
Carpet Pad								
Demountable Partitions								
Equipment								
Cabinets								
Plumbing Fixtures								
Piping								
Piping Supports and Hangers								
Valves								
Sprinklers								
Mechanical Equipment								
Electrical Conduit								
Copper Wiring								
Light Fixtures								
Lamps								
Lighting Ballasts								
Electrical Devices								
Switchgears and Panelboards								
Transformers								
Others:								

Applicant/Owner Signature _____ Date _____

Status Denied: ☐ Final Report Approved, weight tickets received. ☐ Denied, comments attached.Signature

_____ Date _____

Environmental Services Manager

SECTION 01565
STORM WATER POLLUTION PREVENTION (SWPP)

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Preparation, implementation and monitoring of Storm Water Pollution Prevention Plan (SWPPP) for the purpose of preventing the discharges of pollutants from the construction site into the receiving waters. This includes elimination of non-storm water pollution discharges such as improper dumping, spills or leakage from storage tanks or transfer areas.

B. Compliance with all local, state and federal regulations governing storm water discharges associated with construction activities such as, but not limited to clearing, excavating, grading, demolition and other land disturbances.

C. Payment of application and annual fees required by the State Water Resources Control Board (SWRCB) within the duration of the construction contract will be made by City.

D. Certification that the construction project has met all of the conditions of the General Construction Activity Storm Water Permit (GCASP).

1.02 REFERENCES

A. National Pollutant Discharge Elimination System (NPDES) General Permit No CAS000002.

B. State Water Resources Control Board (SWRCB) Water Quality Order 9908DWQ.

C. Storm Water Best Management Practice Handbook (BMP Handbook) published by California Storm Water Quality Association (CASQA).

1.03 SUBMITTALS

A. Submit for approval the Storm Water Pollution Prevention Plan fourteen (14) Days after issuance of Notice to Proceed.

B. Submit inspection logs and certifications as required by Applicable Laws.

C. Submit site monitoring reports as required by Applicable Laws.

PART 2 - PRODUCTS – Not used

PART 3 - EXECUTION

3.01 SWPPP PREPARATION AND APPROVALS

A. Prepare SWPPP as required to comply with storm water regulations which specifies Best Management Practices (BMP) for the purpose of preventing the discharges of pollutants from the construction site into the receiving waters.

B. For project sites with land disturbance of less than one (1) acre, the Contractor shall prepare and submit to the District the SWPPP for review and approval.

C. In addition to the above requirements, if the project site in which there is or will occur land disturbance of one (1) acre or more, the Contractor shall submit to the District a Notice of Intent as required by SWRCB with the appropriate filing fee.

3.02 SWPPP IMPLEMENTATION

A. The Contractor shall implement the SWPPP as follows:

1. Install perimeter controls prior to starting construction work.
2. Contain on-site storm water at the jobsite. Do not drain on-site water directly into the storm drains.
3. Designate personnel for the proper implementation of the SWPPP.
4. Revise the SWPPP to suit changing site conditions and also when properly installed systems are ineffective.

3.03 SWPPP MONITORING

A. The Contractor shall conduct examination of storm water pollution prevention controls monthly, as well as before and after each storm and each 24-hour period during extended storm events.

B. The Contractor shall prepare and maintain, at the jobsite, a log of each inspection using Site Monitoring Report forms.

C. Distribute copies of the SWPPP to the Superintendent, Subcontractors and City. One (1) copy shall be posted on site at all times.

3.04 SWPPP LIABILITIES AND PENALTIES

A. Review of the SWPPP and inspection logs by the City Project Manager shall not relieve the Contractor from liabilities arising from non-compliance with storm water pollution regulations.

B. Payment of Penalties for non-compliance by the Contractor shall be the sole responsibility of the Contractor and will not be reimbursed by the City.

C. Compliance with the Clean Water Act pertaining to construction activities is the sole responsibility of the Contractor. For any fine(s) levied against the City due to non-compliance by the Contractor, the City will have the option to either require payment by Contractor of, or deduct from the Final Payment due the Contractor, the total amount of the fine(s) levied on the City and associated costs.

3.05 SWPPP DOCUMENTATION

A. Leave in place storm water pollution prevention controls needed for post-construction storm water management and remove those that are not needed as determined by the City. Left in place controls will be maintained by the City.

B. Provide site monitoring reports, SWPPP revisions, Compliance Certifications and related documents to the City. Post-Construction storm water operation and management plan as mentioned in the compliance certifications shall be in place at the completion of the Construction Contract**.**

C**.** The Contractor shall submit to the City a completed Notice of Intent for any change of information.

D. The Contractor shall submit to the City at the completion of the construction Contract, a completed Notice of Termination (NOT) as required by SWRCB to terminate the coverage under the general permit.

END OF SECTION

SECTION 01600
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for selection of products for use in the Project, product delivery, storage, and handling, and manufacturers' standard and special warranties on products.

1.02 DEFINITIONS

A. Products: Items to be purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.

2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.

3. Comparable Product: Product that is demonstrated and approved through the substitution process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of a listed product.

4. Basis-of-Design Products: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers. Submission for approval of a Basis-of-Design product which is not of a named Manufacturer is to be through the Substitution process

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor. Substitutions include Comparable Products, or Basis-of-Design Products from a Manufacturer not named in the Specifications.

C. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and endorsed by manufacturer.

D. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for the City.

1.03 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Product Delivery; Schedule deliveries in accordance with the project schedule, to minimize storage time at Project site, and to prevent overcrowding of construction areas.

1. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

2. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

B. Storage: Maintain adequate storage facilities for the protection of materials and equipment. All materials and equipment shall be properly stored to insure their quality and fitness of their work. On-site storage shall be limited to the locations shown on the Site Plan. Should the construction site not have adequate on site storage, the Contractor shall make arrangements and provide off site material storage.

1. Any storage of materials on City property outside of the Contractor’s work area or within existing City facilities is to be pre-approved by the City.

2. Store products to allow for inspection and measurement of quantity of units.

3. Store materials in a manner that shall not endanger Project structure.

4. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

C. Off Site Storage: No payments shall be made for material stored off site without prior approval.

D. Materials Provided by Others: Where material is specified to be furnished by others or furnish and delivered only, the Contractor shall be responsible for scheduling the delivery, storing, handling, relocating, hoisting, distributing, layout and installing.

1.05 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents.

Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

2. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

1.06 PRODUCT OPTIONS

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

3. The City reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

4. Where products are accompanied by the term "as selected," Architect will make selection.

5. Where products are accompanied by the term "match sample," sample to be matched is per Architect's recommendation and selection.

6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Section 01631 – “Substitutions” to obtain approval for use of an unnamed product.

B. Product Selection Procedures: Procedures for product selection include the following:

1. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.

2. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

3. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed.
5. Product Options: Where Specification paragraphs titled "Product Options" indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by one of the other named manufacturers.

PART 2 - Not Used

PART 3 - Not Used

END OF SECTION

SECTION 01631
EQUALS AND SUBSTITUTIONS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for handling requests for equals and substitutions made after award of the Contract.

1.02 DEFINITION

A. Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract.

1. Equal: Any deviation from the specification which is defined as follows: A replacement for the specified material, device, procedure, equipment, etc., which is recognized and accepted as substantially equal to the first listed manufacturer or first listed procedure specified, after review, by the Architect and may be rejected or approved at the sole discretion of the City. All equals must be substantially equivalent to the first manufacturer or first procedure listed in the Specifications with reference to all of the following areas: the substance and function considering quality, workmanship, economy of operation, durability and suitability for purposes intended; size, rating and cost. The equal does not constitute a modification in the scope of Work, the Schedule or Architect / Engineer's design intent of the specified material, device, procedure, equipment, etc.

2. Substitution: Any deviation from the specified requirements, which is defined as follows: A replacement for the specified material, device, procedure, equipment, etc., which is not recognized or accepted as equal to the first manufacturer or procedure listed in the Specification after review by the Architect and may be rejected or approved by the CITY. The Substitution is not equal to the specified requirement in comparison to the first manufacture or first procedure listed in the Specifications in one or more of the following areas: the substance and function considering quality, workmanship, economy of operation, durability and suitability for purposes intended; size; cost and rating. The Substitution constitutes a modification in the scope of Work, the Schedule or the Architect / Engineer's design intent of the specified material, device, procedure, equipment, etc.

3. The following are not considered to be requests for Equals or Substitutions:
   a. Revisions to the Contract Documents requested by the City or Architect.
   b. Specified options of products and construction methods included in the Contract Documents.

1.03 SUBMITTALS

A. Equals and Substitution Request Submittals: The City will consider requests for equals or substitutions if received within reasonable time.

1. The Contractor is required to prepare and submit 3 copies of the required data for the first manufacturer listed or procedure listed in the specifications section with reference to all of the following areas: the substance and function considering quality, workmanship, economy of operation, durability and suitability for purposes intended including the size, rating and cost. All submissions must include all the required data for the first listed manufacturer or procedure as specified, as well as the required data for the proposed Equal or Substitution. This will enable the City and Architect to determine that the proposed Equal or Substitution is or is not substantially equal to the first listed manufacturer or procedure.
2. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.
3. Provide complete documentation showing compliance with the requirements for equals or substitutions, and the following information, as appropriate:
   a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the City and separate contractors that will be necessary to accommodate the proposed Equal or Substitution.
   b. A detailed comparison chart of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements, such as performance, weight, size, durability, and visual effect.
   c. Product Data, including Shop Drawings and descriptions of products and fabrication and installation procedures shall be included.
   d. Include samples, where applicable and / or requested.
   e. A statement indicating the effect on the Contractor's Construction Schedule or CPM Schedule compared to the schedule without approval of the Equal or Substitution. Indicate the effect on overall Contract Time.
   f. Cost information, broken down, including a proposal of the net change, if any in the Contract Sum.
   g. A Contractor's certification letter that the proposed Equal or Substitution conforms to requirements in the Contract Documents and is appropriate for the applications indicated.
   h. The Contractor will waive rights to additional payment or time that may subsequently become necessary because of the failure of the Equal or Substitution to perform adequately.

4. Architect's Action: If necessary, the Architect will request additional information or documentation for evaluation within one week of receipt of the original request for equal or substitution request. The Architect will notify the City of recommended acceptance or rejection of the proposed equal or substitution, within one (1) week of receipt of the request, or one (1) week of receipt of additional information or documentation, whichever is later. The City will give final acceptance or rejection not less than one (1) week after notification from Architect.
   a. Any request deemed an "Equal" and accepted by the City or Architect will result in written notification to the Contractor and will not be in the form of a change order for an "Equal".
   b. Any request deemed a "Substitution" and rejected or approved by Architect or City may result in written notification to the Contractor and may be in the form of a change order if the “Substitution” is approved.

PART 2 - PRODUCTS

2.01 EQUAL OR SUBSTITUTIONS

A. Conditions: The Architect will consider the Contractor's request for Equal or Substitution of a product or method of construction when one or more of the following conditions are satisfied, as determined by the Architect. If the following conditions are not satisfied, the Architect will return the requests to the City without action except to record noncompliance with these requirements.
   1. The proposed request does not require extensive revisions to the Contract Documents.
   2. The proposed request is in accordance with the general intent of the Contract Documents.
   3. The proposed request is timely, fully documented, and / or properly submitted.
   4. The proposed request can be provided within the Contract Time. However, the Architect will not consider the proposed request if it is a result of the Contractor’s failure to pursue the Work promptly or coordinate activities properly.
   5. The proposed request will offer the City a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the City must assume. However, if the proposed request requires the City to incur additional responsibilities, including but not limited to, additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the City or similar considerations, then the City will have just cause to reject the request for Equal or Substitution.
   6. The proposed request can receive the necessary approvals, in a timely manner, required by governing authorities having jurisdiction.
   7. The proposed request can be provided in a manner that is compatible with the Work as certified by the Contractor.

8. The proposed request can be coordinated with the Work as certified by the Contractor.
9. The proposed request can uphold the warranties required by the Contract Documents as certified by the Contractor.

B. The Contractor's submission and the Architect's review of Submittals, including but not limited to, Samples, Manufacturer's Data, Shop Drawings, or other such items, which are not clearly identified as a request for an Equal or Substitution, will not be considered or accepted as a valid request for an Equal or Substitution, nor does it constitute an approval.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01783
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Requirements for Project Record Documents.

1.02 PROJECT RECORD DOCUMENTS

A. General contractor shall not use Record Documents for construction purposes. Contractor shall protect from deterioration and loss in a secure, fire-resistive location; provide access to Record Documents for City and Architect's reference during normal working hours.

B. Contractor shall record information continuously as Work progresses. Contractor shall not conceal Work permanently until all required information is recorded. Contractor shall:

1. Maintain a clean, undamaged set of black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately.

2. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

3. Legibly and to scale, mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the work.

4. Mark new information that is important to the City, but was not shown on Contract Drawings or Shop Drawings. Record actual construction, including:

   a. Measured depths of foundations and footings encountered, measured in relation to finish First Floor datum.

   b. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent ground improvements.

   c. Field changes of dimension and detail.

   d. Details not on original Contract Drawings. Application of copies of details produced and provided by Architect during construction will be accepted.

   e. Permanent Room names and Room numbers.

5. Note all related Change Order, Field Memos and RFI numbers where applicable.

6. Store Record Documents separate from documents used for construction.

C. Record Specifications: Contractor shall record changes made by Addenda, Change Order, Field Memo and/or RFI. Contractor shall legibly mark and record in red ink actual Products installed or used, including:

1. Manufacturer's name and product model or catalog number.
2. Product substitutions or alternates utilized.

D. Submission:

1. Contractor shall keep Project Record Documents current, as they will be reviewed for completeness by City, Inspector, and Authorized Representative as condition for certification of each Progress Payment Application.
2. Prior to the date of the Notice of Completion, Contractor shall submit marked Record Documents to Architect for review and approval. Provide city with original Record Documents and with one digital copy on compact disc.

PART 2 - PRODUCTS - Not Applicable to this Section.

PART 3 - EXECUTION - Not Applicable to this Section.

END OF SECTION

SECTION 01785
CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for handling contract closeout procedures.

1.2 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for final review by CITY.

B. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.

D. Replace filters of operating equipment.

E. Clean all areas including rooms, hallways, ventilation and drainage systems.

F. Remove waste and surplus materials and construction facilities from site.

1.4 STARTING OF SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify City seven (7) days prior to start-up of each item.

C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable manufacturer's representative or Contractors' personnel in accordance with manufacturers' instructions.

1.5 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of products to City personnel two (2) weeks prior to date of final inspection.

B. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with City personnel in detail to explain all aspects of operation and maintenance.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment.

D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

E. Required instruction time for each item of equipment and system is specified in individual sections.

1.6 TESTING, ADJUSTING AND BALANCING

A. The Contractor shall employ, and pay for services of independent firm to perform testing, adjusting, and balancing of HVAC systems.

B. Reports will be submitted by independent firm to City indicating observations and results of tests and indicating compliance or non-compliance with requirements of Contract Documents.

1.7 PROJECT RECORD DOCUMENTS

A. Submit record documents to City prior to Application for Final Payment.

1.8 OPERATION AND MAINTENANCE DATA

A. Submit data bound in 8-1/2 x 11 inch (A4) text pages three D side ring binders with durable covers.

B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project and subject matter of binder when multiple binders are required.

C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:

1. Part 1: Directory, listing names, addresses, and telephone numbers, Contractor, Subcontractors, and major equipment suppliers.

2. Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
    a. Significant design criteria.
    b. List of equipment.
    c. Parts list for each component.
    d. Operating instructions.
    e. Maintenance instructions for equipment and systems.

f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

3. Part 3: Project documents and certificates, including the following:
   a. Shop drawings and product data.
   b. Air and water balance reports.
   c. Certificates.
   d. Photocopies of warranties.

1.9 MANUAL FOR MATERIALS AND FINISHES

A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. City will review draft and return one copy with comments.

B. For equipment, or component parts of equipment put into service during construction and operated by City, submit documents within ten (10) days after acceptance.

C. Submit two (2) sets of revised final volumes in final form within ten (10) days after final inspection.

D. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations and include information for re-ordering custom manufactured products.

E. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

F. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.

1.10 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Submit two copies of draft or proposed formats and outlines of contents before start of Work. City will review draft and return one copy with comments.

B. For equipment, or component parts of equipment put into service during construction and operated by City, submit documents within ten (10) days after acceptance.

C. Submit two (2) sets of revised final volumes in final form within ten (10) days after final inspection.

D. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.

E. Maintenance Manuals shall include:

1. Operating Procedures, including start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping,

shut-down, and emergency instructions. Include summer, winter, and special operating instructions.

2. Routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
3. Servicing and lubrication schedule with list of lubricants required.
4. Manufacturer's printed operation and maintenance instructions.
5. Sequence of operation by controls manufacturer.
6. Original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
7. Control diagrams by controls manufacturer as installed.
8. Contractor's coordination drawings with color coded piping diagrams as installed.
9. Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
10. Color coded wiring diagrams as installed.

1.11 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.

B. Deliver to project and place in location as directed by City; obtain receipt prior to final payment.

1.12 GUARANTIES, WARRANTIES AND BONDS

A. Standard Guaranty: Guarantee Work executed under this Contract to be free of defects of workmanship and materials for a period of one year after completion and acceptance by the City. Submittal not required for standard one year guaranty for Work of this project.

1.13 WASTE MANAGEMENT REPORT

A. Upon completion of Work, and prior to final payment, submit an itemized Waste Management Report summarizing the waste generated, sent to landfill, reused, and recycled which is attributed to Work of this Project. Refer to Section 01575 and 01575B.

B. Final payment will not be made until completed Waste Management Report is submitted by Contractor and received by the City.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 02150 - SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Demolition and removal of selected portions of building or structure.
   2. Demolition and removal of selected site elements.

B. See Division 1 Section "Construction Waste Management" for disposal of demolished materials.

C. See Division 2 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 SUBMITTALS

A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of elevator and stairs, and locations of temporary partitions and means of egress.

B. Predemolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Comply with Division 1 Section "Photographic Documentation." Submit before Work begins.

C. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
   1. Comply with submittal requirements in Division 1 Section "Construction Waste Management."

1.4 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Standards: Comply with ANSI A10.6 and NFPA 241.

F. Predemolition Conference: Conduct conference at Project site.

1.5 PROJECT CONDITIONS

G. Notify City's Authorized Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
   D. Hazardous Materials: Owner to supply contractor Waste Abatement Report.

H. Storage or sale of removed items or materials on-site is not permitted.

I. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to City's Authorized Representative.

E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

F. Survey of Existing Conditions: Record existing conditions by use of measured drawings, and preconstruction photographs.

G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 ADDITIONAL REQUIREMENTS

A. Demolition: All existing work designated for removal, including but not limited to walls, floors, ceilings, mechanical equipment, etc., shall be disposed of by the Contractor. "Remove" shall mean completely and entirely from premises.

B. Terminating Utilities: The Contractor shall be responsible for terminating plumbing and electrical where items are removed, by dead-ending piping and wires in a safe, Code conforming and permanent manner.

C. Utility Shutdowns: Owner must receive a minimum of 48 hours for all utility shutdowns and the shutdown must be approved by Owner. Shutdowns should be scheduled for "off" hours or weekends.

D. Temporary Protection: During any required demolition of designated areas, Contractors shall provide adequate temporary protection and shall secure adjacent areas from dust and debris. All temporary partitions shall maintain existing fire ratings and required fire egress paths and exits. All emergency exit signs shall be fully operational during construction.

E. Patching and Repair: Where partitions or other work is noted to be removed, adjacent walls, ceiling, floors and finishes shall be replaced, patched and/or leveled, as required, to blend together and match existing.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
   1. Arrange to shut off indicated utilities with utility companies.
   2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
   3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

3.4 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities. Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.5 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
   2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
   3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
   4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
   5. Dispose of demolished items and materials promptly. Comply with requirements in Division 1 Section "Construction Waste Management."

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Comply with requirements specified in Division 1 Section "Construction Waste Management."

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 05120

STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Structural steel.

2. Architecturally exposed structural steel.

B. Related Requirements:

1. Division 01 - General Requirements.

2. Section 01425 - Testing and Inspection.

3. Section 03300 - Cast-In-Place Concrete.

4. Section 04220 - Concrete Unit Masonry.

5. Section 05300 - Metal Decking.

6. Section 05500 - Metal Fabrications.

7. Section 09900 - Paints and Coatings.

1.02 REFERENCES

A. CBC Chapter 22A.

B. American Institute of Steel Construction (AISC):

1. AISC – Steel Construction Manual:

a. AISC 360 Specifications for Structural Steel Buildings.

b. AISC Code of Standard Practice for Steel Buildings and Bridges.

c. RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts.

2. AISC 341 - Seismic Provisions for Structural Steel Buildings, including Supplements.

3. AISC 358 - Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications.

C. American Society for Testing and Materials (ASTM):

1. ASTM A36 – Standard Specification for Carbon Structural Steel.

2. ASTM A53 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

3. ASTM A108 – Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.

4. ASTM A123 – Standard Specification for Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.

5. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

6. ASTM A307 – Standard Specification for Carbon Steel Bolts and Studs, 60000 PSI Tensile Strength.

7. ASTM A325 – Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 Ksi Minimum Tensile Strength.

8. ASTM A435 - Standard Specification for Straight-Beam Ultrasonic Examination of Steel Plates.

9. ASTM A490 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

10. ASTM A500 – Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes.

11. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

12. ASTM A572 – Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.

13. ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

14. ASTM A673 - Standard Specification for Sampling Procedure for Impact Testing of Structural Steel,

15. ASTM A780 – Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

16. ASTM A992 – Standard Specification for Structural Steel Shapes.

17. ASTM C1107 – Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-Shrink).

18. ASTM E23 - Standard Test Methods for Notched Bar Impact Testing of Metallic Materials.

19. ASTM E112 - Standard Test Methods for Determining Average Grain Size.

20. ASTM F436 – Standard Specification for Hardened Steel Washers.

21. ASTM F959 - Standard Specification for Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners.

22. ASTM F1554 – Standard Specification for Anchor Bolts, Steel, 36, 55 and 105-Ksi Yield Strength.

23. ASTM F1852 – Standard Specification for "Twist Off" Type Tension Control Structural Bolt/Nut/Washer Assemblies, Steel, Heat Treated, 120/105 ksi Minimum Tension Strength.

D. American Welding Society (AWS):

1. AWS D1.1 – Structural Welding Code - Steel.

2. AWS D1.8 – Structural Welding Code – Seismic Supplement.

2. AWS A2.4 – Standard Symbols for Welding, Brazing, and Nondestructive Examination.

3. AWS B2.1 – Specifications for Welding Procedures and Performance Qualification.

E. SSPC – Steel Structures Painting Council:

1. SP-2 - Hand Tool Cleaning.

2. PA-1 - Paint Application Specification No. 1.

1.03 REGULATORY REQUIREMENTS

A. Structural steel shall conform to CBC requirements, except that steel manufactured by acid Bessemer process is not permitted for structural purposes.

B. Sheet and strip steel other than those listed in CBC, if provided for structural purpose, shall comply with DSA or City's Building Official requirements.

1.04 SUBMITTALS

A. Shop Drawings:

1. Submit Shop Drawings, including complete details and schedules for fabrication and shop assembly of members, and details, schedules, procedures and diagrams showing the sequence of erection. Fully detail minor connections and fastenings not shown or specified in the Contract Documents to meet required conditions using similar detailing as shown in the Contract Documents. Include a fully detailed, well controlled sequence and technique plan for shop and field welding that minimizes locked in stresses and distortion; submit sequence and technique plan for review by the Architect.

a. Include details of cuts, connections, camber, and holes in accordance with Figure 4.5 of AWS D1.1 or AISC Chapter J, weld position plan and other pertinent data. Indicate welds by standard AWS symbols, and show size, length and type of each weld.

b. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed for Work specified in other sections.

c. Erection and Bracing Plan and Erection Procedure: Submit an erection and framing plan, including columns, beams, and girders, signed and sealed by a Structural or Civil Engineer registered in the State of California in accordance with Title 8 California Code of Regulations, Section 1710, Erection of Structures. Maintain a copy at the Project site as required by the California Division of Industrial Safety.

d. Submit a list of steel items to be galvanized.

e. Include identification and details of Architecturally Exposed Structural Steel (AESS) members, if applicable.

B. Product Data:

1. Submit copies of fabricator's specifications and installation instructions for the following products. Include laboratory test reports and other data required demonstrating compliance with these Specifications:

a. Structural steel, each type; including certified copies of mill reports covering chemical and physical properties.

b. Welding electrodes.

c. Welding gas.

d. Unfinished bolts and nuts.

e. Structural steel primer paint.

f. High-strength bolts, including nuts and washers.

C. Manufacturer's Mill Certificate:

1. Submit, certifying that products meet or exceed specified requirements.

D. Mill Test Reports:

1. Submit manufacturer's certificates, indicating structural yield and tensile strength, destructive and non-destructive test analysis.

E. Welding Procedure Specifications (WPS): Submit weld procedures for all welding on project to Owner's testing laboratory for approval. After approval by testing laboratory, submit to Architect for record. Weld procedures shall be qualified as described in AWS D1.5, AISC 341 and AISC 358, as applicable. Weld procedures shall indicate joints details and tolerances, preheat and interpass temperature, post-heat treatment, single or multiple stringer passes, peening of stringer passes for groove welds except for the first and the last pass, electrode type and size, welding current, polarity and amperes and root treatment. The welding variables for each stringer pass shall be recorded and averaged; from these averages the weld heat input shall be

calculated. Submit the manufacturer's product data sheet for all welding material used.

F. Welder's Certificates: Field welders shall be Project certified in accordance with AWS D1.1. Shop welders shall be Project certified for FCAW in accordance with AWS D1.1.

G. Test Reports: Submit reports of tests conducted on shop and field welded and bolted connections. Include data on type of test conducted and test results.

1.05 QUALITY ASSURANCE

A. Comply with the following as a minimum requirement, except as otherwise indicated:

1. American Institute of Steel Construction (AISC) "Code of Standard Practice for Steel Buildings and Bridges, modified as follows:

   a. Replace "Structural Design Drawings" with "Contract Documents' throughout the document.

   b. Paragraph 3.2 is hereby modified in it's entirety as follows:

      "Contract Documents including but not limited to architectural, mechanical, plumbing, electrical, civil and kitchen design drawings and specifications shall be used as supplement to the structural plans to define configurations and construction information."

   c. Delete Paragraph 3.3.

   d. In Paragraph 4.4, delete the following sentence:

      "These drawings shall be returned to the Fabricator within 14 calendar days."

   e. Delete Paragraph 4.4.1.(a) in its entirety.

   f. Paragraph 4.4.2 is hereby modified in it's entirety as follows:

      "No review action, implicit or explicit, shall be interpreted to authorize changes in the Contract Documents."

2. Perform welding in accordance with AWS Standards, AWS D1.1, and California Building Code Section 2004A.1 and approved Weld Procedure Specifications (WPS).

B. Shop fabrication shall be inspected in accordance with CBC.

C. Erect mock-up panel of fabricated structural steel meeting Architecturally Exposed Structural Steel (AESS) tolerances for exposed areas. Approval by Architect is required. Mock-up to remain for comparison but may not be left as part of the work.

1.06 DELIVERY, STORAGE AND HANDLING

A. Store structural steel above grade on platforms, skids or other supports.

B. Protect steel from corrosion.

C. Store welding electrodes in accordance with AWS D 12.1.

D. Store other materials in a weather-tight and dry place until installed into the Work.

PART 2 - PRODUCTS

2.01 GENERAL

A. Stock Materials: Provide exact materials, sections, shapes, thickness, sizes, weights, and details of construction indicated on Drawings. Changes because of material stock or shop practices will be considered if net area of shape or section is not reduced thereby, if material and structural properties are at least equivalent, and if overall dimensions are not exceeded.

B. Shapes, bars, plates, tubes and pipes shall be made of materials with at least 16 percent recycled content if produced from Basic Oxygen Furnace (BOF) or at least 67 percent recycled content if produced from Electric Arc Furnace (EAF).

2.02 MATERIALS

A. Structural Steel: All wide flange shapes shall conform to ASTM A992 grade 50. Other steel shall conform to ASTM A36.

B. Unfinished Threaded Fasteners: ASTM A307, Grade A, regular low carbon bolts and nuts.

C. High-Strength Threaded Fasteners: ASTM A325, ASTM A490 ASTM F959 or ASTM F1852 quenched and tempered, steel bolts, nuts and washers.

D. Primers: Lead-free metal primer:

1. SSPC-Paint 20, Zinc-Rich Primer.

2. SSPC-Paint 23, Latex Primer.

3. SSPC-Paint 25 Zinc Oxide Primer.

E. Steel Pipe: ASTM A53, Type E or S, Grade B.

F. Structural Tubing:

1. Hot-formed, ASTM A501.

2. Cold-formed, ASTM A500, Grade B.

G. Galvanizing: ASTM A123.

I. Shear stud connectors: ASTM A108, Grade 1015 forged steel, headed, uncoated, granular flux filled shear connector or anchor studs by Nelson Stud Welding Division, or equal.

J. 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 7,000 psi at seven days; of consistency suitable for application and a 30 minute working time.

2.03 FABRICATION

A. Cleaning and Straightening Materials: Materials being fabricated shall be thoroughly cleaned of scale and rust, and straightened before fabrication. Cleaning and straightening methods shall not damage material. After punching or fabrication of component parts of a member, twists or bends shall be removed before parts are assembled.

B. Cutting, Punching, Drilling and Tapping: Unless otherwise indicated or specified, structural steel fabricator shall perform the cutting, punching, drilling and tapping of Work so that Work of other trades will properly connect to steel Work.

C. Milling: Compression joints depending on contact bearing shall be furnished with bearing surfaces prepared to a common plane by milling.

D. Use of Burning Torch: Oxygen cutting of members shall be performed by machine. Gouges greater than 3/16 inch that remain from cutting shall be removed by grinding. Reentrant corners shall be shaped notch free to a radius of at least 1/2 inch. Gas cutting of holes for bolts or rivets is not permitted.

E. Galvanizing: After fabrication, items indicated or specified to be galvanized shall be galvanized in largest practical sizes. Fabrication includes operations of shearing, punching, bending, forming, assembling or welding. Galvanized items shall be free from projections, barbs, or icicles resulting from the galvanizing process.

F. Welding:

1. Type of steel furnished in welded structures shall provide chemical properties suitable for welding as determined by chemical analysis. Welds shall conform to the verification and inspection requirements of CBC Chapter 17A. Conform to AWS D1.1, and CBC Chapter 22A.

2. Materials and workmanship shall conform to the requirements specified herein and to CBC requirements, modified as follows:

a. No welded splices shall be permitted except those indicated on Drawings unless specifically reviewed by the Architect.

b. Drawings will designate joints in which it is important that welding sequence and technique be controlled to minimize shrinkage stresses and distortion.

3. Welding shall be performed in accordance with requirements of the AWS Structural Welding Code.

4. Architecturally Exposed Structural Steel: Verify that weld sizes, fabrication sequence, and equipment used for Architecturally Exposed Structural Steel will limit distortions to allowable tolerances. Prevent surface bleeding of back-side welding on exposed steel surfaces. Grind smooth exposed fillet welds ½ inch and larger. Grind flush butt welds. Dress exposed welds.

5. Remove erection bolts on welded, Architecturally Exposed Structural Steel; fill holes with plug welds; and grind smooth at exposed surfaces.

G. Shop Finish:

1. Notify the Owner's Representative when Work is ready to receive shop prime coat. Work shall be inspected by the Special Inspector before installation of primer.

2. Structural steel and fittings shall receive a coat of primer, except:

a. Surfaces that will be galvanized.

b. Surfaces that will be fireproofed.

c. Surfaces that will be field welded.

d. Surfaces in contact with concrete.

e. Surfaces high strength bolted.

3. The primer specified shall be spray applied, filling joints and corners and covering surfaces with a smooth unbroken film. The minimum dry film thickness of the primer shall be 2.0 mils.

H. Comply with fabrication tolerance limits of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel.

I Fabricate Architecturally Exposed Structural Steel with exposed surfaces smooth, square, and free of surfaces blemishes, including pitting, rust and scale seam marks, roller marks, rolled trade names, and roughness.

1. Remove blemishes by filling, grinding, or by welding and grinding, prior to cleaning, treating and shop priming.

2. Comply with fabrication requirements, including tolerance limits of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for Architecturally Exposed Structural Steel.

J. Architecturally Exposed Structural Steel: use special care in unloading, handling and erecting the steel to avoid marking or distorting the steel members. Minimize damage to any shop paint when temporary braces or erection clips are used. Avoid unsightly surfaces upon removal. Grind smooth tack welds and holes filled with weld metal or body solder. Plan and execute all operations in such a manner that the close fit and neat appearance of the structure will not be impaired.

2.04 SHOP AND FIELD QUALITY CONTROL

A. A special inspector, approved by DSA or City's Building Official to inspect the Work of this section, shall inspect high-strength bolted connections. The Owner will provide an approved independent testing laboratory to perform tests and prepare test reports in accordance with CBC 1704A.3.3. The City's Representative shall be responsible for monitoring the work of the special inspector and testing laboratories to ensure that the testing program is satisfactorily completed.

B. An AWS CWI certified special inspector, approved by DSA or City's Building Official to inspect the Work of this section, shall inspect welded connections in accordance with CBC 1704A.3.1. The Owner will provide an approved independent testing laboratory to perform tests and prepare test reports. The Owner's Representative shall be responsible for monitoring the work of the special inspector and testing laboratories to ensure that the testing program is satisfactorily completed.

C. The independent testing laboratory shall conduct and interpret test and state in each report whether test specimens comply with requirements, and specifically state any deviations there from.

D. Provide access to all places where structural steel Work is being fabricated or produced so required inspection and testing can be performed.

E. The independent testing laboratory may inspect or test structural steel at plant before shipment; however, Architect reserves the right at any time before Contract Completion to deem materials not in compliance with the specified requirements as defective Work.

F. Correct defects in structural Work when inspections and laboratory test reports indicate noncompliance with specified requirements. Perform additional tests as may be required to reconfirm noncompliance of original Work, and as may be required to show demonstrate compliance of corrected Work.

G. Inspection of Structural Tube Steel/Hollow Structural Sections (HSS): Structural tube steel members (round, square, rectangular), disregarding steel origin, will be inspected during shop fabrication per DSA 07-03. Inspector will perform a visual examination of the seam weld area for visible discontinuities. When defects are suspected, non-destructive testing will be considered.

H. Welding: Inspect and test during fabrication and erection of structural steel assemblies as follows:

1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in the Work. Record Work required and performed to correct deficiencies.

2. Inspect welds. Welds shall be visually inspected before performing any non-destructive testing. Groove weld shall be inspected by ultrasonic or other approved non-destructive test methods. Testing shall be performed to AWS D1.1 Table 6.3 cyclically loaded non-tubular connections.

3. Ultrasonic testing shall be performed by a specially trained and qualified technician who shall operate the equipment, examine welds, and maintain a record of welds examined, defects found, and disposition of each defect. Repair and test defective welds.

4. Rate of Testing: Completed welds contained in joints and splices shall be tested 100 percent either by ultrasonic testing or by radiography.

5. Welds, when installed in column splices, shall be tested by either ultrasonic testing or radiography.

6. Base metal thicker than 1 ½-inch, when subjected to through-thickness weld shrinkage strains, shall be ultrasonically inspected by shear wave methods for discontinuities directly behind such welds. Tests shall be performed at least 48 hours after completed joint has cooled down to ambient air temperature.

7. Material discontinuities shall be reviewed based on the defect rating in accordance with the criteria of AWS D1.1 table 6.3 by the Architect and Engineer of Record.

8. Other method of non-destructive testing and inspection, for example, liquid dye penetrate testing, magnetic particle inspection or radiographic inspection may be performed on weld if required.

9. Lamellar Tearing: Lamellar-tearing resulting from welding is a crack (with zero tolerance) and shall be repaired in accordance with AWS D1.1.

10. Lamination: The rejection criteria shall be based on ASTM A435.

11. Where testing reveals lamination or conditions of lamellar tearing in base metal, the steel fabricator shall submit a proposed method of repair for review by the Architect. Test repaired areas as required.

12. Magnetic Particle Testing: Magnetic particle testing when required shall be provided in accordance with AWS D1.1 for procedure and technique. The standards of acceptance shall be in accordance with AWS D1.1 – Qualification.

I. Lamellar Tearing: Prior to welding plates 1 to 1 ½-inch thick and greater and rolled shapes within the distance from 6 inches above the top of the joint to 6 inches below the bottom of the joint shall be checked by ultrasonic testing for laminations in base metal which may interfere with the inspection of the completed joint. Should these defects occur, members will be reviewed by the Architect or Engineer of Record. Welding procedure specifications in sub-section 1.5G specify welding practices to minimize lamellar tearing.

J. Prior Testing of Base Material: Test material before fabrication.

K. Lines and levels of erected steel shall be certified by a State of California licensed surveyor as set forth in related Division 01 section.

L. Welded studs shall be tested and inspected by the special inspector in accordance with requirements of AWS D1.1 – Stud Welding.

M. Record Drawings: After steel has been erected, correct or revise Shop Drawings and erection diagrams to correspond with reviewed changes performed in the field.

PART 3 - EXECUTION

3.01 PREPARATION

A. Verify governing dimensions and conditions of the Work before commencing erection Work.

1. Report discrepancies between drawings and field dimensions to Architect before commencing work.

2. Beginning of installation means erector accepts existing conditions and surfaces underlying or adjacent to work of this section.

B. Provide temporary shoring and bracing, and other support during performance of the Work. Remove after steel is in place and connected, and after cast-in-place concrete has reached its design strength.

C. Coordinate prime coat repair and application with requirements of Section 09900.

3.02 ERECTION

A. Install structural steel accurately in locations, to elevations indicated, and according to AISC specifications and CBC requirements.

B. Clean surfaces of base plates and bearing plates.

1. Install base and bearing plates for structural members on wedges, shims, or setting nuts as required.

2. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims; cut off flush with edge of base or bearing plate before packing with grout.

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

1. Architecturally Exposed Structural Steel members and components, plumbed, leveled and aligned to a tolerance not to exceed one-half the amount permitted for structural steel. Contractor to provide adjustable connections between Architecturally Exposed Structural Steel and the structural steel frame or the masonry or concrete supports, in order to provide the erector with means for adjustment.

D. Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact after assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.

E. Do not permit thermal cutting during erection of structural steel.

F. Where indicated for field connections, provide standard bolts complying with ASTM A307.

G. Install high strength steel bolts at locations indicated. Assembly and installation shall be in accordance with CBC requirements.

1. Allowable hole sizes: 1/16 inch larger than bolt size.

2. Use friction type connection with standard hardened steel circular, square or rectangular washer under bolt nut.

3. 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.

4. Tighten bolts by power torque wrench or hand wrench until twist-off.

H. Contractor shall be responsible for correcting detailing and fabrication errors and for correct fitting of all members and components.

I. Erect structural steel plumb and level and to proper tolerances as set forth in the AISC Manual. Provide temporary bracing, supports or connections required for complete safety of structure until final permanent connections are installed.

J. Install column bases within a tolerance of 1/8 inch of detailed centerlines, level at proper elevations. Support bases on double nuts and solidly fill spaces under bases with cement grout.

K. Provide anchor bolts with templates and diagrams. Contractor shall be responsible for proper location and installation of bolts. Correct deficiencies and errors.

L. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and apply galvanizing repair paint according to ASTM A780.

3.03 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. Allow only enough drifting during assembly to bring parts into position, but not enough to enlarge holes or distort the metal. Do not heat rolled sections, unless approved by Architect.

3.04 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; flame cutting to enlarge holes is not acceptable. Structural Steel members with poorly matched holes will be rejected.

3.05 FINISHING

A. After erection, spots or surfaces where paint has been removed, damaged, or burned off, and field rivets, bolts, and other field connections shall be cleaned of dirt, oil, grease, and burned paint and furnished with a spot coat of the same primer installed during shop priming.

B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Install paint to exposed areas with the same material installed during shop painting. Install by brush or spray to provide a minimum dry film thickness of 1.5 mils.

3.06 FIELD QUALITY CONTROL

A. Owner will provide a special inspector and independent testing laboratory to perform field inspections and tests and to prepare test reports.

B. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.

3.07 CLEAN UP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project Site.

3.08 PROTECTION

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

3.09 HANDLING

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

END OF SECTION

SECTION 05500
METAL FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Metal fabrications:

1. Steel pipe.

2. Square and rectangular steel tubing.

3. Pipe columns.

4. Steel stairs.

5. Handrails and guardrails.

6. Steel thresholds.

7. Steel ladders.

8. Steel Gates.

9. Gratings, frames and covers.

10. Miscellaneous fabrications, as indicated on the Drawings.

B. Related Requirements:

1. Division 01 - General Requirements.

2. Section 01 4523: Testing and Inspection.

3. Section 05 1200: Structural Steel Framing.

4. Section 08 7100: Door Hardware.

1.02 SUBMITTALS

A. Shop Drawings: Submit Shop Drawings indicating provided materials, dimensions, anchoring detail, and details of termination or connection to adjacent construction. Indicate items that are purchased from a manufacturer and items that are shop fabricated. Indicate component parts requiring Project site fabrication or assembly.

B. Product Data: Submit Product Data for manufactured items. Submit Product Data for primers and finishes.

C. Material Samples: Submit Samples of primers and finishes on fabricated items.

D. Installation Instructions: Submit installation instructions for manufactured items.

1.03 QUALITY ASSURANCE

A. Comply with the following as a minimum requirement:

1. Design, fabricate, and install miscellaneous metals in accordance with AISC - Design, Fabrication, and Erection of Structural Steel for Buildings.

2. AWS D-1.1 Code - Welding in Building Construction.

3. Inspection of Welding: Refer to Section 01 4523: Testing and Inspection.

4. Welding: Refer to Section 01425 Testing and Inspection.

B. Coordinate installation of accessory items required for metal fabrications.

1.04 DELIVERY, STORAGE AND HANDLING

A. Store miscellaneous metal items above grade on platforms, skids, or other required supports.

B. Protect from corrosion or damage.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Structural Steel Shapes: ASTM A36.

B. Steel Pipe:

1. Steel pipe for pipe columns and other structural purposes shall conform to ASTM A53, Type E or S, Grade B, as required.

2. Steel pipe other than pipe furnished for structural purposes shall conform to ASTM A53.

C. Square and Rectangular Steel Tubing:

1. Steel tubing for structural purposes shall be carbon steel conforming to ASTM A500 or ASTM A36.

2. Steel tubing other than tubing furnished for structural purposes shall be hot or cold rolled carbon steel electric welded tubing.

D. Cast Steel: ASTM A27, Grade 65-35.

E. Steel Bolts: ASTM A307, Grade A, with bolt head and nut dimensions conforming to ANSI B 18.2.1.

F. Rolled Steel Plates and Shapes:

1. Shapes and plates shall conform to ASTM A36, except for plates to be bent or cold-formed.

2. Plates to be bent or cold-formed shall conform to ASTM A283, Grade C.

G. Chain: Chain shall be 4/0 double loop pattern coil chain.

H. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications "Rapid Set Cement".

2.02 FABRICATION

A. General:

1. For fabrication of Work exposed to view, provide only materials smooth and free of blemishes. Remove blemishes by grinding or by welding and grinding, before cleaning, treating, and installation of surface finishes including zinc coatings.

2. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated or specified.

B. Steel Pan Type Stairs:

1. Provide stringers, risers, sub-treads and platforms to profiles indicated. Form each tread pan and riser in one continuous piece to receive finished tread. Weld or bolt risers and treads to carrier angles. Weld or rivet carrier angles to structural steel stringers. Fasten countersunk bolts, or stud weld clips, through pans and platforms to facilitate fastening of welded wire fabric for concrete fill. Provide welded-on clips for support of soffits. Close ends of channel or box stringers.

2. At intermediate landings, provide metal bases formed of stringers. Miter and weld internal and external corners of metal bases.

3. Provide uprights and posts of rectangular or round tubing as indicated. Provide members a special shop straightening to eliminate distortion and to provide straight alignment. Correct bends, distortions, and damage. Fill dents and grind smooth.

4. Provide railings of profile indicated, fastened to stair stringers and wall substrates as indicated or required.

5. Countersink rivets, bolt heads and screws on finished surfaces, or cut flush with surfaces.

6. Fit and securely fasten components together, with exposed tight-fitting joints. Cut, drill, punch and tap as required for installation.

7. Furnish joints as strong and rigid as adjoining sections. Weld continuously along entire line of contact, except where spot welding is indicated.

C. Stair and Balcony Railings:

1. Railings: Handrails and standards shall be fabricated of Grade B standard weight steel pipe or indicated on Drawings. After fabrication, rails shall be galvanized. Standards shall be attached to stringers and face of balcony as detailed.

2. Panels:

   a. Mesh shall be 10 gage 1 ½-inch diamond mesh. The wires shall extend through the channel frame and shall be clinched.

   b. Frame members shall be 1 inch by 1/2 inch by 1/8 inch thick plate welded to top and end members. Corners shall be mortised and tenoned and continuously welded together. Panels shall be galvanized. Fasten panels to rails and standards as indicated.

3. Handrail Brackets: Type indicated.

D. Folding Steel Gates: Furnish and install folding steel gates, complete, where indicated. Gates shall be provided with hinged bottom track and shall allow for padlocking in both open and closed positions. Manufactured by Acorn Wire and Iron Works, American Woven Wire Corporation, King Wire Partitions, Inc., or equal.

1. Vertical bars shall consist of pairs of steel channels 3/4 inch by 3/8 inch by 1/8 inch minimum, approximately 6 inches on center with 5/8 inch by 3/16”inch steel lattice bars.

2. Gate leaves extending more than 8 feet shall be provided with over head tracks and hangers. Gates shall have casters unless over-head tracks are furnished and shall be hot dip galvanized or powder coat finish.

E. Glass Screens:

1. Screens: Provide glass screens at grinders, buffers, and other equipment in shops and arts/crafts rooms constructed and installed as detailed or specified. Screens shall include steel pipe frames, T-members and angles for setting glass and sheet metal panels, completely assembled, and installed. Exposed edges of sheet metal panels shall be hemmed at least 1/2 inch.

2. Installation: Pipe frame standards shall be installed to a depth of 9 inches into metal sleeves previously cast into concrete. Standards shall be wedged true and plumb and secured in place with non-shrink grout.

F. Screens at Spot Light: Screens and frames shall be shop fabricated and assembled from galvanized metal of size and shape indicated. Frames shall be 18 gage material and screening shall be 5/8 inch by 5/8 inch heavy hardware cloth spot welded to frame.

G. Ladder Extensions: Where vertical ladders are installed for access to roof hatches, provide the following:

1. Roof hatch ladders shall be provided with ladder extensions. Ladder extensions shall be Bilco Model 1, "LadderUP Safety Post,” Maxam Metal Products, “Spring Balance Safety Post”, or equal, on fixed ladders below roof hatches. Device shall be manufactured of high strength steel with telescoping tubular section that locks automatically when fully extended. Upward and downward

movement shall be controlled by a stainless steel spring balancing mechanism. Finish shall hot dip galvanized. Unit shall be completely assembled with fasteners for securing to the ladder rungs in accordance with the manufacturer's instructions.

H. Miscellaneous Framing and Supports:

1. Except as otherwise indicated, space anchors 2 feet on center, and provide minimum anchor units of 1 ¼-inch by ¼ inch by 8-inch steel straps.

2. Shelf angles for exterior construction shall be galvanized steel of sizes indicated.

I. Welding:

1. Weld connections unless otherwise indicated.

2. Weld corners and seams continuously and in accordance with requirements of AWS Code. Welds shall be inspected as required in Section 05120: Structural Steel Framing.

3. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.

Q. Galvanizing:

1. ASTM A123, ASTM A153, or ASTM A386, as applicable, hot dip with 2.0 ounces per square foot on actual surface and 1.8 ounces per square foot minimum on any specimen, and as specified herein.

2. Galvanizing Repair Material: DRYGALV as manufactured by the American Solder and Flux Company, Galvalloy, Galvion, or equal. Hot applied repair material, or anodic zinc- rich galvanizing repair paint conforming to Mil Spec DOD-P-21035.

3. Items to be galvanized shall be hot-dip galvanized in sections as large as possible.

R. Shop Finish:

1. Metal fabrications shall be provided with a coat of primer, except those indicated to be completed with exposed galvanized finish.

2. Primers:

a. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

b. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.

c. Minimum dry film thickness of primer shall be 2.0 mils.

3. Preparation for Primer Painting: Miscellaneous ferrous metal, except items specified galvanized, shall be thoroughly cleaned and prepared for painting, including removal of shipping oils or protective coatings, mill scale, grease, dirt and rust. Prepare in accordance with SSPC recommendations. Deliver to Project site primed or galvanized as indicated, and ready to receive Project site applied finishes.

4. Galvanized Metal Work to receive Paint: Clean oil, grease and other foreign materials from surfaces. Apply vinyl wash pretreatment coating. Follow manufacturer's instructions for drying time, and then prime with one coat of metal primer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Handrails and Guardrails:

1. Install standards into metal sleeves cast in concrete, and extending into it at least 9 inches. Wedge standards true, plumb, and fastened by packing with grout. Finish grout smooth and flush with adjacent surfaces.

2. Rails contacting a vertical surface shall be fitted with standard pipe rail flanges, secured to concrete or masonry surfaces with 3/8 inch 2-unit cinch anchor bolts and secured to wood frame surfaces with 3/8 inch lag screws, unless otherwise indicated.

3. Railings abutting pipe columns shall be provided with shaped end caps to fit columns welded to rails, and secured to columns with self-tapping machine screws.

B. Steel Thresholds: Fabricate channel or angle thresholds of rolled steel sections of size indicated, galvanized after fabrication. Anchor into concrete with countersunk 2-unit cinch anchor bolts, unless otherwise indicated.

C. Steel Ladders: Provide at locations indicated, fabricated as detailed. Ladders shall be anchored to concrete or masonry with 1/2 inch cinch anchor bolts. Ladders secured to a wood framed wall shall be anchored with 1/2 inch lag screws. Provide provisions for anchoring ladders before lath is applied to plastered walls.

D. Gratings, Frames and Covers:

1. Over areas indicated, provide steel gratings and grating frames as detailed. Frames shall have mitered and welded corners, and be fitted with anchors.

2. Provide steel checkered plate covers and steel frames for sumps, grease traps, and sand traps, and other covers for access where indicated. Frames shall be provided with mitered and welded corners and be fitted with anchors as detailed. Cover shall be perforated. Each section of access cover shall be furnished with steel pull rings and tool operated fastening device. Screws to fasten covers shall be brass.

3.02 ADJUSTING

A. Touch Up Damaged Surfaces:

1. Shop Painted Finishes: Comply with SSPC-PA-1 for touch-up; apply with brush to produce a minimum 2.0 mil dry film thickness.

2 Galvanized Surfaces: Clean field welds, connections and damaged areas. Repair galvanized finishes in accord with ASTM A780.

3.03 CLEAN UP

A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

3.04 PROTECTION

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

END OF SECTION

SECTION 06200
FINISH CARPENTRY

PART 1 - GENERAL

1.1 WORK INCLUDED

A. FINISH CARPENTRY AND MILLWORK consists of furnishing transportation, labor, materials and equipment to furnish and install cabinets, countertops, and other miscellaneous finished carpentry and millwork.

1.2 RELATED WORK

A. PAINTING AND COATING Section 09900

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM International)
   1. ASTM A167 Standard Specifications for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
   2. ASTM C615 Standard Specification for Granite Dimension Stone

B. Woodwork Institute of California (W.I.C.)
   1. Manual of Millwork

1.4 SUBMITTALS

A. Shop drawings required for casework and cabinets including dimensions, sections, details, cabinet hardware, and construction. Shop drawings shall bear the W.I.C. approval stamp.

B. FSC Samples for verification of the following:
   1. Laminate-clad panel products, 8 inches by 10 inches, for each type, color, pattern, and surface finish, with separate samples of unfaced panel product used for core.
   2. Solid polymer countertops, "Corian", 2 inches by 2 inches. Indicate full range of color and pattern variation. Approved samples will be retained as standard for work.
   3. Exposed cabinet hardware, one unit for each type and finish.

C. Product certificates signed by woodwork fabricator certifying that products comply with specified requirements.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Firm experienced in producing architectural woodwork similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units without delaying the work.

B. Single Source Responsibility for Fabrication and Installation: Engage a qualified woodworking firm for fabricating, finishing, and installing woodwork specified in this Section.

C. Quality Standard: Except as otherwise indicated, comply with the following standard:
   1. WIC Quality Standard: "Manual of Millwork: of the Woodwork Institute of California, Custom grade for interior architectural woodwork, construction, finishes, and other requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration.
B. Do not deliver woodwork until painting and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in Article: "Project Conditions."

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet-work is completed, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

B. Field Measurements: Where woodwork is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before fabrication, and show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid measurements on final shop drawings.
   1. Verify locations of concealed framing, blocking, reinforcements, and furring that support woodwork by accurate field measurements before being enclosed. Record field measurements on final shop drawings.
   2. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site and coordinate construction to ensure that actual dimensions correspond to guaranteed dimensions.

1.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Casework, countertops, splashes, counters, and shelves shall be per W.I.C. Custom Grade.
   1. Laminated Plastic Overlays with ☐ARP☐Finish: High pressure thermo-setting plastic (NEMA LD3), 0.028-inch thick for exposed surfaces and 0.020-inch thick for backing sheets; color and pattern as indicated on Drawings.
   2. Core materials shall be particle board.
   3. Adhesive: Type II adhesive per W.I.C. requirements.

B. Solid Surface Countertop:
   1. Solid Surface countertop shall be polymer. Solid Surface shall be ¾ inch thick, with exposed top and edges, as detailed on Drawings.
   2. Polymer tops and coved splashes for kitchen cabinets, as indicated on Drawings, shall be Corian, a solid polymer fabrication by DuPont Company, 800-426-7426, ¾ inch thick for countertops. Color shall be as indicated on Drawings. Corian vanity tops shall be one piece construction with rolled edges. Corian coved splashes shall be ½ inch thick, integral mounter with countertop.

C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 107 degrees of opening (90-95 degrees at corners), self-closing and having passed 100,000 cycle test.
   1. Equal to: Blum Modul Hinge series with 170 degree opening.
   2. Hinge shall have a lifetime warranty as offered by the hinge manufacturer.
   3. Hinges shall be heavy duty wrap-around offset for overlay doors with non-removable pin.
   4. Hinge shall not be clip type.
   5. Hinges shall be securely anchored to the cabinet and door. Do not screw hinges into holes drilled for adjustable shelf brackets.
   6. Number of hinges per door shall be as follows:
      a. Door height 0”-36”: 2 hinges per door
      b. Door height 37”-62”: 3 hinges per door
      c. Door height 63”-80”: 4 hinges per door

D. Wire Pulls: Back mounter, U-shaped, solid metal, 4 inches long, 5/16 inch in diameter, in 1-1/2” projection.

E. Catches: Magnetic catches, BHMA A156.9, C03141.

F. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with self rests, B04081.

G. Shelf Rests: BHMA A156.9, B04013; metal, two-pin type with self hold-down clip.

H. Drawer Slides: BHA A156.9, B05091, side-mounted; full-extension type, zinc-plated steel ball bearing slides, equal to Accuride #7432, and rated for the following loads:
   1. Box Drawer Slides: Grade 1HD-100 (100lb); for drawers not more than 6 inches high or 24 inches wide.
   2. File Drawer Slides: Grade 1HD-200 (200lb); for drawers more than 6 inches high or 24 inches wide.

I. Grommets for Cable Passage through Countertops: 2-inch OD, molded-plastic grommets and matching plastic caps with slot for wire passage.
   1. Product: Subject to compliance with requirements, provide “SG series” by Doug Mockett & Company, Inc.
   2. Color: As selected by Architect from manufacturer’s full range.

J. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
   1. Satin Chromium Plated: BHMA 626 for brass or bronze base; CHMA 652 for steel base.

K. For concealed hardware, provide manufacturer’s standard finish that complies with product class requirements in BHMA A156.9.

L. Bumpers: Provide rubber bumpers on inside corners of all doors to prevent laminate to laminate contact.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Wood cabinet doors shall be fitted leaving equal clearances at sides and top.

B. Doors shall be hung plumb and square to operate freely without binding or sticking. Doors shall be hung plumb and square to operate freely without binding or sticking.

3.2 INSTALLING CORIAN COUNTERTOPS

A. Install by adhering to supports using adhesive recommended by the Corian manufacturer.

3.3 FINISH CARPENTRY AND MILLWORK

A. Moldings: True to detail, clean-cut, sharply defined.

B. Panels: Set to allow for free movement in expansion or contraction.

C. Cabinet and Casework: To be mill-assembled to greatest practicable extent, delivered completely constructed or in largest practicable sections, ready for erection.

D. Assembly: Members to be mortised and tendoned, metered, doweled, blocked, glued or nailed together, but avoiding nailing as far as possible; conceal fastenings where practicable; exposed nails to be set.

E. Flat Trim Members: To be backed out.

F. Installation:

1. Install finish carpentry and millwork plumb, true, square, and in accurate position.

2. Neatly scribe in place.

3. Apply trim in long lengths without joints except where use of single lengths is not possible; and necessary joints in long horizontal trim to be vertical, with end of boards cut diagonally through the board and perpendicularly to edge of board.

4. Miter exterior angles and cope interior angles of moldings.

5. Attach finish and trim with finish nails. Set nails for putty.

6. Make neat tight joints where wood finish adjoins other finished surfaces.

3.4 CASEWORK

A. For casework and cabinets indicated on the Drawings:
1. For face frame and flush overlay type construction, "Custom Grade" per Woodwork Institute of California (W.I.C.) "Manual of Millwork" and current supplements and as otherwise indicated on Drawings or specified. Any drawing detail or specification note which modifies the "Custom Grade" shall govern.
2. Shop fabricate casework units as completed sections of adequate size to permit easy handling, access to the installation area for assembly or requiring only to be set in place and closing pieces be installed.
3. Make holes or cutouts necessary to work with mechanical or electrical trades as detailed or specified.

B. Definitions for Exposed, Semi-Exposed or Concealed portion of Casework as per Section 14 of W.I.C. Manual.

C. Materials for Concealed Portions: Softwood plywood, particle board, or combination thereof.

D. Construction Requirements: Per requirements of Section 14 and 15 of W.I.C. Manual and as follows:
   1. Base Frame for Base Cabinets: Construct separately from base cabinets, scribe, and secure to the floor.
   2. Plywood Shelves: Minimum 3/4-inch thick or 1-inch thick for shelves spanning over 3 feet 6 inches. Hardwood birch face veneers and unselected Birch hardwood edgebanding on front edge for fixed shelves or on front and back edges for adjustable shelves.
      a. Fixed Shelves: Secure to Douglas fir or Birch strips or cleats or dado into casework structure.
      b. Adjustable Shelves: Set in place, level on hook strips or cleats supported on adjustable shelf standards at ends and back as detailed.
   3. Laminated Plastic Covered Shelves: Plastic overlay on both sides and fully plastic edgebanded. Shelves spanning over 3 feet 6 inches shall be 1 inch thick.
   4. Drawers:
      a. Bottom: Minimum 1/4-inch thick hardwood plywood, A-D Grade.
      b. Maintain maximum 3/32-inch clearances between adjacent drawers, doors, and face frames.
      c. Metal Drawer Slides.

3.5 INSTALLATION

A. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

B. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish cuts.

C. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

D. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in opening and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
   1. Install cabinets with no more than 1/8 inch in 96-inch sag, box, or other variation from a straight line.

2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screw sized for 1-inch penetration into wood framing, clocking, or hanging strips.

E. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
   1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches and clean entire surface.
   2. Install countertops with no more than 1/8 inch in 96-inches sag, bow, or other variation from a straight line.
   3. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
   4. Caulk space between backsplash and wall with sealant specified in Division 07 Section "joint Sealants."

3.6 CAULKING

A. All horizontal and vertical joints up 6" under sink cabinets shall be caulked with a silicone based caulking compound to provide protection in case of plumbing failure.

3.7 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

END OF SECTION

SECTION 07210
THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Batt Insulation in exterior wall and ceiling construction.

B. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
   2. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
   3. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
   4. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. Federal Specifications (FS):
   1. FS HH-I-1972/GEN - Insulation Board, Thermal, Faced, Polyurethane or Polyisocyanurate.

1.3 SUBMITTALS

A. Section 013300 – Submittal Procedures: Procedures for submittals.
   1. Product Data: Indicate product characteristics, performance criteria, and limitations.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Conform to insulation flame spread and smoke developed requirements of local authority having jurisdiction.

B. Certification: For projects California provide Products certified by manufacturer that meet California Quality Standards for Insulating Materials.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Transport, handle, store, and protect Products.

B. Protect insulation from moisture, soiling and other damaging items.

C. Store in dry location protected from sunlight.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Resource Management:
   1. Recycled Content: Provide fiberglass insulation manufactured from minimum 30 percent recycled glass.

B. Environmental Impact:
   1. Only Greenguard indoor air quality certified products will be permitted.
   2. Chlorofluorocarbons (CFCs): Products and equipment requiring or using CFCs during the manufacturing process will not be permitted.

PART 2 - PRODUCTS

2.1 BATT INSULATION

A. Manufacturers:
   1. Johns Manville Corporation, Denver, Co
   2. Knauf Fiberglass, Shelbyville, IN
   3. Owens-Corning Fiberglass Corporation, Toledo, OH
   4. Or equal.

B. Materials: Fiberglass insulation manufactured from minimum 30 percent recycled glass.
   1. Faced Glass Fiber: ASTM C 665, Type III, Class A, with reflective covering one side. Thermal resistance R-value as indicated on Drawings.

2.2 ACCESSORIES

A. Tape: Polyethylene or polyester self-adhering type; 2 inches (5.08 cm) wide.

B. Adhesive: Waterproof type, acceptable to manufacturer of insulation board.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
   1. Batt Insulation:
      a. Verify adjacent materials are dry and ready to receive installation.
      b. Verify mechanical and electrical services within walls have been installed and tested.

B. Report in writing to State Representative prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the State.

3.2 INSTALLATION - BATT INSULATION

A. Install batt insulation in accordance with manufacturer's instructions, without gaps or voids.

B. Trim insulation neatly to fit spaces. Use batts free of damage. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.

C. Install insulation with factory applied membrane facing warm side of building spaces. Lap ends and side flanges of membrane. Attach insulation in place to framing; tape seal butt ends and lapped side flanges. Tape seal tears or cuts in membrane.

END OF SECTION

SECTION 07542 - POLYVINYL-CHLORIDE (PVC) ROOFING

Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 1, apply to work of this Section.

PART 1 - GENERAL

1.1 SUMMARY

A. Work includes labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing operations in connection with furnishing, delivery and installation of the work of this Section, complete as shown on the drawings and/or specified herein.

B. The assembly includes mechanically attached insulation and separation board over a sloped plywood deck. The PVC single ply roof membrane is adhered to the separation board.

1.2 PERFORMANCE REQUIREMENTS

A. Energy Performance: Provide roofing system with initial Solar Reflectance Index not less than 104 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.

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

C. Energy Performance: Provide roofing system with initial solar reflectance not less than 0.70 and emissivity not less than 0.75 < when tested according to CRRC-1.

1.3 SUBMITTALS

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

B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work including technical acceptance from manufacturer.

C. Samples for Verification: For the following products:
   1. Sheet roofing, of color specified.

D. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Perfomance Requirements" Article.
   1. Submit evidence of compliance with performance requirements.

E. Membrane Physical Properties Chart.

F. Sample copy of Manufacturer's warranty including no exclusion for ponding water and no time limit shall be assigned to any such ponding water.

G. Applicator Warranty.

H. Field quality-control reports.

I. Material Safety Data Sheets (MSDS)

J. Maintenance data.

K. Certification letter from the roof membrane manufacturer confirming the roofing contractor is certified to installation the roof system as described in this specification.

1.4 QUALITY ASSURANCE

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

B. Source Limitations: Obtain components including roof insulation fasteners for membrane roofing system from same manufacturer as membrane roofing or approved by membrane roofing manufacturer.

C. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

D. Preinstallation Roofing Conference: Conduct conference at Project site.

E. Factory Mutual Rating: 1-90 (Attachment Criteria)

1.5 WARRANTY

A. Special Warranty: Manufacturer's full system warranty, without monetary limitation, in which manufacturer agrees to repair or replace supplied components of the membrane roofing system that fail in materials or workmanship within specified warranty period. Warranty shall not exclude the condition of ponding water without time restriction during the warranty period. Verify available warranties and warranty periods for roofing system with manufacturers listed in Part 2 articles.

1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PVC MEMBRANE ROOFING

A. PVC Sheet: ASTM D 4434, Type II, Grade I, Fiberglass reinforced and fabric backed.with 9 oz felt.

1. Manufacturers:
   a. Sika Sarnafil, Inc. (Basis of Design)
   b. Or GAF PFATI80FB PVC roofing system, 80mil fleece back with 20 year "Everguard Diamond Pledge NDL Roof Guarantee approved equal, subject to compliance with all specification requirements herein set forth.
2. Thickness: 72 mils, nominal.
3. Exposed Face Color:
   a. EnergySmart feltback (white), initial reflectivity of 0.83, initial emissivity 0.92, solar reflective index (SRI) of >104. for low sloped application

B. Physical Properties:

Parameters	ASTM Test Method	Required Physical Properties
Reinforcing Material	-	Fiberglass
Overall Thickness, min., inches (mm)	D638	[0.070 inches)]
Tensile Strength, min., psi (MPa)	D638	1600 (11.1)
Elongation at Break, min. (machine x tranverse)	D638	270% / 250%
Seam strength*, min. (% of tensile strength)	D638	80
Retention of Properties After Heat Aging	D3045	-
Tensile Strength, min., (% of original)	D638	95
Elongation, min., (% of original)	D638	90
Tearing Resistance, min., lbf (N)	D1004	14 (63.0)
Low Temperature Bend, -40º F (-40º C)	D2136	Pass
Accelerated Weathering Test (Xenon Arc)	D2565	10,000 Hours
Cracking (7x magnification)	-	None
Discoloration (by observation)	-	Negligible
Crazing (7 x magnification)	-	None
Linear Dimensional Change	D1204	0.02%
Weight Change After Immersion in Water	D570	2.5%
Static Puncture Resistance, 33 lbf (15 kg)	D5602	Pass
Dynamic Puncture Resistance, 7.3 ft-lbf (10 J)	D5635	Pass

*Failure occurs through membrane rupture not seam failure.

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
   1. Liquid-type auxiliary materials shall comply with VOC limits of authorities

having jurisdiction.

2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
   a. Plastic Foam Adhesives: 50 g/L.
   b. Gypsum Board and Panel Adhesives: 50 g/L.
   c. Multipurpose Construction Adhesives: 70 g/L.
   d. Fiberglass Adhesives: 80 g/L.
   e. Contact Adhesive: 80 g/L.
   f. Other Adhesives: 250 g/L.
   g. Adhesive Primer for Plastic: 650 g/L
   h. Single-Ply Roof Membrane Sealants: 450 g/L.
   i. Nonmembrane Roof Sealants: 300 g/L.
   j. Sealant Primers for Nonporous Substrates: 250 g/L.
   k. Sealant Primers for Porous Substrates: 775 g/L.

B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC sheet membrane.

C. Membrane Bonding Adhesive: Manufacturer's standard, VOC-compliant water based.

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

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

F. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

G. Clad Metal: A PVC-coated, heat-weldable sheet metal capable of being formed into a variety of shapes and profiles. Clad is a 25 gauge, G90 galvanized metal sheet with a 20 mil (1 mm) unsupported membrane laminated on one side.

2.3 SUBSTRATE BOARDS

A. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/4 inch thick. Dens Deck by Georgia Pacific. No.substitutions.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening substrate board to roof deck.

2.4 ROOF INSULATION

A. A rigid isocyanurate foam insulation with black mat facers. Provide rigid insulation to achieve R-30 value.

B. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.5 INSULATION ACCESSORIES

A. Fasteners: Factory-coated steel fasteners and metal plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

B. Insulation Adhesive: Insulation manufacturer's recommended low rise foam, cold-applied adhesive formulated to attach roof insulation to substrate or to another insulation layer.

2.6 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick, and acceptable to membrane roofing system manufacturer.

PART 3 - EXECUTION

3.1 INSULATION AND SUBSTRATE BOARD INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Install tapered insulation under area of roofing to conform to slopes indicated.

D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.

E. Mechanically Fastened Insulation and Substrate Board: Install each layer of insulation and secure first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
   1. Fasten first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof.

F. Install substrate board over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction. Loosely butt cover boards together and fasten to roof deck.
   1. Fasten substrate boards through the insulation and into the deck according to FM and manufacturer’s requirements to resist uplift pressure at corners, perimeter, and field of roof.

3.2 ADHERED MEMBRANE ROOFING INSTALLATION

A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.
   1. Install sheet according to ASTM D 5036.

B. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

C. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.

D. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing as required by membrane manufacturer.

E. Apply membrane roofing with side laps shingled with slope of roof deck where possible.

F. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.
   1. Test lap edges with probe to verify seam weld continuity.
   2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
   3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

G. Install perimeter bar at 4’ and 8’ spacing with cover strip throughout building perimeter only to satisfy 90 mph wind speed warranty requirement.

3.3 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.4 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.5 CLAD METAL BASE FLASHINGS/EDGE METAL

A. All flashings shall be installed concurrently with the roof membrane as the job progresses. No temporary flashings shall be allowed without the prior written approval of the Owner's Representative and the manufacturer. Acceptance shall only be for specific locations on specific dates. If any water is allowed to enter under the newly completed roofing due to incomplete flashings, the affected area shall be removed and replaced at the Applicator's expense. Clad metal flashings shall be formed and installed per the Detail Drawings.

1. All metal flashings shall be fastened into solid wood nailers with two rows of post galvanized flat head annular ring nails, 4 inches (100 mm) on center staggered. Fasteners shall penetrate the nailer a minimum of 1 inch (25 mm).

2. Metal shall be installed to provide adequate resistance to bending and allow for normal thermal expansion and contraction.

B. Adjacent sheets of Clad shall be spaced ¼ inch (6 mm) apart. The joint shall be covered with 2 inch (50 mm) wide aluminum tape. A 4 inch minimum (100 mm) wide strip of flashing membrane shall be hot-air welded over the joint.

3.6 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

3.7 TEMPORARY CUT OFF

A. All flashings shall be installed concurrently with the roof membrane in order to maintain a watertight condition as the work progresses. All temporary waterstops shall be constructed to provide a 100% watertight seal. The stagger of the insulation joints shall be made even by installing partial panels of insulation. The new membrane shall be carried into the waterstop. The waterstop shall be sealed to the deck and/or substrate so that water will not be allowed to travel under the new or existing roofing. The edge of the membrane shall be sealed in a continuous heavy application of sealant. When work resumes, the contaminated membrane shall be cut out. All sealant, contaminated membrane, insulation fillers, etc. shall be removed from the work area and properly disposed of off site. None of these materials shall be used in the new work.

B. If inclement weather occurs while a temporary waterstop is in place, the Applicator shall provide the labor necessary to monitor the situation to maintain a watertight condition.

C. If any water is allowed to enter under the newly-completed roofing, the affected area shall be removed and replaced at the Applicator's expense.

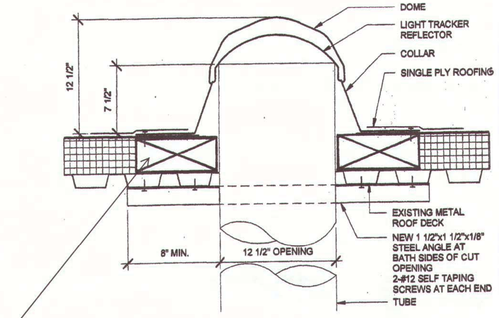
3.8 ROOFING DETAILS

See seperate sheet attached after this specification section.

END OF SECTION

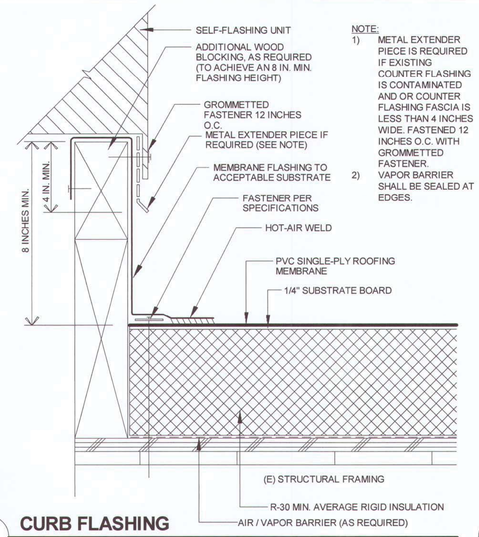
SECUREMENT FASTENED AT BASE OF WALL OR CURB

ALTERNATE BASE FASTENING



CONTINUOUS CURB ALL AROUND USE TAPERED SHIMS AS REQUIRED TO LEVEL CURB. ANCHOR CURB TO METAL DECKING USING 1/4" DIA. SELF DRILLING SCREWS AT 6" O.C. CURB MATERIAL IS TO BE FIRE RESISTANT. SEE ADDENDUM 1 FOR ROOFING DETAILS.

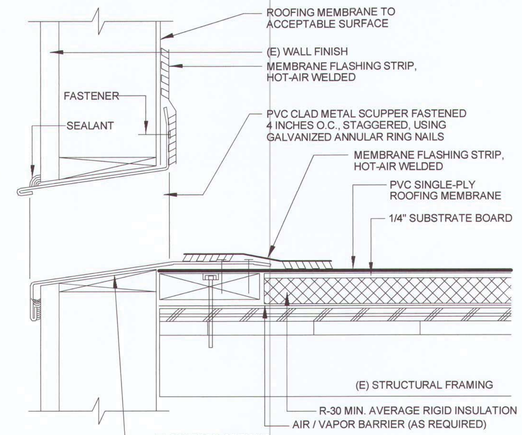
12 SOLAR TUBE ANCHORING DETAIL



NOTE:
1) METAL EXTENDER PIECE IS REQUIRED IF EXISTING COUNTER FLASHING IS CONTAMINATED AND OR COUNTER FLASHING FASCIA IS LESS THAN 4 INCHES WIDE. FASTENED 12 INCHES O.C. WITH GROMMETTED FASTENER.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

9 CURB FLASHING

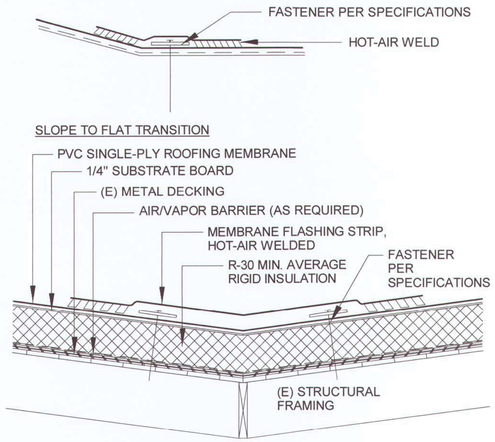
3" = 1'-0"



NOTES:
1) NAILERS SHALL BE SECURELY ANCHORED TO THE DECK TO RESIST A FORCE OF 300 POUNDS PER LINEAL FOOT IN ANY DIRECTION.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

6 SCUPPER

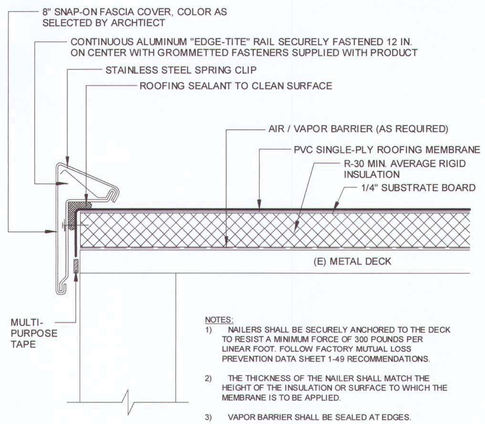
3" = 1'-0"



NOTES:
1) WOOD NAILER TO MATCH HEIGHT OF INSULATION MAY BE REQUIRED AT VALLEY IF INSULATION THICKNESS EXCEEDS 2 INCHES.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

3 VALLEY DETAIL

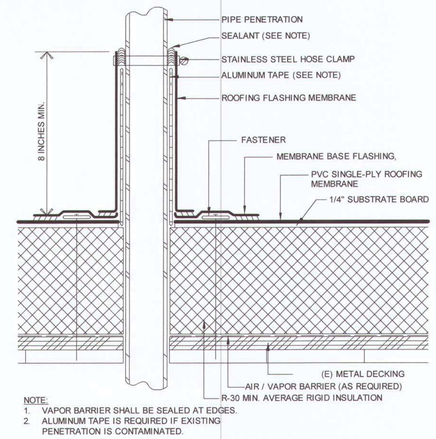
1" = 1'-0"



NOTES:
1) NAILERS SHALL BE SECURELY ANCHORED TO THE DECK TO RESIST A MINIMUM FORCE OF 300 POUNDS PER LINEAR FOOT. FOLLOW FACTORY MUTUAL LOSS PREVENTION DATA SHEET 1-49 RECOMMENDATIONS.
2) THE THICKNESS OF THE NAILER SHALL MATCH THE HEIGHT OF THE INSULATION OR SURFACE TO WHICH THE MEMBRANE IS TO BE APPLIED.
3) VAPOR BARRIER SHALL BE SEALED AT EDGES.

8 ROOF FASCIA

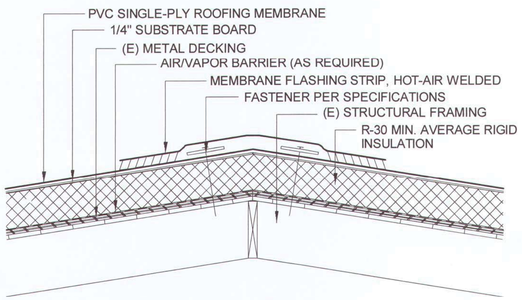
1" = 1'-0"



NOTE:
1. VAPOR BARRIER SHALL BE SEALED AT EDGES.
2. ALUMINUM TAPE IS REQUIRED IF EXISTING PENETRATION IS CONTAMINATED.

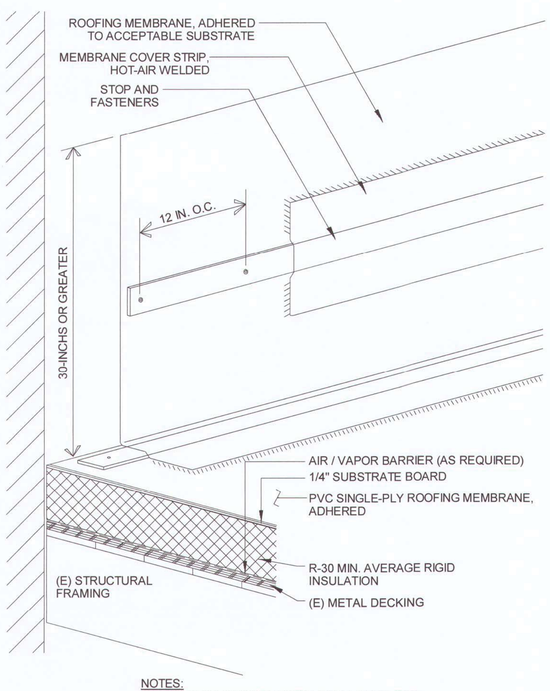
5 PIPE PENETRATION FLASHING

3" = 1'-0"



2 RIDGE DETAIL

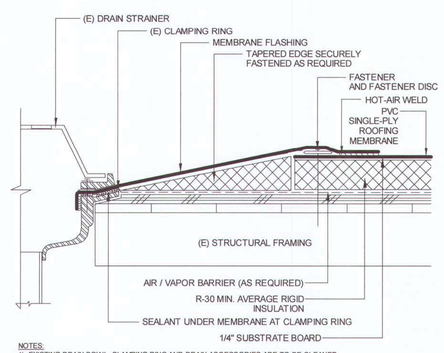
1" = 1'-0"



NOTES:
1) CONSULT ROOFING TECHNICAL DEPT. FOR ACCEPTABLE DETAIL WHEN FLASHING HEIGHT EXCEEDS 5 FEET.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

10 ROOFING AT PARAPET WALL

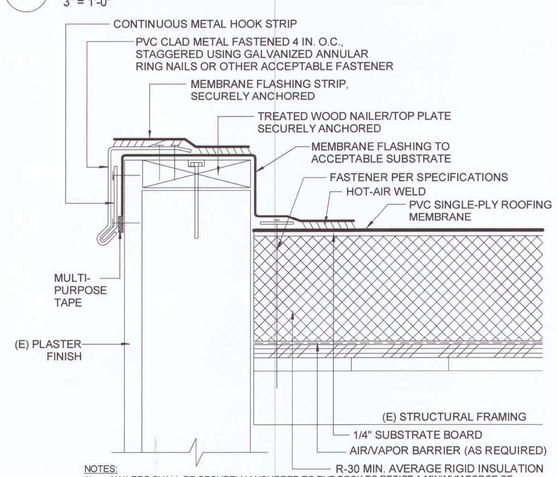
1 1/2" = 1'-0"



NOTES:
1) EXISTING DRAIN BOWL, CLAMPING RING AND DRAIN ACCESSORIES ARE TO BE CLEANED FREE OF ALL CONTAMINATES.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

7 ROOF DRAIN

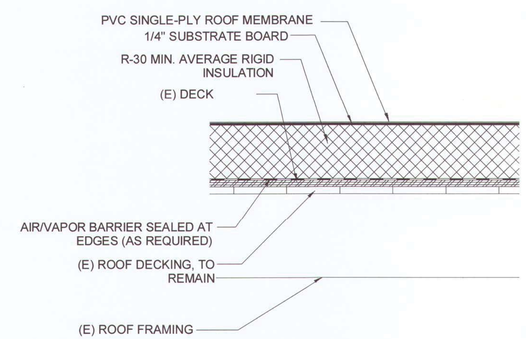
1" = 1'-0"



NOTES:
1) NAILERS SHALL BE SECURELY ANCHORED TO THE DECK TO RESIST A MINIMUM FORCE OF 300 POUNDS PER LINEAR FOOT. REFER TO FACTORY MUTUAL DATA SHEET 1-49.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

4 PARAPET FLASHING

3" = 1'-0"



1 ROOFING ASSMBLY

1 1/2" = 1'-0"

ROOFING DETAILS

CITY OF COMMERCE

SECTION 07542 POLYVINYL-CHLORIDE PVC ROOFNG

SECTION 07600

FLASHING AND SHEET METAL

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Sheet metal flashings in connection with roofing.

2. Reglet and counter flashing assemblies.

3. Miscellaneous metal flashing and counter flashing as required, except where provided under Divisions 22, Plumbing, 23, HVAC, or 26, Electrical.

4. Coping caps.

7. Conductor heads.

8. Drip flashings.

9. Roof pipe flashings.

10. Other sheet metal items, not necessarily specified herein or in other sections, but required to prevent penetration of water into building.

B. Related Requirements:

1. Division 01 - General Requirements.

2. Section 07542 - Polyvinyl-Chloride Roofing

3. Section 07920 - Joint Sealants.

4. Division 15 - Mechanical

5. Division 16 - Electrical.

1.02 SUBMITTALS

A. Shop Drawings: Submit for fabricated sheet metal indicating shapes, details, methods of joining, anchoring and fastening, thicknesses and gages of metals, concealed reinforcement, expansion joint details, sections, and profiles.

B. Samples: Submit Samples for materials or assemblies as requested.

C. Product Data: Submit brochures of manufactured items.

1.03 QUALITY ASSURANCE

A. Drawings and requirements specified govern. Provide the Work of this section in conformance with the Architectural Sheet Metal Manual published by SMACNA for conditions not indicated or specified and for general fabrication of sheet metal items.

B. Materials shall conform to following standards:

1. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.

2. ASTM A653 - Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

3. ASTM B370 - Copper Sheet and Strip for Building Construction.

C. Pre-installation Meetings: Refer to Division 07 roofing sections as appropriate. Attend the pre-installation and inspection meetings for roofing Work.

1.04 DELIVERY, STORAGE AND HANDLING

A. Do not install bent or otherwise damaged materials.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Galvanized Sheet Steel: ASTM A653, coating designation G90, hot-dip galvanized.

B. Stainless Steel: Plate, sheet and strip shall conform to ASTM A167, Type 304 or Type 316, No. 4 finish on exposed surfaces and No. 2 finish on concealed surfaces unless otherwise specified or indicated. Furnish Type 304 for general applications and Type 316 where exposed to acidic or alkaline conditions.

C. Fastenings:

1. Galvanized Steel: Nails, rivets, and other fastenings furnished in connection with galvanized sheet steel Work shall be sealed with rust resistive coating. Rivets shall be tinned. Nails and other fastenings shall be zinc-coated.

2. Stainless Steel: Nails, rivets and other fastenings furnished in connection with stainless steel Work, shall be 300 series alloy to match alloy of stainless steel being fastened.

D. Soldering Flux: Raw muriatic acid for galvanized steel; rosin for tin, lead and tinned copper; non-corrosive soldering salts for uncoated copper and acid-type flux formulated for soldering stainless steel.

E. Solder: ASTM B32, Grade 5A, composed of 95-5 tin-antimony. Name of product manufacturer and grade designation shall be labeled, stamped or cast onto each coil or bar.

2.02 FABRICATION

A. General:

1. Accurately form sheet metal Work to dimensions and shapes indicated and required. Cope finish molded and brake metal shapes with true, straight, sharp lines and angles and, where intersecting each other, to a precise fit. Unless otherwise specified, all galvanized sheet steel shall be 22 gage. Exposed edges of sheet metal shall have a ½ inch minimum hemmed edge.

2. Soldering of sheet steel or copper shall be performed with well-heated copper soldering iron or soldering torch, joints full flowing, neat and consistent. Fill joint completely with solder. Clean materials at joints before soldering, and tin coppers before soldering. Exposed soldering on finished surfaces shall be scraped smooth. Lock seam work shall be fabricated flat and true to line and soldered along its entire length. Acid-fluxed Work shall be neutralized after fabrication.

3. Form and install sheet metal Work to provide proper allowances for expansion and contraction, without causing undue stresses in any part of completed Work. Installation shall be water and weathertight.

B. Conductor Heads:

1. Fabricate conductor heads and outlets from 22 gage galvanized sheet steel. Cover tops of the conductor heads with 22 gage galvanized ¼ inch wire mesh soldered securely to separately fabricated frame and mechanically fastened to top conductor head with a minimum of two fasteners.

C. Overflow Outlets: Provide galvanized sheet steel overflow outlets at locations and of sizes indicated. Outlets shall extend through full thickness of wall in one continuous piece and completely line the opening. On outside face of wall, top and sides of outlet shall finish 1/2 inch on surface of wall. Bottom of outlet shall project 1 ½ inches beyond face of wall, and shall be bent down slightly. Outlets shall be sealed on the surface of the building. On inside face, side and bottom flanges shall extend not less than 8 inches beyond edge of opening, and not less than 6 inches at top. Outlets shall be installed at time roof is being installed.

D. Reglet Type Counterflashing: Where roof comes in contact with vertical surfaces, provide counterflashing. Set top of counter flashing 8 inches above roof deck unless otherwise indicated, and extend down at least 5 inches or to top of cant strip. Counterflashing and reglet shall be 22 gage galvanized sheet steel. Lap counter flashing and reglet 3 inches minimum at splices and miter at angles, or supply special metal corner fittings. Reglet and method of securing flashing shall be so constructed that flashing is firmly locked in place, but may be readily removed for replacement.

E. Miscellaneous Flashing: Unless otherwise indicated, miscellaneous flashing shall be fabricated of galvanized steel. Exterior doors and windows, unless covered by overhangs shall be provided with 22 gage galvanized steel drip flashing as detailed. At wood construction, nail flashing to framing before paper backed lath is installed.

F. Roof Pipe Flashings: Provide PVC flashings.

PART 3 – EXECUTION

3.01 PREPARATION

A. Concrete and masonry materials in contact with sheet metal shall be painted with alkali resistant coating, such as heavy-bodied bituminous paint. Wood in contact with sheet metal shall be painted with two coats of aluminum paint or one coat of heavy-bodied bituminous paint.

3.02 INSTALLATION

A. General: Coordinate with installation of underlayment indicated in the Drawings and specified in project documents.

B. Conductor Heads:

1. Anchor conductor heads to walls with 1/4 inch diameter by 2 ½-inch long galvanized lag screws or 1/4 inch expansion type anchors.

C. Reglets: Install reglets at constant height above cant or as indicated. Provide minimum 3-inch lap at end splices of reglets. Seal laps watertight.

D. Counterflashing:

1. Install at constant horizontal elevation across roof slope and slope at constant height above cant or as indicated.

2. Provide minimum 3-inch lap at all end splices of counterflashing.

E. Galvanized sheet steel parapet coping and flashing shall be continuous over top of parapet to form a watertight cap, with waterproof seams at approximately 10 feet on center, or as indicated. Anchor coping to outside of wall with a continuous cleat face nailed at 16 inch centers. Coping shall be fastened on inside wall with hex head screws and bonded sealing washers through oversized holes in the back of the coping. Corners and angles shall be lapped and soldered; do not install joint sealant.

3.03 TESTING

A. Perform field water testing to demonstrate installation is watertight. Continue testing with a continuous hose stream applied at base of installation for at least 30 minutes. If leaking is observed, discontinue test and repair installation, then test until satisfactory results are obtained.

3.04 PROTECTION

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

3.05 CLEANING

A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 07900
JOINT SEALERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Preparing sealant substrate surfaces.
   2. Sealant and backing.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

C. Related Sections:
   1. Section 01025 – Indoor Air Quality Management: VOC limits
   2. Section 02753 - Plain Cement Concrete Pavement: Sealants used in conjunction with paving.
   3. Section 03300 - Cast-In-Place Concrete: Sealants used in conjunction with concrete.
   4. Section 07840 - Firestopping: Firestopping sealant at fire-rated assemblies.
   5. Section 07620 - Flashing and Sheet Metal: Sealants used in conjunction with metal flashings.
   6. Section 08800 - Glazing: Sealants used in conjunction with glazing methods.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM C717 - Standard Terminology of Building Seals and Sealants.
   2. ASTM C834 - Specification for Latex Sealants.
   3. ASTM C920 - Specification for Elastomeric Joint Sealants.
   4. ASTM D1056 - Flexible Cellular Material- Sponge or Expanded Rubber.

B. Federal Specifications (FS):
   1. FS SS-S-200 - Sealing Compounds, Two Component, Elastomeric, Polymer Type, Jet-Fuel Resistant, Cold Applied.
   2. FS TT-S-1657 - Sealing Compound, Single Component Butyl Rubber Based Solvent Release Type (for Buildings and other Types of Construction).

1.3 SUBMITTALS

A. 01340 – Shop Drawings, Product Data, Samples Procedures for submittals.

1. Product Data: Product chemical characteristics, performance criteria, substrate preparation, limitations, and color availability. Include MSDS showing VOC content limits established in Section 01025.

B. Section 01700 – Contract Closeout: Procedures for closeout submittals.
   1. Warranty: Submit manufacturer warranty with forms completed in Owner name and registered with manufacturer.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing Work of this Section with minimum 5 years documented experience.

1.5 DELIVERY, STORAGE AND HANDLING

A. Section 01600 – Materials and Equipment: Transport, handle, store, and protect products.

B. Deliver Products in manufacturer's original unopened containers or packages with labels intact, identifying product and manufacturer, date of manufacture, lot number, shelf life, curing time, and mixing instructions, where applicable.

C. Store and handle materials to prevent deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.6 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements: Install sealant during manufacturer's recommended temperature ranges and weather conditions for application and cure. Consult manufacturer when sealant cannot be applied during recommended conditions.

1.7 WARRANTY

A. Section 01700 – Contract Closeout: Procedures for closeout submittals.

B. Warranty:
   1. Submit written warranty signed by sealant manufacturer agreeing to replace sealants and accessories which fail because of loss of cohesion or adhesion or which do not cure.
   2. Warranty Period: 5 years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated into the work include the following:
   1. Bostik, Inc, Huntingdon Valley, PA, (800) 523-2678, (125) 674-5600.
   2. Dow Corning, Midland, MI (517) 496-4000.
   3. GE Silicones, Waterford, NY (518) 233-3330.
   4. Mameco International, Cleveland, OH, (800) 321-6412, (216) 752-4400.
   5. W.R. Meadows, Inc, Elgin, IL (800) 342-5976, (847) 683-4500.
   6. Nomaco, Inc., Zebulon, NC, (919) 269-6500.
   7. Pecora Corporation, Harleysville, PA, (800) 523-6688, (215) 723-6051.
   8. Sika Corporation, Lyndhurst, NJ, (800) 933-7452, (201) 933-8800.
   9. Sonneborn Building Products Div. ChemRex, Inc., Shakopee, MN (800) 243-6739, (612) 496-6000.
   10. Tremco, Beachwood, OH, (800) 852-3821, (216) 292-5000.
   11. USG Corp., Chicago, IL (800) 874-4968, (312) 606-4000.

2.2 BUILDING SEALANTS (See Sealant Schedule at the end of this Section for specific use of sealants.)

A. Urethanes:
   1. Type 2: Two-Part Urethane: Non-Sag, ASTM C920, Type M, Grade NS, Class 25.
      a. Chem-Calk 500, by Bostik.
      b. Vulkem 227, by Mameco.
      c. Dynatrol II, by Pecora Corporation.
      d. Sikaflex-2c NS/SL, by Sika Corporation.
      e. Sonolastic NP 2, by Sonneborn Building Products, ChemRex Inc.
   2. Type 3: One-Part Urethane: Self-Leveling, ASTM C920, Type S, Grade P, Class 25.
      a. Vulkem 45, by Mameco.
      b. Urexpan NR-201, by Pecora Corporation.
      c. Sonolastic SL1, by Sonneborn Building Products, ChemRex Inc.
      d. Sikaflex 1C-SL by Sika.
   3. Type 4: One-Part Urethane: Non-Sag, ASTM C920, Type S, Grade NS, Class 25.
      a. Chem-Calk 900, by Bostik.
      b. Vulkem 116, by Mameco.
      c. Sonolastic NP I, by Sonneborn Building Products, ChemRex Inc.
      d. Sikaflex 1A by Sika.

B. Silicones:

1. Type 1: One-Part Silicones: ASTM C920, Type S, Grade NS, Class 25. Vertical Surfaces Only.
   a. 795 Silicone Structural Glazing, Glazing, and Weatherproofing Sealant, by Dow Corning.
   b. 864 Architectural Silicone, by Pecora Corporation.
2. Type 2: One-Part Silicones: ASTM C920, Type S, Grade NS, Class 25. Vertical Surfaces Only.
   a. 795 Silicone Structural Glazing, Glazing, and Weatherproofing Sealant, by Dow Corning. (colors only)
   b. 999-A, Dow Corning.
   c. Construction 1200 Sealant, General Electric Company.
3. Type 3: One-Part Silicones: ASTM C920, Type S, Grade NS, Class 25. Vertical Surfaces Only.
   a. 795 Silicone Structural Glazing, Glazing, and Weatherproofing Sealant, by Dow Corning. (colors only)
   b. Construction 1200 Sealant, General Electric Company.
   c. 999-A, Dow Corning.
   d. 864 Architectural Silicone, by Pecora Corporation. (colors only)

C. Acoustical Sealants:
   1. Type 1: AC-20 FTR Acoustical and Insulation Sealant, by Pecora Corporation.

D. Butyls:
   1. Type 1: One-Part Butyl, Non-Sag, FS TT-S-1657.
      a. Chem-Calk 300, by Bostik.
      b. BC-158 Butyl Rubber, by Pecora Corporation. (ASTM C1085)

E. Preformed Compressible & Non-Compressible Fillers:
   1. Type 1: Backer Rod - Closed cell polyethylene foam:
      a. HBR Backer Rod, by Nomaco.
      b. #92 Greenrod, by Nomaco.
      c. Sonofoam Closed-Cell Backer Rod, Sonneborn Building Products, ChemRex Inc.
   2. Type 2: Backer Rod - Open cell polyurethane foam:
      a. Denver Foam, by Backer Rod Mfg Inc.
      b. Foam Pack II, by Nomaco.
   3. Type 3: Neoprene compression seals:
      a. WE, WF, and WG Series, by Watson Bowman & Acme Corp.
      b. Will-Seal 150 Precompressed Expanding Foam Sealants, by Will-Seal, a Division of Illbruck.
   4. Type 4: Butyl Rod: Kirkhill Rubber Co. (714)529-4901.

F. Bond Breaker Tape: Polyethylene tape of plastic as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to substrate of joint filler must be avoided for proper performance of sealant

2.3 PAVING SEALANTS

A. Type 1: Two-Part Urethane: Self-Leveling, ASTM C920, Type M, Grade P, Class 25.
   1. Vulkem 202, by Mameco. (Jet Fuel Resistant) (FS SS-S-200D, Type H only)
   2. NR-300 Urexpan, by Pecora Corporation. (FS SS-S-200E)

B. Type 2: One-Part Urethane: Self-Leveling, ASTM C920, Type S, Grade P, Class 25.
   1. Sonomeric 1 Sealant, by Sonneborn Building Products, ChemRex Inc. (FS SS-S-200E)
   2. Vulkem 45, by Mameco.

2.4 COLORS

A. Generally use sealant colors matching color of material joint is located in.

B. Where a joint occurs between two materials of differing colors and Contractor cannot determine which material to match, contact Project Manager for selection.

2.5 ACCESSORIES

A. Joint Cleaner: Provide type of joint cleaning compound recommended by sealant manufacturer for joint surfaces to be cleaned.

B. Primer: As recommended by sealant manufacturer.

C. Masking tape and similar accessories to protect surfaces from damage.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01050 – Field Engineering: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
   1. Verify that joint widths are in conformance with sealant manufacturer allowable limits.
   2. Verify that contaminants capable of interfering with adhesion have been cleaned form joint and joint properly prepared.

C. Report in writing to Project Manager prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 PREPARATION

A. Prepare and size joints in accordance with manufacturer's instructions. Clean substrates of dirt, laitance, dust, or mortar using solvent, abrasion, or sandblasting as recommended by manufacturer. Remove loose materials and foreign matter which might impair adhesion of sealant.

B. Verify that joint backing and release tapes are compatible with sealant. Verify sealant is suitable for substrate. Verify that sealant is paintable if painted finish is indicated.

C. Protect materials surrounding work of this Section from damage or disfiguration.

3.3 INSTALLATION

A. Install sealant in accordance with manufacturer's published instructions.

B. Prime or seal joint surfaces where recommended by sealant manufacturer. Do not allow primer or sealer to spill or migrate onto adjoining surfaces.

C. Install backer rod and bond breaker tape where required by manufacturer.

D. Install preformed compressible and non-compressible fillers in accordance with manufacturer's published instructions.

E. Install sealants to depths recommended by sealant manufacturer in uniform, continuous ribbons free of air pockets, foreign embedded matter, ridges, and sags, "wetting" joint bond surfaces equally on both sides.

F. Tool joints concave unless shown otherwise. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form slight cove so that joint will not trap moisture and foreign matter. Dry tool joints. Do not use soap, water, or solvent to tool joints.

G. Epoxy Floor Joint Sealant: Install sealant at floor construction and control joints in accordance with manufacturer's published instructions and initially under manufacturer's supervision.

3.4 CURING

A. Cure sealants in compliance with manufacturer's published instructions.

3.5 CLEANING

A. Remove excess and spillage of sealants promptly as the work progresses, using materials and methods as recommended by sealant and substrate manufacturers. Clean adjoining surfaces to eliminate evidence of spillage without damage to adjoining surfaces or finishes.

3.6 SEALANT SCHEDULE

A. Exterior Joints:
   1. Perimeters of exterior openings where frames and other penetrations meet exterior facade of building: precast concrete, brick, CMU, polymer reinforced concrete.
      a. Sealant Urethane Type 2
      b. Sealant Silicone Type 1 (for prefinished materials only)
   2. Expansion and control joints in exterior surfaces of unit masonry walls.
      a. Sealant Urethane Type 2
   3. Coping joints, coping-to-facade joints, cornice and wash, or horizontal surface joints not subject to foot or vehicular traffic.
      a. Sealant Urethane Type 2
      b. Sealant Urethane Type 4
      c. Sealant Silicone Type 1 (for prefinished materials only)
   4. Exterior joints in horizontal wearing and non-wearing surfaces.
      a. Sealant No. Urethane Type 1
      b. Sealant No. Urethane Type 3
      c. Preformed Compressible & Non-Compressible Filler Type 1
   5. Paving joints and curbs.
      a. Sealant Urethane Type 4
      b. Paving Sealant Type 2
   6. Setting bed for threshold and saddles.
      a. Sealant Acoustical Type 1
   7. Painted metal lap or flashing joints.
      a. Sealant Silicone Type 1

B. Interior Joints:
   1. Seal interior perimeters of exterior openings.
   2. Expansion and control joints on interior of exterior masonry walls.
   3. Perimeters of interior hollow metal and aluminum frames.
   4. Interior masonry vertical control joints and intersecting masonry walls; CMU-to-CMU, CMU-to-concrete.

5. Joints at intersection of exterior masonry walls and interior gypsum board partitions.
6. For all of the above interior joints:
   a. Sealant Urethane Type 2
   b. Sealant Urethane Type 4
   c. Sealant Silicone Type 1 (for prefinished materials only)
7. Perimeter of plumbing fixtures: sinks
   a. Sealant Silicone Type 4

C. Glazing:
1. Structural Glazing.
   a. Sealant Silicone Type 2
   b. Sealant Silicone Type 3
2. General Purpose Glazing.
   a. Sealant Silicone Type 3
3. End Damming.
   a. Sealant Butyl Type 1

END OF SECTION

SECTION 08100
METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Steel doors and frames.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

C. Related Sections:
   1. Section 08710 - Door Hardware: Hardware coordination.
   2. Section 09900 - Painting: Field painting and finishing of doors and frames.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A 152 - Methods for Fire Tests of Door Assemblies.
   2. ASTM A 653/A 653M - Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 1996.
   3. ASTM E 152 - Methods of Fire Tests of Door Assemblies.

B. Door Hardware Institute (DHI):
   1. DHI - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
   2. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware.

C. Steel Door Institute (SDI):
   1. SDI-100 - Recommended Specifications Standard Steel Doors and Frames.
   2. SDI-105 - Recommended Erection Instructions for Steel Frames.

D. National Fire Protection Association (NFPA):
   1. NFPA 80 - Fire Doors and Windows.

1.3 SUBMITTALS

A. 01340 – Shop Drawings, Product Data, Samples: Procedures for submittals.
   1. Product Data: Indicate door materials, gauges, configurations, and location of cut-outs hardware reinforcement, and finish.
      a. Shop Drawings: Indicate door elevations, internal reinforcement, closure method, and cut-outs for louvers.

1.4 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer: Company specializing in manufacturing Products specified in this Section with minimum 5 years documented experience.
   2. Installer: Company specializing in performing work of this Section with minimum 5 years documented experience.

B. Regulatory Requirements:
   1. Fire Rated Door Construction:
      a. Conform to ASTM E 152, labeled and listed by Underwriters Laboratories (UL).
      b. Rate of rise of 450 degrees F across door thickness maximum in 30 minutes of fire exposure.

C. Installed Door Assembly: Conform to NFPA 80 for fire rated minute label as indicated on Drawings.

1.5 DELIVERY, STORAGE AND PROTECTION

A. Section 01600 – Materials and Equipment: Transport, handle, store, and protect products.

B. Protect doors and frames with resilient packaging.

C. Break seal on-site to permit ventilation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with project requirements, manufacturers offering items which may be incorporated in the Work include the following:
   1. Amweld Building Products, Incorporated, Garrettsville, OH (330) 527-4385, (800) 248-6116.
   2. Ceco Door Products, Brentwood, TN (615) 661-5030.

3. Curries Company, Mason City, IA (515) 423-1334.
4. Republic Builders Products, McKenzie, TN (800) 733-3667.
5. Steelcraft, Cincinnati, OH (513) 745-6400.

B. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.

2.2 MATERIALS

A. Exterior Doors: SDI-100, Level II - Heavy-Duty - 1-3/4 inch, Model 1 - Full Flush Design, 18 gage cold-rolled steel; galvanized in accordance with ASTM A 653.

B. Interior Doors: SDI-100, Level II - Heavy-Duty - 1-3/4 inch, Model 1 - Full Flush Design, 18 gage cold-rolled steel.

C. Exterior Frames: 16 gage, cold-rolled steel, mitered and welded; galvanized in accordance with ASTM A 653.

D. Interior Frames: 16 gage, cold-rolled steel, mitered and welded, 2 inch profile, for installation in a metal or wood stud security partition.

2.3 CORE CONSTRUCTION

A. Provide one of the following core construction;
1. Interior Doors: Kraft Honeycomb, Phenolic treated.
2. Exterior Doors:
   a. Polyurethane: Core foamed-in-place or laminated. 20 psi strength, 1.8 pcf density; 1/2 inch maximum voids in any direction. Strength of bond between core and steel face sheet shall exceed strength of core so delamination will not occur during operating conditions.
   b. Polystyrene: Rigid core of polystyrene foam board, 1500 psf compressive strength, 18 psi shear strength. Strength of bond between core and steel face sheet shall exceed strength of core so that delamination will not occur under operating conditions.
   c. Vertical Steel Stiffeners: 22 gage vertical steel stiffeners, spaced 6 inches apart and spot welded to face sheets at 6 inches on center. Insulate spaces between stiffeners with loose fill insulation full height of door.

2.4 ACCESSORIES

A. Rubber Silencers: Resilient rubber.

B. Top Filler Cap on exterior doors: Install cap, weld, grind, fill and finish smooth.

2.5 PROTECTIVE COATINGS

A. Bituminous Coating: Fibered asphalt emulsion.

B. Primer: Exposed surfaces shall be cleaned, treated with Bonderite chemical and given one baked-on shop coat of grey rust inhibiting primer.

2.6 FABRICATION

A. Fabricate units rigid, neat, and free from warp or buckle. Fabricate KD or welded as specified. Weld exposed joints continuously; grind, dress, and make smooth, flush and invisible.

B. Reinforce units to receive surface applied finish hardware.

C. Prepare frame for silencers. Provide three single rubber silencers for single doors and two single silencers on frame head at double doors without mullions.

D. Primer: Air dried.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01050 – Field Engineering: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

C. Report in writing to Project Manager prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 INSTALLATION

A. Install frames in accordance with SDI-105.

B. Install doors in accordance with DHI.

C. Install doors in accordance with manufacturer's published instructions, of size, and at locations indicated.

D. Coordinate with adjacent wall construction for anchor placement.

E. Field paint doors and frames as specified in Section 09900.

F. The frame is to be mounted to the studding in such a manner to prevent a spreading of the frame from the studs of less than 1/2 inch.

3.3 CONSTRUCTION

A. Interface with Other Work:
   1. Coordinate frame installation with size, location, and installation.
   2. Coordinate with door opening construction, door frame, and door hardware installation.

B. Site Tolerances:
   1. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.4 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control: Field inspection.

B. Inspect metal door and frame installation, alignment, attachment to structure, and operation.

3.5 ADJUSTING AND CLEANING

A. Adjust hardware for smooth and balanced door movement.

B. Section 01700 – Contract Closeout: Cleaning installed Work.

END OF SECTION

SECTION 08410
ALUMINUM WINDOWS ENTRANCES AND SOLATUBE STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Aluminum entrance doors.
   2. Aluminum storefronts
   3. Vision glass.
   4. Solatube.

B. Related Documents: The Contract Documents, as defined in Section 01010-Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

C. Related Sections:
   1. Section 08710 - Door Hardware: Hardware for same, and coordination.
   2. Section 08800 - Glazing: Requirements for glazing.

1.2 REFERENCES

A. Aluminum Association (AA):
   1. AA-M12 C22 A41.

B. American Architectural Manufacturers Association (AAMA):
   1. AAMA 605.2.
   2. AAMA 701.2.
   3. AAMA - Curtain Wall Manual #10

C. American Society for Testing and Materials (ASTM):
   1. ASTM B209.
   2. ASTM B221.
   3. ASTM A36/A36M.
   4. ASTM A386.

1.3 SYSTEM DESCRIPTION

A. Aluminum entrances and storefront system includes tubular aluminum sections, shop fabricated, factory finished, glass and infill, related flashings, anchorage and attachment devices. System is to be glazed from the interior or exterior.

B. Aluminum sliding doors shall be of anodized aluminum complete in its frame track with security locking system and double glazed.

C. Complete Solatube package with roof accessory and decorate lens.

1.4 SUBMITTALS

A. Section 01340 – Shop Drawings, Product Data, Samples: Procedures for submittals.
   1. Product Data:
      a. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.
   2. Shop Drawings:
      a. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work and expansion and contraction joint location and details.
   3. Samples:
      a. Aluminum Extrusions: Submit one sample 12 inches (300 mm) long in size illustrating finished aluminum surface.
      b. Glazing: Submit one sample 12 x 12 inches (300 x 300 mm) in size illustrating finished aluminum glass units, and glazing materials.
   4. Assurance/Control Submittals:
      a. Certificates: Manufacturer's certificate that Products meet or exceed specified requirements.
      b. Qualification Documentation: Submit documentation of experience indicating compliance with specified qualification requirements.

B. Section 01770 – Contract Closeout: Procedures for closeout submittals.
   1. Special Warranty: Submit written special warranty with forms completed in Owner name and registered with manufacturer as specified in this Section.

1.5 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer: Company specializing in manufacturing Products specified with minimum 5 years documented experience.
   2. Installer: Company specializing in performing the Work of this Section with minimum 5 years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01600 – Materials and Equipment: Transport, handle, store, and protect Products.

B. Handle Products of this section in accordance with AAMA - Curtain Wall Manual #10.

C. Protect finished aluminum surfaces with strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

1.7 PROJECT CONDITIONS OR SITE CONDITIONS

A. Jobsite Requirements:
   1. Install sealants and glazing only when temperature is 40 degrees F. or greater.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Energy Efficiency:
   1. Exterior framing system: Provide frame with thermal break for exterior framing systems; provide weather-stripping for doors in exterior frame.

1.9 WARRANTY

A. Section 01700 – Contract Closeout: Procedures for closeout submittals.

B. Special Warranty:
   1. The manufacturer/installer shall warrant the product and installation to be free from defective material and workmanship for a period of two years after date of substantial completion, and shall replace or repair any defective component or system, in whole or part, as necessary to restore the product to its original intended state and integrity.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with project requirements, manufacturers offering Products which may be incorporated in the Work include the following:
   1. Kawneer Company, Incorporated, Atlanta, GA
   2. Other acceptable manufacturers offering equivalent products.
      a. Amarlite Architectural Aluminum and Glass Co
      b. EFCO Corporation; Monett, MO
      c. Tubelite, Inc., Reed City, MI
      d. U.S. Aluminum Corporation, Waxahachie, TX
      e. Kawneer; Norcrosss, GA
   3. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.

2.2 MATERIALS

A. Extruded Aluminum: ASTM B221.

B. Sheet Aluminum: ASTM B209.

C. Steel Sections: ASTM A36/A36M; shaped to suit mullion sections.

D. Fasteners: Stainless steel.

2.3 COMPONENTS

A. Framing System: Trifab 451T, by Kawneer, 2 x 4-1/2 inch (50mm x 113mm) nominal dimension, minimum wall thickness of 0.080 inches, extruded aluminum flush glazed framing system with thermal break.

B. Receptor Channel: Model No. 450-038 and 65-025, by Kawneer Company, Inc. Finish to match that of storefront system.

2.4 ENTRANCE DOORS

A. Doors: Series 350 swing door, medium stile, by Kawneer Company, Inc. Door sizes indicated on Drawings.
   1. Vertical Stile: 3-1/2 inch (88mm), single piece.
   2. Top Rail: 3-1/2 inch (88mm), single piece.
   3. Bottom Rail: 10 inch (250mm), single piece.
   4. Glazing: 1/4 inch (6mm) thick units per Section 08800, with standard bevel glass stops.

2.5 SOLATUBE:

A. Manufacturer: Solatube International 888-765-2885.

B. Brighten Up Series model 290 DS.

C. Tube size 16”.

D. Complete with Roof accessory, tube and ceiling diffuser.

2.6 GLASS AND GLAZING MATERIALS

A. Glazing Materials: As specified in Section 08800.

2.7 SEALANT MATERIALS

A. Sealant and Backing Materials:
   1. Perimeter Sealant: Type as specified in Section 07900.
   2. Sealant Used Within System (Not Used for Glazing): Type as specified in Section 07900.

2.8 HARDWARE

A. Verification of hardware components specified in Section 08710.

B. Closers: See Section 08710.

C. Hinges: Door manufacturer's standard three pairs of butt hinges with non-removable pins. Finish: #14 Clear Anodized.

D. Locking Devices: See Section 08710.

E. Pulls: Type CO-9 pull, by Kawneer Company, Inc. Finish: #14 Clear Anodized.

2.9 FINISHES

A. Exposed Aluminum Surfaces: Architectural Class I anodic coating, AA-M12 C22 A41, #14 Clear, unless otherwise indicated on Drawings.

B. Maintain same color range on doors, frames and other components. Do not mix light and dark shades.

C. Concealed Steel Items: Galvanized in accordance with ASTM A386 to 2.0 oz/sq. ft.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01050 – Field Engineering: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

C. Report in writing to Project Manager prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 INSTALLATION

A. Install wall system and fixed windows in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Install glass in accordance with Section 08800.

F. Install perimeter sealant, backing materials, and installation criteria in accordance with Section 07900.

3.3 ADJUSTING

A. Section 01600 – Materials and Equipment: Adjusting installed work.

B. Adjust operating hardware and sash for smooth operation.

3.4 CLEANING

A. Section 01700 – Contract Closeout: Cleaning installed work.

B. Remove protective material from pre-finished aluminum surfaces.

C. Wash down exposed surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

D. Remove excess sealant by method acceptable to sealant manufacturer.

END OF SECTION

SECTION 08710
FINISH HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Door hardware.

B. Related Sections:

1. Section 08410 – Aluminum, Entrances and Storefronts

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.

1. Cabinets, including open wall shelving and locks.
2. Signs, except where scheduled.

1.2 REFERENCES:

Use date of standard in effect as of Bid date.

A. American National Standards Institute – ANSI 156.18 – Materials and Finishes.

B. BHMA – Builders Hardware Manufacturers Association

C. DHI – Door and Hardware Institute

D. UL – Underwriters Laboratories

1. UL10C – Positive Pressure Fire Tests of Door Assemblies.
2. UL 305 – Panic Hardware

E. WHI – Warnock Hersey Incorporated State of California Building Code

F. Local applicable codes

G. SDI – Steel Door Institute

1.3 SUBMITTALS & SUBSTITUTIONS

A. SUBMITTALS: Submit six copies of schedule per Section 01340. Only submittals printed one sided will be accepted and reviewed. Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Minimum 10pt font size. Include following information:

1. Type, style, function, size, quantity and finish of hardware items.
2. Use BHMA Finish codes per ANSI A156.18.
3. Name, part number and manufacturer of each item.
4. Fastenings and other pertinent information.

5. Location of hardware set coordinated with floor plans and door schedule.
6. Explanation of abbreviations, symbols, and codes contained in schedule.
7. Mounting locations for hardware.
8. Door and frame sizes, materials and degrees of swing.
9. List of manufacturers used and their nearest representative with address and phone number.
10. Catalog cuts.
11. Point-to-point wiring Diagrams.
12. Manufacturer's technical data and installation instructions for electronic hardware.

B. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.

C. Deviations: Highlight, encircle or otherwise identify deviations from "Schedule of Finish Hardware" on submittal with notations clearly designating those portions as deviating from this section.

D. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, not the discrepancy in the submittal and request direction from The Project Manager for resolution.

E. Substitutions per Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.

F. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, riser and point-to-point wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4 QUALITY ASSURANCE:

A. Qualifications:

1. Hardware supplier: direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course of work for project hardware consultation to Owner, Architect and Contractor.

   a) Responsible for detailing, scheduling and ordering of finish hardware. Detailing implies that the submitted schedule of hardware is correct and complete for the intended function and performance of the openings.

B. Hardware: Free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions.

1.5 DELIVERY, STORAGE AND HANDLING:

A. Delivery: coordinate delivery to appropriate locations (shop or field).

1. Permanent keys and cores: secured delivery direct to Owner's representative.

B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. Storage: Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

1.6 PROJECT CONDITIONS AND COORDINATION:

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical the same operation and quality as type specified, subject to The Project Manager's approval.

B. Coordination: Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents. Furnish related trades with the following information:

1. Location of embedded and attached items to concrete.

2. Location of wall-mounted hardware, including wall stops.

3. Location of finish floor materials and floor-mounted hardware.

4. Locations for conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.

5. Manufacturer templates to door and frame fabricators.

C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

D. Environmental considerations: segregate unused recyclable paper and paper product packaging, uninstalled metals, and plastics, and have these sent to a recycling center.

1.7 WARRANTY:

A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' written warranties:

1.	Locksets:	Three years
2.	Extra Heavy Duty Cylindrical Lock:	Seven Years
3.	Exit Devices:	Three years mechanical
4.	Closers:	Ten years mechanical
5.	Hinges:	One year
6.	Other Hardware	Two years

1.8 COMMISSIONING:

A. Conduct these tests prior to request for certificate of substantial completion:

1. With installer present, test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.
2. With installer, access control contractor and electrical contractor present, test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.
3. With installer and electrical contractor present, test hardware interfaced with fire/life-safety system for proper operation and release.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Manufacturers and their abbreviations used in this schedule:

IVE	H. B. Ives
GLY	Glynn-Johnson Hardware
LCN	LCN Closers
DHS	Door & Hardware Systems, Inc.
VON	Von Duprin
SBH	Specialized Builders Hardware
RIC	Richards-Wilcox
COR-RUS	Corbin Russwin

2.2 HINGING METHODS:

A. Drawings typically depict doors at 90 degrees; doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise the Project Manager if 8-inch width is insufficient.

B. Conform to manufacturer's published hinge selection standard for door dimensions, weight and frequency, and to hinge selection as scheduled. Where manufacturer's standard exceeds the scheduled product, furnish the heavier of the two choices; notify The Project Manager of deviation from scheduled hardware.

C. Conventional Hinges: Steel or stainless steel pins and concealed bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.

1. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins and security studs.

2. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.

2.3 LOCKSETS, LATCHSETS, DEADBOLTS:

A. Mortise Locksets and Latchsets: as scheduled.

1. Chassis: cold-rolled steel, handing field-changeable without disassembly.

2. Latchbolts: 3/4 inch throw stainless steel anti-friction type.

3. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.

a) Spindles: security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.

4. Furnish solid cylinder collars with wave springs. Wall of collar to cover rim of mortise cylinder.
5. Thumbturns: accessible design not requiring pinching or twisting motions to operate.
6. Deadbolts: stainless steel 1-inch throw.
7. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
8. Scheduled Lock Series and Design: Corbin-Russwin CL3300 series.
9. Certifications:
   a) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
   b) ANSI/ASTM F476-84 Grade 31 UL Listed.

2.4 CLOSERS

A. Surface Closers:

1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.
2. ISO 2000 certified. Units stamped with date-of-manufacture code.
3. Independent lab-tested 10,000,000 cycles.
4. Non-sized and adjustable. Place closers inside building, stairs and rooms.
5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.
6. Advanced Variable Backcheck (AVB): where scheduled, these units commence backcheck at approximately 45 degrees.
7. Adjustable to open with not more than 5.0lbs pressure to open at exterior doors and 5.0lbs at interior doors. As allowed per California Building Code, Section 1133B.2.5, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15lbs.
8. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
9. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units. EDA arms: rigid main and forearm, reinforced elbow.

10. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
11. Exterior doors: seasonal adjustments not required for temperatures form 120 degrees F to -30 degrees F, furnish checking fluid data on request.
12. Non-flaming fluid, will not fuel door or floor covering fires.
13. Pressure Relief Valves (PRV) not permitted.

2.5 OTHER HARDWARE

A. Automatic Flush Bolts: Low operating force design.

B. Overhead Stops: Non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.

C. Seals: Four-fingered type at head & jambs. Inelastic, rigid back, not subject to stretching. Self-compensating for warp, thermal bow, and out-of-plumb. Adhesive warranted for life of installation.

1. Proposed substitutions: submit for approval.
2. Three-fingered type at hinge jambs of doors fitted with continuous hinges where jamb leaf of hinge is fastened to the frame reveal.

D. Thresholds: As scheduled and per details. Comply with CBC Section 1133B.2.4.1. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.

1. Saddle thresholds: 0.125"min thickness.
2. Exteriors: Seal perimeter to exclude water and vermin. Use sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Non-ferrous 1/4inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).
3. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.
4. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.

E. Through-bolts: Do not use. Coordinate with wood doors; ensure provision of proper blocking to support wood screws for mounting panic hardware and door closers. Coordinate with metal doors and frames; ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.

F. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Leave no unfilled/uncovered pre-punched silencer holes. Intent: door bears against silencers, seals make minimal contact with minimal compression – only enough to effect a seal.

2.6 FINISH:

A. Generally BHMA 612 Satin Bronze clear coated.

1. Areas using BHMA 612 to have push-plates, pulls and protection plates of BHMA 630, satin stainless steel, unless otherwise noted.

B. Door closers: factory powder coated to match other hardware, unless otherwise noted.

2.7 KEYING REQUIREMENTS:

A. Key System: existing (Corbin-Russwin 7 pin I/C Core system. Initiate and conduct meeting(s) with Owner to determine system structure, furnish Owner's written approval of the system. Furnish temporary construction- keyed and permanent cylinders. Contractor to demonstrate to the Owner that temporary keys no longer operate the locking cylinders at the end of the project. Permanent keys and cores: use secured shipment direct from point of origination to Owner.

B. Keys

1. Factory registered master key system.

2. Construction keying: furnish temporary keyed-alike cores. Remove at substantial completion and install permanent cylinders/cores in Owner's presence. Demonstrate that construction key no longer operates.

3. Furnish 10 construction keys.

4. Furnish 2 construction control keys.

C. Key Cylinders: furnish utility patented, 7-pin solid brass construction.

D. Cylinder cores: furnish keyed at factory of lock manufacturer where permanent records are maintained. Locks and cylinders same manufacturer.

E. Permanent keys: use secured shipment direct from point of origination to Owner.

1. For estimate: 3 keys per change combination, 5 master keys per group, 5 grand-master keys, 3 control keys.

2. For estimate: VKC stamping plus "DO NOT DUPLICATE".

3. Bitting List: use secured shipment direct from point of origination to Owner upon completion.

PART 3 - EXECUTION

3.1 ACCEPTABLE INSTALLERS:

A. Can read and understand manufacturers' templates, suppliers' hardware schedule and printed installation instructions. Can readily distinguish drywall screws from manufacturers furnished fasteners. Available to meet with manufacturers' representatives and related trades to discuss installation of hardware.

3.2 PREPARATION:

A. Ensure that walls and frames are square and plumb before hardware installation. Make corrections before commencing hardware installation. Installation denotes acceptance of wall/frame condition.

B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.

1. Notify The Project Manager of code conflicts before ordering material.

2. Locate levers, key cylinders, t-turn pieces, touchbars and other operable portions of latching hardware between 30 inches to 44 inches above the finished floor, per CBC Section 1133B.2.5.1.

3. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.

C. Overhead stops: before installing, determine proposed locations of furniture items, fixtures, and other items to be protected by the overhead stop's action.

3.3 INSTALLATION

A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by The Project Manager.

1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.

2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.

3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with The Project Manager.

4. Replace fasteners damaged by power-driven tools.

B. Locate floor stops no more that 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact The Project Manager for direction.

C. Core concrete for exterior door stop anchors. Set anchors in approved non-shrink grout.

D. Locate overhead stops for minimum 90 degrees and maximum allowable degree of swing.

E. Drill pilot holes for fasteners in wood doors and/or frames.

F. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

3.4. ADJUSTING

A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.

1. Hardware damaged by improper installation or adjustment methods: repair or replace to Owner's satisfaction.

2. Adjust doors to fully latch with no more than 1 pound of pressure.

3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.

4. Adjust door closers per 1.9 this section.

B. Final inspection: Installer to provide letter to Owner that upon completion installer has visited the Project and has accomplished the following:

1. Re-adjusted hardware.

2. Evaluated maintenance procedures and recommend changes or additions, and instructed Owner's personnel.

3. Identified items that have deteriorated or failed.

4. Submitted written report identifying problems

3.6 PROTECTION/CLEANING:

A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.

B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

CITY OF COMMERCE
LIBRARY TECHNICAL SERVICE T.I. PROJECT
DOOR HARDWARE SCHEDULE

HW SET 01 **DOOR OPENING 2**

QTY	DESCRIPTION	CATELOG NUMBER	FINISH	MFR
2	PULLS	M21741028	626	CRL
3	HW HINGE	5BB1 4.5"X4.5"	626	IVES
1	CLOSER W/ DROP PLATE	PR80A	689	CRL
1	DOOR BOTTOM	335N-36"	USDKB	NGP
1	THRESHOLD	411DKB-36" MS/LA	USDKB	NGP
1	WEATHERSTRIPPING	160SDKB-36"X84"	USDKB	NGP
1	WALL DOOR STOP	WS406/407 CCV	US27	IVES

HW SET 02 **DOOR OPENING 4**

QTY	DESCRIPTION	CATELOG NUMBER	FINISH	MFR
3	HW HINGE	5BB1 4.5"X4.5"	612	IVES
1	LOCKSET	CL3351 W/IC 7-PIN CORE	612	IVES
1	KICK PLATE	8400 - 10"X34"	US10	IVES
1	CLOSER W/ HOLD OPEN	4040XP-H	691	LCN
1	DOOR BOTTOM	335N-36"	USDKB	NGP
1	THRESHOLD	411DKB-36" MS/LA	USDKB	NGP
1	WEATHERSTRIPPING	160SDKB-36"X84"	USDKB	NGP
1	WALL DOOR STOP	WS406/407 CCV	US10	IVES

HW SET 03 **DOOR OPENING 1**

QTY	DESCRIPTION	CATELOG NUMBER	FINISH	MFR
3	HW HINGE	5BB1 4.5"X4.5"	612	IVES
1	LOCKSET	CL3357 W/IC 7-PIN CORE	612	IVES
1	KICK PLATE	8400 - 10"X34"	US10	IVES
1	CLOSER	4040XP	691	LCN
1	DOOR BOTTOM	320N-36"	USDKB	NGP
1	THRESHOLD	425HDDKB	USDKB	NGP
1	WEATHERSTRIPPING	160SDKB-36"X84"	USDKB	NGP
1	WALL DOOR STOP	WS406/407 CCV	US10	IVES

HW SET 04 **DOOR OPENING 3**

QTY	DESCRIPTION	CATELOG NUMBER	FINISH	MFR
3	HW HINGE	EXISTING	612	IVES
1	LOCKSET	EXISTING	612	IVES
1	KICK PLATE	EXISTING	US10	IVES
1	CLOSER	EXISTING	691	LCN
1	WEATHERSTRIPPING	EXISTNG	USDKB	NGP
1	WALL DOOR STOP	WS406/407 CCV	US10	IVES

SECTION 08800
GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Clear tempered glass.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

C. Related Sections:
   1. Section 08410 - Entrances and Storefronts: Glazed doors and storefronts.

1.2 REFERENCES

A. American National Standards Institute (ANSI):
   1. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.

B. American Society for Testing and Materials (ASTM):
   1. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
   2. ASTM C1036 - Standard Specification for Flat Glass.
   3. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
   4. ASTM D2000 - Standard Classification System for Rubber Products in Automotive Applications.
   5. ASTM F1233 - Standard Test Method for Security Glazing Materials and Systems.

C. Consumer Product Safety Standards for Architectural Glazing. CPSC 16 CFR, Part 1201.

D. Flat Glass Marketing Association (FGMA):
   1. FGMA - Glazing Manual and Glazing Sealing Systems Manual.

1.3 SUBMITTALS

A. Section 01340 – Shop Drawings, Product Data, Samples: Procedures for submittals.
   1. Product Data:
      a. Glass: Structural, physical and environmental characteristics, size limitations, special handling or installation requirements.

b. Glazing compound: Provide chemical, functional, and environmental characteristics, limitations, special application requirements.

2. Samples:
   a. Glazing: Submit one sample 12 x 12 inches (300 x 300 mm) in size of each type of glazing, illustrating tinting, and finish of glazing materials. Label each sample indicating kind, quality and manufacturer.
3. Assurance/Control Submittals:
   a. Certificates: Manufacturer's certificate that Products meet or exceed specified requirements.
   b. Qualification Documentation: Submit documentation of experience indicating compliance with specified qualification requirements.

B. Section 01700 – Contract Closeout: Procedures for closeout submittals.
   1. Submit written special warranty with forms completed in Owner name and registered with manufacturer as specified in this section.

1.4 QUALITY ASSURANCE

A. Identification: Each unit of tempered glass and burglar resistant glazing shall be permanently identified by the manufacturer. The identification shall be etched or ceramic fired on the glass and be visible when the unit is glazed.

B. Perform Work in accordance with FGMA Glazing Manual.

C. Installer Qualifications: Company specializing in performing the Work of this Section with minimum 5 years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Section 01600 - Materials and Equipment: Transport, handle, store, and protect Products.

1.6 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements:
   1. Do not install glazing when ambient temperature is less than 40 degrees F.
   2. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.7 WARRANTY

A. Section 01780 - Closeout Submittals: Procedures for closeout submittals.

B. Special Warranty: Include coverage for cracking, breakage, and replacement of same. Warranty Period: 1 year.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with project requirements, manufacturers offering Products which may be incorporated in the Work include the following:
   1. Pilkington Libbey-Owens-Ford, Toledo, OH (800)221-0444.
   2. PPG Industries, Pittsburgh, PA (412) 434-2858 (800) 377-5267.
   3. Viracon, Owatonna, MN (800) 533-2080.

B. Section 01600 – Materials and Equipment: Product options and substitutions. Substitutions: Permitted.

2.2 GLASS MATERIALS

A. Glass Type 3 - Clear Tempered Glass: ASTM C 1048, Kind FT (Fully Tempered), Condition A (Uncoated), Type I (Transparent Glass, Flat), Class 1 (Clear), Quality q3 (Glazing Select). Conform to ANSI Z97.1 and CPSC 16CFR Part 1201.
   1. Thickness: 1/4 inch (6 mm), unless indicated otherwise.
   2. Location: All interior glazing, unless noted otherwise.

2.3 GLAZING COMPOUNDS

A. Polysulphide Sealant: Two component, chemical curing, non-sagging type; cured Shore A hardness of 15-25.

B. Silicone Sealant: Single component, chemical curing; capable of water immersion without loss of properties; non-bleeding, non-staining; cured Shore A hardness of 15-25.
   1. Color: Clear.

C. Acrylic terpolymer compounded especially for glazing; non-hardening, non-staining, and non-bleeding.

2.4 GLAZING ACCESSORIES

A. Setting Blocks: Resilient blocks of 70 to 90 Shore A durometer hardness; compatible with glazing sealant.

B. Spacers: Resilient blocks of 40 to 50 Shore A durometer hardness; self adhesive on one side; compatible with glazing sealant.

C. Filler Rods: Closed cell or jacketed foam rods of polyethylene, butyl, neoprene, polyurethane, or vinyl; compatible with glazing sealant.

D. Joint Cleaners, Primers, and Sealers: As recommended by glazing sealant manufacturer.

E. Gaskets: ASTM D2000, SBC 415 to 3BC 620; extruded or molded neoprene or EPDM, black.

F. Mastic: Non-solvent type adhesive as recommended by mirrored glass manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01050 – Field Engineering: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
   1. Verify that openings for glazing are correctly sized and within tolerance.
   2. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

C. Report in writing to Project Manager prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant.

3.3 GLAZING

A. Locate setting blocks at quarter points of sill; set in sealant if heel or toe bead is required.

B. Install spacers inside and out except where preshimmed tape or glazing gaskets are to be used.

C. Set each piece in a series to other pieces in pattern draw, bow, or other visually perceptible characteristics.

D. Provide glazing sealants and gaskets as required for particular glazing application. Coordinate with other Sections for material compatibility.

E. Gaskets:
   1. Provide adequate anchorage, particularly for driven-in wedge gaskets.
   2. Miter and weld ends of channel gaskets at corners to provide continuous gaskets.
   3. Seal face gaskets at corners with sealant to close opening and prevent withdrawal of gaskets from corners.

F. Do not leave voids in glazing channels except as specifically indicated or recommended by glass manufacturer. Force sealant into channel to eliminate voids. Tool exposed surfaces to slight wash away from joint. Trim and clean promptly.

G. Do not allow sealant to close weeps of aluminum framing.

H. Provide filler rod where sealants are used in the following locations:
   1. Head and jamb channels.
   2. Colored glass over 75 united inches in size.
   3. Clear glass over 125 united inches in size.

3.4 CONSTRUCTION

A. Interface with Other Work: Coordinate glazing with installation of entrances and storefronts specified in Section 08410.

3.5 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control: Field testing and inspection.

B. Inspect preparation and installation of glass.

3.6 CLEANING

A. Section 01700 – Contract Closeout: Cleaning installed work.

B. Remove glazing materials from finish surfaces.

C. Remove labels after Work is complete.

D. Clean glass and adjacent surfaces.

3.7 PROTECTION

A. Section 01600 – Materials and Equipment: Protecting installed work.

B. After installation, mark pane with an 'X' by using removable plastic tape or paste. Do not mark reflective glass units.

END OF SECTION

SECTION 09110
NON-LOAD BEARING WALL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Interior non load-bearing steel stud framing and furring 20 gage and lighter.
   2. Metal furring.
   3. Wood blocking.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A 653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
   2. ASTM C 645 - Specification for Non-Structural Steel Framing Members.
   3. ASTM C 754 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
   4. ASTM C 954 - Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 inches to 0.112 inches in thickness.

B. United States Department of Commerce Product Standard (PS):
   1. PS 20 - American Softwood Lumber Standard.

C. Southern Pine Inspection Bureau (SPIB):
   1. Grading Rules.

D. Western Wood Products Association (WWPA):
   1. Western Lumber Grading Rules.

1.3 SUBMITTALS

A. Section 01340 – Shop Drawings, Product Data, Samples: Procedures for submittals.
   1. Product Data:
      a. Framing Members: Standard materials and finish, product criteria, sizes and lengths, load charts, and limitations.

b. Fasteners and Anchorage Devices: Standard materials and finish, sizes, and load charts.

2. Shop Drawings:
   a. Indicate prefabricated work, component details, framing layout, framed openings, anchorage to structure, type and location of fasteners, and accessories or items required of other related work.
   b. Indicate methods of securing studs and framing to tracks, splicing, suspension, and for blocking and reinforcement to framing connections.

1.4 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer: Company specializing in manufacturing Products specified with minimum 5 years documented experience.
   2. Installer: Company specializing in performing the Work of this Section with minimum 5 years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Section 01600 – Materials and Equipment: Transport, handle, store, and protect Products.

B. Protect metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.

C. Store and protect metal framing with weatherproof covering, and ventilate to avoid condensation.

D. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Manufacturers: Subject to compliance with project requirements, alternate manufacturers offering specified items which may be incorporated in the Work include the following:
   a. Dale/Incor, Dearborn, MI (800) 882-7883.
   b. National Gypsum Company, Gold Bond Building Products, Charlotte, NC. (800) 628-4662.
   c. Clark Steel Framing Systems, Middletown, OH (800) 543-7140.

B. Section 01600 – Materials and Equipment: Product options and substitutions. Substitutions: Permitted.

2.2 MATERIALS

A. Interior Nonload-Bearing Partition Framing: ASTM A 653 and ASTM C 645; galvanized sheet steel, channel shaped, punched for utility access, depth as indicated on Drawings, gages as indicated below unless indicated on Drawings.
   1. 3-5/8 Inch Studs - Unbraced Length 17 Feet or Less: Minimum 22 gage.
   2. 3-5/8 Inch Studs - Unbraced Length 18 Feet or Less: Minimum 20 gage.
   3. 6 Inch Studs - Unbraced Length 25 Feet or Less: Minimum 22 gage.
   4. 6 Inch Studs - Unbraced Length Greater Than 25 Feet: Minimum 20 gage.
   5. Limiting heights are for 5/8 inch thick gypsum board panels on each side of partition and 5 pounds per square foot uniform load perpendicular to partition.

B. Partition Floor Tracks and Runners: ASTM A 653 and ASTM C 645; galvanized sheet steel, channel shaped, same depth and gage as studs, tight fit; solid web.

C. Wall Furring and Partition Bracing: ASTM A 653 and ASTM C 645; galvanized sheet steel.
   1. Studs: 2-1/2 inch deep, 22 gage.
   2. Studs: 3-5/8 inch deep, 20 gage.
   3. Hat-Shaped Channels: 7/8 inch deep x 1-1/2 inch wide, 25 gage.
   4. Cold-Rolled Channels: 3/4 x 1/2 inch and 1-1/2 x 17/32 inch, 16 gage.
   5. Z Furring Channel: 1-1/2 inch deep, 25 gage.
   6. Clip Angles: 2 inches x 2 inches x 16 gage x 1/4 inch less than stud width.

D. Partition Framing Fasteners: Corrosion-resistant self-drilling self-tapping steel screws.
   1. 22 Gage Framing: ASTM C 1002; 3/8 inch Type S pan head.
   2. 20 Gage and Heavier Framing: ASTM C 954; 5/8 inch Type S-12 low-profile head.

E. Partition Floor Track Anchorage Device: Low velocity powder-actuated drive pins; minimum 0.140 inch shank diameter x 1-1/2 inch shank length with 7/8 inch diameter washer.
   1. DX 451 System using X-DNI Pins with R23 washers, by Hilti, Tulsa, OK. (800) 879-8000.
   2. Ramset/Red Head System using 4700SD Pins, by ITW Ramset/Redhead, Wood Dale, IL (708) 350-1858.
   3. Section 01600 - Materials and Equipment: Product options and substitutions. Substitutions: Permitted.

F. Wall Furring to Concrete or Masonry Wall Fasteners: Hex head sleeve anchors; minimum 1/4 inch diameter x minimum 1-1/8 inch embedment.
   1. Slv Anch HX 5/16X2-1/2, by Hilti, Tulsa, OK (800) 879-8000.

2. Dynabolt HN-1413, by ITW Ramset/Redhead, Wood Dale, IL (708) 350-1558.
3. Section 01600 - Materials and Equipment: Product options and substitutions. Substitutions: Permitted.

G. Furring Channel to Masonry or Concrete Surface Fasteners: Low velocity powder-actuated drive pins of size to suit application.

H. Flat Straps and Plates: ASTM A 653; galvanized sheet steel, gage, shape, and configuration as indicated on Drawings.

I. Wood Blocking Attached to Partition Framing:
1. PS 20; S4S. Maximum of 19 percent moisture content, surfaced dry, No. 2 any species graded under WWPA grading rules or No. 3 Grade Southern Pine graded under SPIB grading rules.
2. Full sized, sound lumber without splits, warps, wane, or loose knots.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01050 – Field Engineering: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
1. Verify that building framing components are ready to receive Work.
2. Verify that rough-in utilities are in-place and located where required.

C. Report in writing to Project Manager prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 INSTALLATION

A. Install studs and fasteners in accordance with manufacturer's published instructions and ASTM C 754.

B. Metal Stud Spacing: 16 inches on center, maximum.

C. Align stud web openings horizontally.

D. Splice studs with minimum 8 inch nested lap, fasten each stud flange with minimum two screws.

E. Construct corners using minimum three studs.

F. Double stud at wall openings and door jambs, maximum 2 inches from each side of openings.

G. Place studs as indicated on Drawings, minimum 2 inches from abutting walls.

H. Install framing between studs for attachment of mechanical and electrical items.

I. Install intermediate studs above and below openings to match wall stud spacing.

J. Fasten studs adjacent to door frames, partition intersections, and corners to top and bottom runner flanges in double-stud fashion with metal lock fastener tools.
   1. Securely fasten studs to jamb and head anchor clips of door and borrowed-light frames.
   2. Place horizontally a cut-to-length section of runner with web-flange bend at each end, fasten with minimum one screw per flange.
   3. Position a cut-to-length stud (extending to top runner) at vertical panel joints over door frame header.

K. Blocking: Screw attach wood blocking between studs for support of surface mounted items.
   1. Plumbing fixtures.
   2. Toilet partitions.
   3. Wall cabinets.
   4. Toilet accessories
   5. Hardware.
   6. Architectural woodwork.
   7. Grab bars.
   8. Handrails and railings.
   9. Signage.
   10. Other items requiring backing for attachment.

L. Install batt insulation in walls, where indicated on Drawings, as specified in Section 07210.

M. Framing Fastening: Fasten framing in accordance with manufacturer's published instructions and schedule below, unless indicated otherwise on Drawings.

CONNECTION	FASTENER
Floor and Top Track to Concrete	1 - Pin at 32 inches on center.

Partition Stud to Floor Track	1 - Screw each side at each flange.
Plates and Straps to Studs	2 - Screws.
Stud Web to Stud Web	2 - Screws.
Runner to Header	1 - Screw at 16 inches on center, max. 6 inches from each end.

3.3 INSTALLATION - SECURITY MESH

A. Attach security mesh to metal framing, where indicated on Drawings, with modified truss head screws and washers spaced at 12 inches on center.

3.4 INSTALLATION - FURRING

A. Furring Channels:
   1. Attach vertically spaced at maximum 16 inches on center, to masonry and concrete surfaces with hammer set or powder driven fasteners staggered 24 inches on center on opposite flanges.
   2. Nest channels 8 inches at splices and anchor with 2 fasteners in each wing.

B. Wall Furring:
   1. Secure top and bottom runners to structure.
   2. Space metal studs at maximum 16 inches on center.

3.5 CONSTRUCTION

A. Interface with Other Work:
   1. Coordinate erection of studs at openings and with hollow metal door frames.
   2. Coordinate installation of anchors, supports, and blocking for mechanical, electrical, and building accessory items installed within framing.

B. Site Tolerances:
   1. Maximum Variation From True Position: 3 mm in 3 m.
   2. Maximum Variation From Plumb: 3 mm in 3 m.

3.6 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control: Field testing and inspection.

B. Inspect metal framing erection, placement, spacing, fasteners, and connections to building.

END OF SECTION

SECTION 09250
GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Gypsum board and joint treatment.
   2. Gypsum sheathing.
   3. Finishing.

B. Related Documents: The Contract Documents, as defined in Section 01110 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

C. Related Sections:
   1. Section 06100 - Rough Carpentry: Wood framing for attachment of gypsum board.
   2. Section 09110 - Non-Bearing Wall Framing: Metal framing for attachment of gypsum board.
   3. Section 09900 - Painting: Field paint finish on gypsum board.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM C36 - Specification for Gypsum Wallboard.
   2. ASTM C79 - Test Method for Gypsum Sheathing Board.
   3. ASTM C557 - Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
   4. ASTM C630 - Specification for Water-Resistant Gypsum Backing Board
   5. ASTM C954 - Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs From 0.033 inches to 0.112 inches in Thickness.
   6. ASTM C1002 - Specification Steel Drill Screws for the Application of Gypsum Panel Products.
   7. ASTM C1177 - Specification for Glass Mat Gypsum Substrate for Use As Sheathing.
   8. ASTM C1178 - Specifications for Glass Mat Water Resistant Gypsum Backing Panel.
   9. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

10. ASTM E119 - Test Methods for Fire Tests of Building Construction and Materials.

B. Gypsum Association (GA):
1. GA-214 - Recommended Levels of Gypsum Board Finish.
2. GA-216 - Application and Finishing of Gypsum Board.
3. GA-253 - Application of Gypsum Sheathing.
4. GA-600 - Fire Resistance Design Manual.

1.3 SUBMITTALS

A. Section 01340 – Shop Drawings, Product Data, Samples: Procedures for submittals.
   a. Product Data: Data on gypsum board, joint materials, and finish materials.

1.4 QUALITY ASSURANCE

A. Qualifications:
1. Manufacturer: Company specializing in manufacturing Products specified with minimum 5 years documented experience.
2. Installer: Company specializing in performing the Work of this Section with minimum 5 years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Section 01600 – Materials and Equipment: Transport, handle, store, and protect Products.

B. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

C. Stack gypsum board flat to prevent sagging.

1.6 PROJECT CONDITIONS OR SITE CONDITIONS

A. Jobsite Requirements:
1. Establish and maintain environmental conditions for applying and finishing gypsum board in conformance with GA-216.
2. Maintain minimum 50 degrees F for 48 hours before application and finishing of gypsum board. Maintain temperature continuously until dry. Do not exceed 95 degrees F when using temporary heat sources.
3. Ventilate building spaces as required to dry joint treatment materials. Prevent drafts during hot, dry weather to avoid finishing materials from drying too rapidly.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Resource Management:
   1. Recycled Content: Provide gypsum board products with paper backing manufactured from 100 percent post-consumer recycled paper and gypsum core containing minimum 10 percent recycled gypsum.
      a. Soil amendment from recycled scrap gypsum: Coordinate with Section 02920 - Lawns and Grasses to identify requirements for gypsum soil amendment and to prepare scrap gypsum board for use as soil amendment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with project requirements, manufacturers offering Products which may be incorporated in the Work include the following:
   1. Georgia-Pacific Gypsum Products, Atlanta, GA (800) 225-6119.
   2. National Gypsum Company, Gold Bond Building Products, Charlotte, NC (800) 628-4662.
   3. United States Gypsum Company, Chicago, IL (800) 874-4968.
   4. Allied Stud Co., Phoenix, AZ, (800) 877-8823.
   5. Consolidated Fabricators Corp., Paramount, CA, (800) 635-8335
   6. Steeler, Inc., Seattle, WA (800) 275-2279
   7. Western Metal Lath, Inc., Riverside, CA (909) 360-3500

B. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Permitted.

2.2 MATERIALS

A. Standard Gypsum Board: ASTM C 36; 1/2 inch and 5/8 inch thick 48 inch width, maximum permissible length; ends square cut, tapered edges.

B. Type X Gypsum Wallboard (Fire Resistant): ASTM C36; 1/2 inch and 5/8 inch thick, 48 inch width, maximum permissible length; ends square cut, edges tapered, providing at least 1-hour fire-retardant rating for boards 5/8 inch thick or 3/4-hour fire-resistance classification for boards 1/2 inch thick, when tested in accordance with ASTM E119.

C. Gypsum Board Fasteners:
   1. Metal Framing: ASTM C 954 and C 1002, Type S-12 bugle head, corrosion-resistant self-drilling self-tapping steel screws.
      a. One Layer 1/2 Inch: 1 inch.
      b. One Layer 5/8 Inch: 1-1/8 inch.

D. Gypsum Board Accessories:
   1. Corner Beads: 1 1/4 inch by 1 1/4 inch galvanized steel corner bead.
   2. Edge Trim: Galvanized steel casing.
      a. L bead for tight abutment at edges.
      b. J bead at other locations.
   3. Control Joint: No. 093 roll-formed zinc.
   4. Joint Materials:
      a. Reinforcing Tape: Sheetrock Joint Tape. Paper; fiberglass joint tape not permitted.
      b. Joint Compound: Ready-Mixed All-Purpose Joint Compound.
      c. Adhesive: Commercial Adhesive complying with ASTM C 557.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01050 – Field Engineering: Verification of existing conditions before starting work.

B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

C. Report in writing to Project Manager prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

E. Design non-axial load-bearing framing to accommodate 1/2 inch (13 mm) vertical deflection.

3.2 INSTALLATION

A. Install gypsum board in accordance with manufacturer's published instructions, GA-201 and GA-216.

B. Where applicable, install ceiling panels before the installation of wall panels.

C. Erect single layer gypsum board in most economical direction, with attachment to firm bearing surfaces over framing members. Do not align panel joints with edges of openings.

D. Treat cut edges, holes, fastener heads and joints, including those at angle intersections, in water resistant gypsum board and exterior gypsum soffit board with specified joint compound. Treat cut edges, holes, fastener heads and joints in water resistant glass mat embedded backing board with mastic or mortar. Treat prior to tile installation.

E. Place gypsum panels over supporting framing members with panel ends aligning and parallel with framing members.

F. Install fasteners from center of field of panel toward ends and edges. Install fasteners 3/8 inch from ends and edges of panels, and as follows:
   1. Ceiling: 12 inches on center, perimeter and field.
   2. Walls: 16 inches on center, perimeter and field.

3.3 JOINT TREATMENT

A. Reinforce interior and exterior corners at ceiling and wall surfaces. Apply 3 inch wide initial coating of joint compound, pressing tape firmly into joint compound. Wipe off excess joint compound. Apply second coat of joint compound with tools of sufficient width to extend beyond joint center, approximately 4 inches. Draw joint compound down to a smooth even plane.

B. After drying or setting, sand or sponge joints, edges, and corners, eliminating high spots and excessive joint compound to produce smooth finish surface. Prepare surfaces to receive subsequent finishes to height of 6 inches above finish ceiling. Feather coats onto adjoining surfaces resulting in maximum camber of 1/32-inch in 12.

C. Sand after second and third applications of joint compound. Do not to raise nap of paper when sanding.

D. Install control joints full height of partition, consistent with lines of building spaces, with 1/2 inch between boards. Apply sealant at base of joint and control joint accessory piece at face.

E. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

3.4 FINISH

A. Apply gypsum board finish in accordance with manufacturer's published instructions and GA-214 Finish Levels.
   1. Level 1: All joints and interior angles shall have tape embedded in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.
      a. Application: In plenum areas above ceilings, in attics, in mechanical rooms, in areas where the assembly is generally concealed, and other areas not normally open to view. Accessories not required, unless shown or required by rating. Where a fire resistance rating is required for the gypsum board assembly, details of construction shall be in accordance with reports of fire tests of assemblies that have met the fire rating requirement.
   2. Level 4: All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. Prepared surface shall be coated with a drywall primer/sealer prior to the application of finish paint. Refer to specification section 09900.
      a. Application: For use where gloss semi-gloss, enamel, or nontextured flat paints are specified or where severe lighting conditions occur. Generally in all areas except where noted otherwise.

3.5 CONSTRUCTION

A. Interface with Other Work:
   1. Coordinate installation of firestopping Specified in Section 07840 at penetrations through fire-restive rated gypsum board partitions.
   2. Coordinate installation of joint sealers specified in Section 07900 at penetrations of non fire-restive rated partitions.

END OF SECTION

SECTION 096500
RESILIENT FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Resilient tile flooring.
   2. Resilient base.

B. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM F710
   2. ASTM F1066
   3. ASTM 1869-98 ASTM F2170-02
   4. ASTM F2170-02
   5. ASTM F2195

B. Manufacturer’s Guides:
   1. Armstrong Installation Systems Guide F-5061
   2. Forbo MCT Installation Fast Facts v1.0 04/08
   3. Armstrong Maintenance Guide F-8663
   4. Forbo MCT Maintenance Manual 02/08/MDW

C. California Building Code
   1. Resilient Flooring demonstrating a coefficient of friction of at least 0.6 per ASTM D2047 will be accepted as meeting the intent of slip resistance. CBC 1124B.1 / ADA Standards 4.5.1.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Procedures for submittals.
   a. Product Data: Data describing physical and performance characteristics; including sizes, patterns and colors including manufacturer's product sheet.
      1) Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, finish colors, patterns and textures.

2) Samples: Submit selection and verification samples for finishes, colors, and textures.
3) Quality Assurance Submittals: Submit the following:
   i. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
   ii. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria, and physical requirements.
   iii. Manufacturer's Instructions: Manufacturer's installation instructions.
4) Closeout Submittals: Submit the following:
   i. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.
   ii. Warranty: Warranty documents specified herein.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of this Section with minimum 5 years documented experience.
   1. Engage installer certified, as a “manufacturer’s approved mechanic.”
   2. Certificate: When requested, submit certificate indicating qualification.

B. Regulatory Requirements:
   1. Critical Radiant Flux in Accordance with ASTM E 684: More than 0.45 Watts per square centimeter.
   2. Specific Optical Smoke Density in Accordance with ASTM E 662: Less than 450.
   3. Resilient Flooring shall have a coefficient of friction of at least 0.6 per ASTM D 2043 which shall be accepted as meeting the intent of slip resistance CBC Section 1124B.1.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Ordering: Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.
B. Deliver tiles and installation accessories to site in original manufacturer's unopened cartons and containers each bearing names of product and manufacturer, project identification, and shipping and handling instructions.

C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.
   1. Material should be stored in areas that are fully enclosed, weathertight with the permanent HVAC system set at a uniform temperature of at least 68 degrees F (20 degrees C) for 72 hrs. prior to, and during installation.
   2. Store tiles on flat surfaces.

1.6 SEQUENCING AND SCHEDULING

A. Finishing Operations: Install tile flooring after finishing operations, including painting and ceiling operations, have been completed.
B. Concrete Curing: Do not install tile flooring over concrete substrates until substrates have cured and are dry to bond with adhesive as determined by resilient flooring manufacturer's recommended bond, moisture test, and pH test.

1.7 MAINTENANCE

A. Extra Materials:
   1. Provide 1 box of extra floor tiles for each tile type, panel, and color.
   2. Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Tile: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
   1. Manning Commercial, Amtico

B. Wall Base: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
   1. Allstate Rubber Corporation, Ozone Park, NY
   2. Armstrong World Industries, Lancaster, PA
   3. Forbo Flooring Systems, Hazelton, PA
   4. Or equal.

C. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.

MATERIALS

D. Floor Tile: Basis of Design
   1. Manning Commercial, Amtico Spacia Collection Ceramic Sable #SS5S3693
      a. Size: 18 inch x 18 inch
      b. Thickness: 0.125 in (3.2 mm)
      c. Material Color: Per Architectural Drawings Finished Schedule.

E. Wall Base:
   1. Height: 4 inches
   2. Thickness: 1/8 inch.
   3. Coved.
   4. Length: Roll.
   5. Material Color: Color to be coordinate with adjacent resilient floor tile and as approved by the Architect.

2.2 ACCESSORIES

A. Primers and Adhesives: Waterproof; clear; of types as approved by resilient flooring manufacturer for specific material and substrates encountered. Zero VOC.

B. Base Accessories: Premolded end stops and internal, and external corners of same material, size, and color as base.

C. Expansion Joint Covers: Refer to other specification section for expansion joint covers to be used with resilient flooring.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work and are acceptable for product installation in accordance with manufacturer’s instructions.

B. Report in writing to State Representative prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the State.

D. Material Inspection: In accordance with manufacturer's installation requirements, visually inspect materials prior to installation. Material with visual defects shall not be installed and shall not be considered as a legitimate claim.

3.2 PREPARATION

A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

B. Surface Preparation:
   1. General: Prepare floor substrate in accordance with manufacturer's instructions.
   2. Floor Substrate: Prepare floor substrate to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as dust, paint, grease, oils, solvent, curing and hardening compounds, sealers, asphalt and old adhesive residue.
   3. Reference Standard: Comply with ASTM F 710 Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring.

C. Prohibit traffic until filler is cured.

D. Vacuum clean substrate.

3.3 INSTALLATION - TILE FLOORING

A. Install resilient tile flooring in accordance with manufacturer's published instructions referenced above.
   1. Installation environment should be conditioned to a constant temperature and humidity conditions. Site should have permanent windows and doors, fully enclosed, weather tight with permanent HVAC system (not temporary) set at a uniform temperature of at least 68 degrees F (20 degrees C) for 72 hours prior to, during, and 72 hours after installation.

B. Open number of floor tile cartons to provide quantity of flooring material required to cover each area; mix tile pieces to ensure shade variations do not occur within any one area.

C. Spread only enough adhesive to permit installation of floor materials before initial set.

D. Set flooring in place, press with a 150 pound resilient flooring roller to attain full adhesion.

E. Lay flooring from center marks established parallel to building walls.
   1. Allow minimum 1/2 full size tile width at room or area perimeter.
   2. Adjust tile layout as required to avoid use of units less than 1/2 tile.

F. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar. Where flooring continues through door opening, continue established pattern with no interruption.

G. Install edge strips at unprotected or exposed edges where flooring terminates.

H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

I. Extend flooring into toe spaces, door reveals, closets, and similar openings.

J. Do not install resilient flooring over expansion joints. Use expansion joint covers manufactured for use with resilient flooring. Refer to other specifications sections for expansion joint covers.

K. Adhere resilient flooring to flooring substrate without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed flooring installation.
   1. Use adhesive applied to substrate in compliance with flooring manufacturer's recommendations, including those for trowel notching, adhesive mixing, and adhesive open and working times.

L. The specified resilient tiles are factory finished; no finishing is required after installation. Refer to manufacturer's instructions referenced above for detailed recommendations for initial and restorative maintenance.

3.4 INSTALLATION – WALL BASE

A. Install wall base in accordance with manufacturer's published instructions.

B. Fit joints tight and vertical. Maintain minimum measurement of 18 inches between joints.

C. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

D. Install wall base on solid backing. Bond tight to wall and floor surfaces.

E. Apply the base to the cabinet toe kicks. If necessary, use a hot air gun to make the base pliable enough to turn the corners of the toe kick. Minimize or eliminate base seams on the toe kick. If the cabinet butts into a wall, start the base where the wall and cabinet meet and continue around the exposed area of the toe kick.

3.5 SITE ENVIRONMENTAL PROCEDURES

A. Indoor Air Quality: Ventilate products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues. Provide a temperature range of minimum 60 degrees F to

maximum 90 degree F continuously for minimum 72 hours. Do not ventilate within limits of Work unless otherwise approved by State Representative.

3.6 FIELD QUALITY CONTROL

A. Inspect resilient flooring and base installation, pattern, layout, and attachment to substrate.

3.7 CLEANING

A. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.
   1. Remove visible adhesive and other surface blemishes using cleaning methods recommended by tile floor manufacturer.
   2. Sweep and vacuum floor after installation.
   3. Do not wash floor until after time period recommended by tile flooring manufacturer.
   4. Damp mop tile flooring to remove black marks and soil.

3.8 PROTECTION

A. Protection: Protect installed product and finish surfaces from damage during construction. Remove and legally dispose of protective covering at time of Substantial Completion.

3.9 INITIAL MAINTENANCE PROCEDURES FOR LINOLEUM.

A. Drying Room Film: Expose installed linoleum to either natural or artificial light to allow "drying room film" (the yellow film is a natural occurrence of the oxidation of the linseed oil in linoleum products) on installed linoleum flooring to disappear prior to initiating temporary protection procedures.

END OF SECTION

SECTION 09900
PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Surface preparation and field application of paints and finishes for interior and exterior surfaces.
   2. Schedule of Items to be painted.
   3. Exterior painting and finishing schedule.
   4. Interior painting and finishing schedule.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

C. Related Sections:
   1. Section 08100 - Metal Doors and Frames: Shop priming.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Section 01340 – Shop Drawings, Product Data, Samples: Procedures for submittals.
   1. Product Data: Submit product data for each type of paint specified.
      a. Technical data sheets indicating manufacturer's catalog number, and paint type description.
      b. MSDS or product data sheet highlighting VOC content that complies with limits per
      c. Section 01025.
      d. Painting Schedule listing surfaces to be painted with cross reference to the specific painting and finishing system and application. Identify each paint material by manufacturer's catalog number and general classification.
   2. Samples: Submit color brush-out sample for each paint color and sheen specified.
      a. Three samples on 8 1/2 inch x 11 inch card stock for color and sheen verification.
      b. Identify each sample by paint manufacturer, paint type, color, and sheen.
   3. Assurance/Control Submittals:

a. Test Reports: Submit manufacturer's Material Safety Data Sheets (MSDS) for each paint type specified.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing Work of this Section with minimum five years documented experience.

B. Regulatory Requirements:
1. Surface Burning Characteristics in Accordance with ASTM E-84 for Class I or A finish:
   a. Flame Spread (Non-Combustible Surfaces): Less than 25.
   b. Smoke Density (Non-Combustible Surfaces): Less than 450.
2. Provide paint and coating materials that conform to Federal, State, and Local restrictions for Volatile Organic Compounds (VOC) content.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver paint materials in sealed original labeled containers, bearing manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and/or reducing.

B. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's published instructions.

C. Prevent fire hazards and spontaneous combustion.

1.6 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements:
1. Apply paint finishes only when moisture content of surfaces is within manufacturer's acceptable ranges for type of finish being applied.
2. Surface temperatures or surrounding air temperature to be above 40 degrees F before applying alkyd finishes; above 45 degrees F for interior latex, and 50 degrees F for exterior latex work. Minimum for varnish and transparent finishes is 65 degrees F.
3. Provide continuous ventilation and heating facilities to maintain temperatures above 45 degrees F for 24 hours prior to, during and 48 hours after application of finishes.
4. Do not apply paint in areas where dust is being generated.
5. Provide lighting level in areas being painted of 80 foot candles measured mid-height at substrate surface.

1.7 MAINTENANCE

A. Section 01700 – Contract Closeout: Procedures for closeout submittals.

B. Extra Materials:
   1. Provide one gallon of each color, type and sheen to Project Manager.
   2. Label each container with color, type, texture, room locations, in addition to the manufacturer's label.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the work include the following:
   1. Benjamin Moore and Company, Montvale, NJ (201) 573-9600.
   2. Frazee Paint Company, Los Angeles, CA (800) 826-9048.
   3. Sherwin-Williams Company, Cleveland, OH (800) 321-8194.

B. Section 01600 - Materials and Equipment: Product options and substitutions. Substitutions: Permitted.

2.2 MATERIALS

A. Paints:
   1. Manufacturer's "Best Grade" for each type specified.
   2. Ready-mixed; pigments fully ground maintaining a soft paste consistency, capable of readily and uniformly dispersing to a complete homogeneous mixture.
   3. Providing good flowing and brushing properties and be capable of drying or curing free of streaks or sags.
   4. VOC limits (g/L) for exterior and interior paint applications:

      a. Exterior- Pavement Markings
         1) Exterior Coat: 150
      b. Exterior- Steel-Shop Primed
         1) Top Coat – Non-Flat: 150
         2) Top Coat - Gloss: 250
      c. Exterior- Steel - Galvanized
         1) Primer Coat: 200
         2) Top Coat - Non-Flat: 150
         3) Top Coat - Gloss: 250
      d. Interior Concrete, Concrete Block
         1) Block filler: 300
         2) Top Coat – Flat: 100

3) Top Coat – Non-Flat: 150
4) Top Coat – Gloss: 250

e. Interior Steel – Primed
1) Top Coat – Flat: 100
2) Top Coat – Non-Flat: 150
3) Top Coat – Gloss: 250

f. Interior Steel – Galvanized
1) Top Coat – Non-Flat: 150
2) Top Coat – Gloss: 250

g. Interior Plaster, Gypsum Board
1) Undercoater: 200
2) Top Coat - Flat: 100
3) Top Coat – Non-Flat: 150
4) Top Coat – Gloss: 250

B. Primers and Undercoaters: Manufactured by same manufacturer as finish coat materials.

C. Paint Accessory Materials: Linseed oil, shellac, turpentine and other materials not specifically indicated herein but required to achieve the finishes specified of high quality and approved manufacturer.

2.3 EXTERIOR PAINT SYSTEMS

A. Benjamin Moore:
1. Ferrous Metal: Semi-Gloss, Water Base, Alkyd Primer/Acrylic Latex.
   a. Primer: M04 Acrylic Metal Primer; MDF 2.0 mils.
   b. Each Finish Coat: M29 DTM Acrylic Semi-Gloss; MDF 2.0 mils.
2. Galvanized Metal: Semi-Gloss, Water Base, Alkyd Primer/Acrylic Latex.
   a. Primer: M04 Acrylic Metal Primer; MDF 2.0 mils.
   b. Each Finish Coat: M29 DTM Acrylic Semi-Gloss; MDF 2.0 mils.

B. Frazee:
1. Ferrous Metal: Semi-Gloss, Water Base, Alkyd Primer/Acrylic Latex.
   a. Primer: 661F774Metal Prime; MDF 1.7 mils.
   b. Each Finish Coat: 128 Satin Glide Semi Gloss Acrylic, 03-Series; MDF 1.4 mils.
2. Galvanized Metal: Semi-Gloss, Water Base, Alkyd Primer/Acrylic Latex.
   a. Primer: 661F774 Metal Prime, 33-100; MDF 1.4 mils.
   b. Each Finish Coat: 128 Satin Glide Semi Gloss Acrylic , 03-Series; MDF 1.4 mils.

C. Sherwin-Williams:
1. Ferrous Metal: Semi-Gloss, Low VOC, Alkyd Primer/Acrylic Latex.
   a. Primer: Pro-Cryl Universal Water-Based Primer, B66-310, MDF 3.0 mils.

b. Each Finish Coat: DTM Acrylic B66 Series; MDF 3.0 mils.

2. Galvanized Metal: Semi-Gloss, Water Base, Alkyd Primer/Acrylic Latex.
   a. Primer: Pro-Cryl Universal Water Based Primer, B66-310, MDF 3.0 mils.
   b. Each Finish Coat: DTM Acrylic B66 Series; MDF 3.0 mils.

2.4 INTERIOR PAINT SYSTEMS

A. Benjamin Moore:
1. Gypsum Board: Eggshell, Water Base, Acrylic Latex.
   a. Primer: 284 Moorecraft Superhide Interior Latex Primer/Undercoater; MDF 1.5 mils.
   b. Each Finish Coat: Moorecraft Super-Hide Eggshell 286.
2. Masonry: Eggshell, Water Base, Acrylic Latex.
   a. Primer: Moorecraft Super Hide Interior/Exterior Latex Blockfiller 285; MDF 4.0 mils.
   b. Each Finish Coat: Moorecraft Super-Hide Eggshell 286.
3. Metal: Satin, Water Base, Acrylic Latex.
   a. Each Finish Coat: Moorecraft Super-Hide Eggshell 286.
4. Wood and Wood Doors : Satin, Water Base, Acrylic Latex.
   a. Primer: 253 Moorecraft Latex Enamel Undercoater and Primer Sealer; 2.0 mils.
   b. Each Finish Coat: Moorecraft Super-Hide Eggshell 286.
5. Concrete: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: Moorecraft Super Hide Interior/Exterior Latex Blockfiller 285; MDF 4.0 mils.
   b. Each Finish Coat: 276 Moorecraft Acrylic Latex; MDF 1.5 mils.
6. Ferrous Metal: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: M04 Acrylic Metal Primer; MDF 2.0 mils.
   b. Each Finish Coat: 276 Moorecraft Acrylic Latex; MDF 1.5 mils.
7. Wood Cabinets and Wood Shelves: Semi-Gloss, Water Base, Acrylic Latex.
   a. Enamel Undercoater: Moorecraft Acrylic Latex Underbody 269.
   b. Each Finish Coat: 276 Moorecraft Acrylic Latex; MDF 1.5 mils.

B. Frazee:
1. Gypsum Board: Eggshell, Water Base, Acrylic Latex.
   a. Primer :063 PVA Aqua Seal Drywall Vinyl Primer Sealer; MDF 1.4 mils.
   b. Each Finish Coat: 026 Speed Sheen Interior Acrylic Eggshell Enamel; MDF 1.6 mils.
2. Masonry: Eggshell, Water Base, Acrylic Latex.
   a. Primer: 262 Block Filler Latex Block Filler; MDF 10.2 mils.
   b. Each Finish Coat: 026 Speed Sheen Interior Acrylic Eggshell Enamel; MDF 1.6 mils.
3. Metal: Satin, Water Base, Acrylic Latex.

a. Each Finish Coat: 126 Mirro Glide Interior Low Sheen Acrylic Enamel; MDF 1.4 mils.

4. Wood and Wood Doors : Satin, Water Base, Acrylic Latex.
   a. Primer: 172 Grip N Seal Enamel Undercoater; MDF 2.2 mils.
   b. Each Finish Coat: 126 Mirro Glide Interior Low Sheen Acrylic Enamel; MDF 1.4 mils.
5. Concrete: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: 262 Block Filler Latex Block Filler; MDF 10.2 mils.
   b. Each Finish Coat: 024 Speed Sheen Semi-Gloss Enamel; MDF 1.7 mils.
6. Ferrous Metal: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: 661F774 Metal Prime Alkyd Metal Primer; MDF 1.7 mils.
   b. Each Finish Coat: 123 Satin Glide Semi-Gloss Enamel; MDF 1.7 mils.
7. Wood Cabinets and Wood Shelves: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer/Sealer: 172 Grip N Seal Enamel Undercoater MDF 2.2 mils.
   b. Each Finish Coat: 024 Speed Sheen Semi-Gloss Enamel; MDF 1.7 mils.

C. Sherwin Williams:

1. Gypsum Board: Low VOC, Eg-shell, Water Base, Acrylic Latex.
   a. Primer: Harmony Latex Primer, MDF 1.6 mils.
   b. Two Finish Coats: Harmony Latex Eg-Shel, MDF 1.6 mils.
2. Masonry: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: PrepRite Masonry Primer, B28W300, MDF 1.1 mils.
   b. Two Finish Coats: .
3. Metal: Semi-Gloss, Water Base, Acrylic Latex.
   a. Two Finish Coats: DTM Acrylic S-G, B66W200; MDF 3.0 mils.
4. Wood and Wood Doors : Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: PrepRite Classic Primer, B28W101, MDF 1.6 mils.
   b. Two Finish Coats: ProClassic Waterborne S-G, MDF 1.4 mils.
5. Concrete: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: ProMar Interior/Exterior Block Filler, B25W25; MDF 10.0 mils.
   b. Two Finish Coats: ProClassic Waterborne S-G, MDF 1.4 mils.
6. Ferrous Metal: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer: Pro-Cryl Universal Water Based Primer, B66-310, MDF 3.0 mils.
   b. Two Finish Coats: DTM Acrylic S-G, B66W200; MDF 3.0 mils.
7. Wood Cabinets and Wood Shelves: Semi-Gloss, Water Base, Acrylic Latex.
   a. Primer/Sealer: PrepRite Classic Latex Primer, B28W300, MDF 1.6 mils.
   b. TwoFinish Coats: ProClassic Waterborne S-G, MDF 1.4 mils.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.

B. Report in writing to Project Manager prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 PREPARATION

A. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, and conditions otherwise detrimental to formation of a durable paint film.

B. Perform preparation and cleaning procedures in accordance with paint manufacturer's published instructions for each particular substrate condition.
   1. Provide barrier coats over incompatible primers or remove and reprime as required.
   2. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be painted or provide surface applied protection prior to surface preparation and painting operations. Reinstall all removed items after completion of paint work.
   3. Clean surfaces to be painted before applying paint of surface treatment. Remove oil and grease prior to mechanical cleaning.

C. Ferrous Metals: Clean ferrous surfaces, that are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
   1. Touch-up shop-applied prime coats, where damaged or bare. Clean and touch-up with same type shop primer.

D. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent. Apply coat of etching primer if required by paint manufacturer.

E. Cementitious Materials: Prepare cementitious surfaces to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.
   1. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests.
      a. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct condition before application of paint.
   2. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed instructions.

3. Clean floor surfaces scheduled to be painted with a commercial solution of muriatic acid, or other etching cleaner. Flush floor with clean water to neutralize acid, and allow to dry before painting.

F. Wood: Clean wood surfaces to be painted of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes, and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.
   1. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends faces, undersides, and backsides of such wood, including cabinets and counters.
   2. Seal tops, bottoms, and cut-outs with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.

G. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

3.3 APPLICATION

A. Apply paint products in accordance with manufacturer's published instructions using application procedures approved for the particular application and substrate to the specified Minimum Dry Film Thickness (MDF). Apply each coat to uniform finish.

B. Apply each coat slightly darker than preceding coat unless otherwise approved by Project Manager. Sand lightly between coats to achieve specified finish.

C. Do not apply finishes on surfaces that are not dry.

D. Number of coats and film thickness required is same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer.

E. Apply additional coats when undercoats, stains, or other conditions show through final coat until paint film is of uniform finish, color, and appearance. Surfaces, including edges, corners, crevices, welds, and exposed fasteners to receive minimum dry film thickness equivalent to that of flat surfaces.

F. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate. Provide minimum dry film thickness (MDF) of the entire coating system as indicated in Painting and Finishing Schedule at end of this Section.

G. Block Fillers: Apply block fillers to concrete masonry units at rate to provide complete coverage with pores filled.

H. Prime Coats: Before application of finish coats, apply a prime coat of material as recommended by manufacturer to material scheduled to be painted or finished that has not been shop primed. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.

I. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, laps, brush marks, runs, sags, or other surface imperfections will not be acceptable.

J. Hollow Metal Doors: Paint each door edge.

K. Completed Work: Match Project Manager approved field samples for color and sheen.

3.4 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control: Field testing and inspection.

B. Inspect painting and coating application for scheduled material, color, sheen, specified thickness (MDF), and coverage.

3.5 CLEANING

A. As work proceeds and upon completion, promptly remove paint where spilled, splashed, or spattered.

B. During progress of work keep premises free from any unnecessary accumulation of tools, equipment, surplus materials, and debris.

C. Collect waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

D. Upon completion of work leave premises neat and clean.

3.6 PROTECTION

A. Protect other surfaces from paint and damage. Repair damage as a result of inadequate or unsuitable protection.

3.7 COLOR SCHEDULE

A. Any proposal to substitute a color is to include manufacturer's certification that the color matches the specified Munsell notation. See Color / Material Schedule on Architecture Drawings for colors.

3.8 SCHEDULE OF ITEMS TO BE PAINTED

A. Painted finishes shall be provided for, but not limited to, the following items. Refer to Drawings and Paint Color Schedule at end of this Section for designated finishes and colors of areas.
   1. Exterior: All exterior surfaces including, but not limited to:
      a. Hollow metal doors and frames.
      b. Metal opening frames and trim.
      c. Metal flashing (if exposed from ground level) and downspout.
      d. Canopy supporting steel structure.
   2. Interior: All interior surfaces as scheduled on Drawings including, but not limited to:
      a. Hollow metal doors and frames.
      b. Metal opening frames and trim.
      c. Gypsum wallboard.
      d. Exposed concrete unit masonry.
      e. Exposed structure columns.

B. Do not paint the following items:

   1. Pre-finished items:
      a. Aluminum, brass, bronze, stainless steel, and chrome plated steel.
      b. Pre-finished items, such as toilet compartments, acoustical ceiling materials, mechanical, and electrical equipment.
      c. UL, FM, and other code-required labels.
      d. Equipment identification, performance rating, and name plates.
      e. Finish hardware.
      f. Factory finished metal wall panels, metal wall panel trim, and metal gravel stops.
   2. Exposed items:
      a. Exposed mechanical ductwork, hangers, and supports.
      b. Exposed piping and conduit, hangers and supports.
      c. Exposed fire protection piping, hangers and supports.
      d. Exposed roof structure.
      e. Exposed roof deck.

3.9 PAINTING AND FINISHING SCHEDULE

A. Interior Paint Systems:
   1. Interior Gypsum Wallboard:
      a. 1 coat Latex Wall Primer.
      b. 1 coat Latex Eggshell Enamel

   2. Interior Masonry:
      a. 1 coat Latex Block Filler
      b. 1 coat Latex Eggshell Enamel

   3. Interior Metal:
      a. 2 coats Latex Satin

   4. Interior Wood (painted):
      a. 1 coat Enamel Undercoat
      b. 2 coats Alkyd Semi-Satin Enamel

   5. Wood Doors - Painted.
      a. One coat Enamel Undercoat.
      b. Two tinted coats of Latex Semi-Gloss Enamel.

   6. Ferrous Metals
      a. Touch up Prime Coat.
      b. Two tinted coats of Alkyd Enamel Semi-Gloss.

   7. Wood Cabinets, Shelves, etc. - exposed surfaces.
      a. One coat Primer-Sealer.
      b. One coat Enamel Undercoat.
      c. One coat Alkyd Enamel Semi-Gloss Enamel.

B. Exterior Paint Systems:
   1. Galvanized Metal:
      a. Touch up Prime Coat.
      b. Two tinted coats Exterior Alkyd Enamel Semi-Gloss Enamel.

   2. Ferrous Metals:
      a. Touch up Prime Coat.
      b. Two tinted coats Exterior Alkyd Enamel Semi-Gloss Enamel.

END OF SECTION

SECTION 10436
MISCELLANEOUS SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Miscellaneous building signage.

B. Related Documents: The Contract Documents, as defined in Section 01010 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

1.2 SUBMITTALS

1. Shop Drawings:
   a. Indicate sign styles, lettering font, foreground and background colors, locations, and overall dimensions of each sign.
   b. Setting details for installation in concrete footings.
2. Samples: Submit two sample signs 12 inches (30 cm) x 12 inches (30 cm) in size illustrating type, style, letter font, and colors specified; method of attachment.
3. Assurance/Control Submittals:
   a. Certificates: Manufacturer's certificate that Products meet or exceed specified requirements.
   b. Qualification Documentation: Submit documentation of experience indicating compliance with specified qualification requirements.
   c. Manufacturer's Instructions: Include installation template, attachment devices, and procedures for care of finished surfaces.

1.3 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer: Company specializing in manufacturing Products specified with minimum 5 years documented experience.
   2. Installer: Company specializing in performing the Work of this Section with minimum 5 years documented experience.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in manufacturer's original unopened protective packaging.

B. Identify contents, manufacturer, brand name, thermal values, and applicable standards.

C. Store in original packaging, off the ground and under protective covers.

D. Handle so as to prevent damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with project requirements, manufacturers offering Products which may be incorporated in the Work include the following:
   1. APCO, Atlanta, GA (404) 688-9000.
   2. ASI Sign Systems, Incorporated, Dallas, TX (800) 274 7732.
   3. Neokraft Signs, Incorporated, Lewiston, ME (800) 339-2258.
   4. Vomar Products, Incorporated, Van Nuys, CA (800) 521-2737.
   5. 2/90 Sign Systems, Grand Rapids, MI (800) 777-4310.

2.2 SIGNAGE

A. Construction Site Sign:
   1. Silk-screened, painted or pressure-sensitive vinyl letters applied to Medium Density Overlay plywood sign.
   2. Red: Match Benjamin Moore OP-67.
   3. Blue: Match PPG 7062 Federal Blue.
   4. White background.

B. Pictographs:
   1. AIGA Symbol Signs reproducible art developed for the U.S. Department of Transportation is to be used whenever possible. Room signs shall have 1/32 inch raised one inch high Helvetica Medium (upper and lower case) lettering and Braille.
   2. Size: As indicated on drawings.
   3. Material: Plastic.
   4. Color: Use colors below, unless designated by AIGA.
      a. Foreground (Characters and/or Graphics): White: Match P-1 in Section #09900, Painting.
      b. Background: Blue: Match P-5 in Section #09900, Painting.

C. Egress Signage:
   1. When required by public authority, provide signage in one inch high Helvetica Medium (upper and lower case) letters, in contrasting color to background to read: "This Door To Remain Unlocked During Business Hours." Doors requiring signage will be indicated on either the hardware schedule or door schedule.

D. Exit Door Tactile Sign
   1. Provide signage to read “Exit” at egress doors. In contrasting color to background, signs shall have 1/32 inch raised one inch high Helvetica Medium (upper and lower case) lettering and Braille.
   2. Product: Same as Room and Directional signage.
   3. Size: 6 inch (15 cm)
   4. Color:
      a. Foreground (Characters and/or Graphics): White: Match P-1 in Section #09900, Painting.
      b. Background: Blue: Match P-5 in Section #09900, Painting.

2.3 FASTENERS AND OTHER MATERIALS

A. Provide non-corrosive fasteners, hangers, and mounting devices which are compatible with sign material and finish.

B. Other materials, not specifically described, but required for a complete and proper installation of signs, shall be as selected and subject to approval of the Project Manager.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
   1. Examine foundations, walls, doors, ceilings and other areas scheduled to receive signs for conditions that would affect quality and execution of work.

B. Report in writing to Project Manager prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

3.2 INSTALLATION

A. Install signage in accordance with manufacturer's published instructions.

B. Install sign units and components at the locations shown or scheduled, securely mount with concealed theft-resistant fasteners. Attach signs to substrates in accordance with the manufacturer's instructions.

C. Install level, plumb, and at the proper height. Cooperate with other trades for installation of sign units to finish surfaces.

D. Sign manufacturer to provide template for spacing of letters.

3.3 CONSTRUCTION

A. Interface with Other Work:
   1. Furnish full-size spacing templates for individually bundled letters and numbers for coordination with work of other trades.

3.4 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control: Field testing and inspection.

B. Inspect signage locations, attachments, and messages to verify installation conforms to Drawings.

3.5 MISCELLANEOUS INTERIOR SIGNAGE

Item number Description

1. EXIT (Tactile Sign)
2. DIRECTIONAL

END OF SECTION

SECTION 15440

PLUMBING FIXTURES

1. PART 1 GENERAL

1.01 WORK INCLUDED

A. Water closets.

B. Urinals.

C. Lavatories.

D. Sinks.

E. Service sinks.

1.02 REFERENCES

A. ANSI A112.6.1 - Supports for Off-the-Floor Plumbing Fixtures for Public Use.

B. ANSI A112.18.1 - Finished and Rough Brass Plumbing Fixture Fittings.

C. ANSI A112.19.1 - Enameled Cast Iron Plumbing Fixtures.

D. ANSI A112.19.2 - Vitreous China Plumbing Fixtures.

E. ANSI A112.19.3 - Stainless Steel Plumbing Fixtures.

F. ANSI A112.19.4 - Porcelain Enameled Formed Steel Plumbing Fixtures.

G. CBC Section 1115B, Table 1115B-1 and Section 1118B.

1.03 QUALITY ASSURANCE

A. Fixtures: By same manufacturer for each product specified throughout.

B. Trim: By same manufacturer for each product specified throughout.

C. Accessible plumbing fixtures shall comply with all the requirements of CBC section 1115B.

D. Heights and location of all fixtures shall be according to CBC table 1115B-1.

E. Fixture controls shall comply with CBC section 1118B.

1.04 SUBMITTALS

A. Submit product data under provisions of Division 1.

B. Include fixtures, sizes, utility sizes, trim and finishes.

1.05 OPERATION AND MAINTENANCE DATA

A. Submit 4 copies of operation and maintenance data.

1.06 WARRANTY

A. Provide 1-year manufacturer's warranty.

B. Warranty: Include coverage of electric water cooler compressor.

2. PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - FIXTURES

A. Kohler

B. American Standard

C. J.R. Smith

D. Elkay

2.02 ACCEPTABLE MANUFACTURERS - FIXTURE TRIM

A. Chicago Faucet or Elkay

2.03 ACCEPTABLE MANUFACTURERS - FLUSH VALVES

A. Sloan

2.04 ACCEPTABLE MANUFACTURERS - WATER CLOSET SEATS

A. Olsonite

B. Beneke

C. Church

2.05 ACCEPTABLE MANUFACTURERS - FIXTURE CARRIERS

A. J.R. Smith

B. Zurn

C. Josam

2.06 WATER CLOSET, FLOOR MOUNTED, ADULT STANDARD

A. Bowl: ANSI A112.19.2; 1.6 gallons per flush, siphon jet, vitreous china closet bowl with elongated rim, 1-1/2" spud and china bolt caps. 15" standard rim height. For model number see schedule on drawings.

B. Flush Valve: ANSI A112.18.1; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, seat bumper, integral screwdriver stop, vacuum breaker. For model number see schedule on drawings.

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

2.07 WATER CLOSET, FLOOR MOUNTED, ADULT ACCESSIBLE

A. Bowl: ANSI A112.19.2M; 1.6 gallon per flush, siphon jet, vitreous china closet bowl with elongated rim, 1-1/2" top spud and china bolt caps. 17" – 19" accessible rim height. For model number see schedule on drawings.

B. Flush Valve: ANSI A112.18.1; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, seat bumper, integral screwdriver stop, vacuum breaker. 17" – 19" accessible rim height. For model number see schedule on drawings.

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

2.08 URINAL, WALL HUNG, ADULT ACCESSIBLE

A. Urinal: ANSI A112.19.2; vitreous china, siphon jet with flushing rim, integral trap, removable stainless steel strainer, 1-1/4 inch top spud. Refer to architectural drawings for elevations. For model number see schedule on drawings.

B. Flush Valve: ANSI A112.18.1; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, integral screwdriver stop, 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.

2.09 LAVATORY, UNDER COUNTER MOUNT ADULT ACCESSIBLE

A. Basin: ANSI A112.19.2; vitreous china lavatory under counter mount, front overflow and soap depression. For model number see schedule on drawings.

B. Trim: ANSI A112.18.1; chrome plated combination supply fitting with No. 7723.018 open grid strainer, water economy aerator, chrome plated 17 gage L.A. pattern cast brass P-trap and arm with secured escutcheon and Chicago No. 1017 rigid supplies. For model number see schedule on drawings.

2.10 SINK, DOUBLE COMPARTMENT, ADULT ACCESSIBLE

A. Bowl: ASME A112.19.3; 18 gage thick, Type 304 stainless steel, self-rimming with undercoating, 3-1/2 inch No. LK-18 strainer and LKAD18 drain, ledgeback drilled for trim. Elkay model #ECTSRAD33226BG, 33" x 22" x 6" deep. Accessible insulation wrap by Plumberx "Handy Shield Maxx model #2003. ASTM E84-07 testing standard 25 flame spread / 450 smoke index.

B. Trim: ASME A112.18.1; chrome plated gooseneck spout with indexed lever handles, chrome plated brass, cast brass P-trap and arm with secured escutcheon, Chicago supply and stops model # 1017ABCP supplies. Elkay faucet LKD2433C.

C. Garbage Disposal: Insinkerator Model #PRO880CORD, 7/8 HP.

2.11 MOP SINK, FLOOR MOUNTED

A. Bowl: 28 x 28 inch white 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.

3. PART 3 EXECUTION

3.01 INSPECTION

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

B. Verify adjacent construction is ready to receive rough-in work of this Section.

3.02 INSTALLATION

A. Accessible plumbing fixtures shall comply with all the requirements of CBC section 1115B. Heights and location of all fixtures shall be according to CBC Table 1115B-1. Fixture controls shall comply with CBC Section 1115B.

B. Install each fixture with trap, easily removable for servicing and cleaning. Provide and install pre-molded beige color insulation kit by "Truebro" at all handicap accessible lavatories.

C. Provide chrome plated rigid supplies to fixtures with loose key stops reducers and secured escutcheons.

D. Install components level and plumb.

E. Install and secure fixtures in place with wall carriers and bolts.

F. Caulk fixtures to wall and floor surfaces with sealant as specified in Division 7, color to match fixture. Remove and wipe clean excess sealant.

G. Install flush valves in such a way that the vacuum breaker critical level is minimum 6 inches above the flood level rim of the receptor.

3.03 ADJUSTING AND CLEANING

A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise or overflow.

B. At completion, clean plumbing fixtures and equipment.

C. Adjust accessible lavatory faucet flow for 10-second minimum duration.

3.04 PROTECTION OF FINISHED WORK

A. Protect finished work.

END OF SECTION

SECTION 15850 - AIR OUTLETS AND INLETS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Diffusers.

B. Registers/grilles.

1.2 REFERENCE STANDARDS

A. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating; Air Movement and Control Association International, Inc.; 2012.

B. ARI 890 - Standard for Air Diffusers and Air Diffuser Assemblies; Air-Conditioning and Refrigeration Institute; 2008.

C. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Inlets; American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.; 2006.

D. SMACNA (DCS) - HVAC Duct Construction Standards; 2005.

1.3 SUBMITTALS

A. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

1.4 QUALITY ASSURANCE

A. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Krueger: www.krueger-hvac.com.

B. Titus: www.titus-hvac.com.

2.2 RECTANGULAR CEILING DIFFUSERS

A. Type: Square, stamped, multi-core diffuser to discharge air in 360 degree pattern with sectorizing baffles where indicated.

B. Frame: Surface mount type. In plaster ceilings, provide plaster frame and ceiling frame.

C. Fabrication: Aluminum with baked enamel off-white finish.

2.3 CEILING SUPPLY REGISTERS/GRILLES

A. Type: Streamlined and individually adjustable curved blades to discharge air along face of grille, two-way deflection.

B. Frame: 1 inch margin with countersunk screw mounting and gasket.

C. Fabrication: Aluminum extrusions with factory off-white enamel finish.

D. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face.

2.4 CEILING EXHAUST AND RETURN REGISTERS/GRILLES

A. Type: Streamlined blades, 3/4 inch minimum depth, 3/4 inch maximum spacing, with blades set at 45 degrees, vertical face.

B. Frame: 1 inch margin with countersunk screw mounting.

C. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face where not individually connected to exhaust fans.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.

C. Install diffusers to ductwork with air tight connection.

D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.

3.2 SCHEDULES

See sheet A2.0, Fixture Legend.

END OF SECTION

SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE

A. This section supplements all sections of this division and shall apply to all phases of work hereinafter specified, shown on the drawings, or required to provide a complete installation of electrical systems for the Project. The work required under this division is not limited to the Electrical Drawings. Refer to Site, Architectural, Structural, and Mechanical Drawings which may designate Work to be accomplished. The intent of the Specifications is to provide complete electrical systems which include all documents which are a part of the Contract.

1. Work included: Furnish all labor, material, tools, equipment, facilities, transportation, skilled supervision necessary for, and incidental to, performing operations in connection with furnishing, delivery, and installation of the work in this section complete as shown or noted on the Drawings and specified herein.

B. Related Work Specified Elsewhere:

1. Refer to all sections in Division 0, and Division 1.

C. Work Installed but Furnished by Others:

1. The electrical work includes the installation or connection of certain materials and equipment furnished by others. Verify installation details. Foundations for apparatus and equipment will be furnished by others unless otherwise noted or detailed.

1.2 GENERAL REQUIREMENTS

A. Guaranty See General Conditions:

1. Except as may be specified under other Sections in the specification, guarantee equipment furnished under the specifications for a period of one year, except for equipment required to have a longer guaranty period, from date of Substantial Completion against defective workmanship and material, and improper installation. Upon notification of failure, correct deficiency immediately and without cost to the Owner.
2. Standard warranty of manufacturer shall apply for replacement of parts after expiration of the above period. Manufacturer shall furnish replacement parts to the Owner or his service agency as approved. Furnish to the Owner, through the Architect, printed manufacturer's warranties complete with material included and expiration dates, upon completion of project.

B. Equipment Safety: All electrical materials and equipment shall be new and shall be listed by Underwriter's Laboratories and bear their label, or listed and certified by a nationally recognized testing authority where UL does not have an approval. Custom made equipment must have complete test data submitted by the manufacturer attesting to its safety.

C. Codes and Regulations:
   1. Design, manufacture, testing and method of installation of all apparatus and materials furnished under the requirements of these specifications shall conform to the latest publications or standard rules of the following:

      Institute of Electrical and Electronic Engineers – IEEE
      National Electrical Manufacturers' Association – NEMA
      Underwriters' Laboratories, Inc. – UL
      National Fire Protection Association – NFPA
      American Society for Testing and Materials – ASTM
      American National Standards Institute – ANSI
      California Electrical Code – CEC
      California Code of Regulations, Title 8, Subchapter 5
      California Building Code
      State & Municipal Codes in Force in the Specific Project Area
      Occupational Safety & Health Administration – OSHA
      California State Fire Marshal – CSFM

      The term "Code", when used within the specifications, shall refer to the Publications, Standards, ordinances and codes, listed above. In the case where the codes have different levels of requirements the most stringent rules shall apply.

D. Requirements of Regulatory Agencies:
   1. Codes, Permits, and Fees: Where the Contract Documents exceed minimum requirements, the Contract Documents take precedence. Where code conflicts occur, the most stringent shall apply unless variance is approved.
      a. Comply with all requirements for permits, licenses, fees and Code. Permits, licenses, fees, inspections and arrangements required for the Work shall be obtained by the Contractor at his expense, unless otherwise specified.
      b. Comply with the requirements of the applicable utility companies serving the Project. Make all arrangements with the utility companies for proper coordination of the Work.

E. Shop Drawings:
   1. See Section 01330 for additional requirements.

2. Time Schedules for Submission and Ordering: The Contractor shall prepare, review and coordinate his schedule of submissions carefully, determining the necessary lead time for preparing, submitting, checking, ordering and delivery of materials and equipment for timely arrival. The Contractor shall be responsible for conformance with the overall construction schedule.
3. Submittals will be checked for general compliance with specifications only. The Contractor shall be responsible for deviations from the drawings or specifications and for errors or omissions of any sort in submittals.
4. Submit a complete list of materials and equipment proposed for the job, including manufacturer’s names and catalog numbers.
5. Shop drawings shall be submitted in completed groups of materials (i.e., lighting fixtures or panel board). The Contractor shall add and sign the following paragraph on equipment and materials submitted for review. "It is hereby certified that the (equipment) (material) shown and marked in this submittal is that proposed to be incorporated into the project; is in compliance with the

   Contract Drawings and specifications and can be installed in the allocated spaces". Failure to add the above written statement for compliance will result in return of submittals to be reviewed.
   a. Bind catalog cuts, plate numbers, descriptive bulletins and drawings, 11" x 17" or smaller, in sets with covers neatly showing titles.
   b. The Contractor shall verify dimensions of equipment and be satisfied as to Code compliance for fit prior to submitting shop drawings for approval.
   c. Include complete catalog information such as construction, ratings, and insulation systems, as applicable.
   d. For any material specified to meet UL or trade standards, furnish the manufacturer's or vendor's certification that the material furnished for the work does in fact equal or exceed such specifications.
   e. Reference listings to the specifications' Sections and Article to which each is applicable.
   f. Equipment Floor Plans: After approval of material is secured prepare a floor plan of each electrical and communication equipment room, drawn to scale at 1/2 inch equals 1 foot and submit for approval in the same manner as for shop drawings. The layout drawings shall be exact scale.
6. Contractor shall prepare coordinated drawings when required by Section 01330.

F. Interpretations: Requests for interpretations of drawings and specifications must be made by the Contractor through the Architect. Any such requests made by equipment manufacturers or suppliers will be referred to the Contractor.

G. Substitutions: Refer to Section 01330.

H. Submit comprehensive material list, shop drawings and complete technical data for the following equipment and materials:
   1. General Requirements:
      a. Panelboards.
      b. Conduits
      c. Conductors, include selected insulation type.
      d. Pullboxes.
      e. Standard lighting fixtures, specially fabricated fixtures, ballasts and lamps, with samples and sample of standard finish available (where requested).
      f. Control devices, standard and special receptacles, switches, and finish device plates.
      g. Cabinets for signal and telephone system, special terminals and cabinets.
      h. Access panels.
      i. Fire alarm system.

I. Record Drawings: Refer to Section 01785, Closeout Requirements.

J. Work Responsibilities:
   1. The drawings indicate diagrammatically the desired locations or arrangement of conduit runs, outlets and equipment and are to be followed. Execute the work so as to secure the best possible installation in the available space and to overcome local difficulties due to space limitations. The Contractor is responsible for the correct placing of his work.
   2. Locations shown on architectural plan or on wall elevations shall take precedence over electrical plan locations, but where a major conflict is evident, notify the Architect.
   3. In the event changes in the indicated locations or arrangement are necessary due to developed conditions in the building construction or rearrangement of furnishings or equipment, such changes shall be made without extra cost.
   4. Verify dimensions and the correct location of Owner-Furnished equipment before proceeding with the roughing-in of connections.
   5. Lighting fixtures in mechanical spaces are shown in their approximate locations only. Do not install light outlets or fixtures until mechanical piping and ductwork are installed; then lights shall be installed in locations best suited for equipment arrangement as directed by the Architect.

6. All scaled and figured dimensions are approximate of typical equipment of the class indicated. Before proceeding with work carefully check and verify dimensions and sizes with the drawings to see that the equipment will fit into the spaces provided without violation of applicable Codes.
7. Should any changes to the work indicated on the drawings or described in the specifications be necessary in order to comply with the above requirements, notify the Architect.
8. Be responsible for coordination of coordinated drawings.
9. Replace or repair, without additional compensation any work which does not comply with these requirements.

K. Installation General: For special requirements, refer to specific equipment under these requirements.
1. Unless otherwise specified elsewhere in the specifications, do all excavating necessary for the proper installation of the electrical work.
2. Locations of Openings: Locate chases, shafts and openings required for the installation of the electrical work during framing of the structure. Do any additional cutting and patching required. Cutting or drilling in any structural member is prohibited without approval of the Architect. Furnish access panels as required.
3. Location of Sleeves: Where conduits pass through concrete walls, suspended slabs or metal deck floors, install sleeves of adequate size to permit installation of conduit. Sleeves shall be installed prior to pouring of concrete and shall have ends flush with the wall or extend 2 inches above floor surfaces. Verify locations.
4. Type of Sleeves: Sleeves shall be galvanized steel pipe.
5. Finish Around Sleeves: Rough edges shall be finished smooth. Space between conduit and sleeves where conduit passes through exterior walls shall be sealed to permit movement of conduit, but prevent entrance of water. Space between conduit and sleeves where conduit passes through fire rated interior walls and slabs shall be sealed with approved materials to provide a fire barrier conforming to the requirements of the governing authorities having jurisdiction, using UL Approved Firestopping Systems.
6. Wherever conduit extends through roof, install flashings in accordance with drawings and details.
7. Be responsible for cutting and patching which may be required for the proper installation of the electrical work.
8. Protect work, materials and equipment cause whatever and provide adequate and proper storage facilities during the progress of the work. Storage outdoors shall be weather protected and shall include space heaters to prevent condensation. Provide for the safety and good condition of all work until final acceptance of

the work. Replace all damaged or defective work, materials and equipment before requesting final acceptance.

9. Conduit and Equipment to be Installed: Clean thoroughly to remove plaster, spattered paint, cement and dirt on both exterior and interior
10. Conduit and Equipment to be Painted: Clean conduit exposed to view in completed structure by removing plaster and dirt. Remove grease, oil and similar material from conduit and equipment by wiping with clean rags and suitable solvents in preparation for paint.
11. Items with Factory Finish: Remove cement, plaster, grease and oil, and leave surfaces, including cracks and corners, clean and polished. Touch up scratched or bare spots to match finish.
12. Site Cleaning: Remove from site all packing cartons, scrap materials and other rubbish.
13. Electrical equipment and materials exposed to public and in finished areas shall be finish-painted after installation in accordance with the Painting Section. All exposed screw-type fasteners, exterior, or interior in restrooms, shall be vandal-resistant spanner type; include tool.

L. Excavation, Cutting and Patching:

1. Excavating, trenching and backfilling required for the work of this Division in accordance with the applicable requirements of Division 2. Excavating and backfilling connected with electrical work, repaving cuts and providing and maintaining protective measures for the electrical work excavation required by the governing authorities having jurisdiction shall be performed as a part of the work of this Division.
2. Verify openings indicated on the drawings. Additional cutting, patching and reinforcement of the construction of the building as required.

M. Tests

1. Equipment and systems for which the National Electrical Testing Association (NETA) has an approved or recommended procedure shall be tested in accordance with that procedure. Test values shall equal values recommended by NETA. Copies of test reports shall be submitted as required under shop drawing submittals.
2. Resistance to ground tests shall be accomplished by a qualified independent testing firm to measure resistance to ground at grounding electrodes. Make tests before slabs or affected areas are poured in order that corrective measures, if required, may be taken. Submit a report showing the results of these measurements. If the resistances exceed values specified elsewhere or NETA test procedure recommendations, perform

corrective measures required to reduce resistance to acceptable values.

3. Prior to energizing any motor, measure the service voltage for phase balance and report if unbalance exceeds 1% from mean.
4. Measure the three-phase voltage at no load and at maximum load conditions and submit to the report showing the results of these measurements.
5. Upon completion of the work and adjustment of all equipment, conduct an operating test. Conduct the test in the presence of an authorized representative of the Architect. Demonstrate system and equipment to operate in accordance with requirements of the Contract Documents and to be free from electrical and mechanical defects. Provide systems free from short circuits and grounds and show an insulation resistance between phase conductors and ground not less than the requirements of the governing electric code. Test circuits for proper neutral connection.
6. Complete tests prior to final inspection of project, including corrective work based on the results of the tests.
7. Perform special tests on systems and equipment as specified herein using personnel qualified to perform such tests.
8. Submit a report showing test voltage of line to neutral on the secondaries of transformers.
9. Measure voltage on secondary side of transformers with full load connected and adjust taps to provide rated secondary voltage.

N. Protection: Protect finish parts of the materials and equipment against damage during the progress of the work and until final completion and acceptance. Cover materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred. Keep moving parts clean, dry and lubricated.

O. Cleaning Up:
1. Upon completion of the work and at various time during the progress of the work, remove from the building all surplus materials, rubbish and debris resulting from the work of this Division.
2. Thoroughly polish chromium or plated work. Remove dirt and stains from lighting fixtures.
3. Leave the entire installation in a clean condition.

P. Completion:
1. The work will not be reviewed for final acceptance until operating and maintenance data, manufacturer's literature, panel directories and nameplates specified herein have been approved and properly posted or installed and final cleaning of equipment and premises has been completed.

2. When the installation is complete and adjustments have been made, operate the system for a period of one week, during which time demonstrate that systems are completed and operating in conformance with the specifications.

Q. Operating and Maintenance Data: Submit complete and at one time, prior to acceptance of the installation, 4 copies of manufacturer's instructions for operation and maintenance of electrical equipment, including replacement parts lists.

R. Inspection and Acceptance Procedures: The Architect will submit observation reports periodically during the construction phase detailing Contract deficiencies. The Contractor is responsible for making corrections immediately. Notice of Completion of the project will not be made until all items have been corrected.

S. Substantial Completion of Electrical Systems:
1. Prior to Substantial Completion of operating electrical systems, the Contractor shall:
   a. Provide materials of the type and quality specified and as necessary for proper operation, tested and ready for use.
   b. Deliver to the Architect, the Record Drawings.
   c. Furnish the required Operating and Maintenance Data/Manuals.
   d. Clean up of the project pertaining to this Division of the work.
   e. After installation has been completed and adjustments made, operate the system for a period of one week, during which time, demonstrate to the Architect that systems are complete and operating in conformance with Contract Documents.
   f. Conduct tests required and as specified in this Division and submit test reports and corrective actions taken.
   g. Submission of warranties and guarantees.
2. Substantial Completion of Work Shall be Contingent On:
   a. Contractor replacing defective materials and workmanship.
   b. Upon completion of work and adjustments made, Contractor shall conduct an operating test for each system for approval at such time as Architect directs. Conduct test in presence of authorized representative of Architect and demonstrate that systems and equipment do operate in accordance with requirements of the Contract Documents and are free from electrical and mechanical defects.
   c. Contractor shall provide the necessary training programs and instructions to the Owner's representative. Number of

hours or days as required under separate Sections of these Specifications.

d. Submit copies of manufacturer's instructions and maintenance of electrical equipment including replacement parts lists. Each set shall include one set of shop drawings of equipment installed.

T. Submittals for Change Orders: When changes are made during the construction phase, deletions and additions shall be presented in a manner that will indicate the cost of each item of material and corresponding labor. Markup shall be then added in accordance with the requirements of the General Conditions as modified by the Supplementary Conditions. Material pricing shall be based on invoice from distributor or supplier.

U. The Contractor at a time convenient to the Owner shall provide instruction to the Owner's operating personnel in the proper operation and maintenance of the equipment and systems. The instructors shall have received factory training and shall be thoroughly familiar with the equipment installed. The operating personnel shall receive the number of days instruction as indicated in other sections.

PART 2 - PRODUCTS

See Plans

PART 3 - EXECUTION

All electrical work must be performed by certified electrician, no exceptions.

END OF SECTION

SECTION 16536

CABLE TRAYS FOR COMMUNICATION

PART 1 - GENERAL

1.01 SUMMARY

A. Principal items of Work in this Section include but are not limited to:

1. Continuous, rigid, welded steel wire mesh cable management system.

2. Cable tray system, including but not limited to tray sections, couplers, hangers, bonding and grounding.

B. Related Requirements:

1. Division 01 - General Requirements.

2. Section16010: Basic Electrical Requirements.

C. Acronyms:

UL Underwriter's Laboratory.

NRTL Nationally Recognized Testing Laboratory.

1.02 SUBMITTALS

A. Provide in accordance with Division 01.

B. Shop Drawings: Submit Shop Drawings indicating materials, finish, dimensions, and accessories. Detail fabrication and installation of cable tray, including layout, sections of components and attachments to other construction elements. Designate components and accessories, including clamps, brackets, hanger rods, splice-plate connectors, expansion joint assemblies, straight lengths, and fittings.

C. Product Data: Submit manufacturer's Product Data, including UL, or another NRTL classifications.

D. Installation Documentation: Submit installation details for architect's review prior to start of installation.

1.03 CODES AND STANDARDS

A. ANSI/TIA/EIA-568: Commercial Building Telecommunications Cabling Standard.

B. ANSI/TIA/EIA-569: Commercial Building Standard for Telecommunication Pathways and Spaces.

C. ANSI/TIA/EIA-606: Commercial Building Standard for the Telecommunications Infrastructure of Commercial Building.

D. ANSI/TIA/EIA-607: Commercial Building Grounding and Bonding Requirements for Telecommunications.

E. BICSI Telecommunications Distribution Methods Manual, Current Edition.

F. CCR Part 3 - California Electrical Code.

G. CBC Part 2 - California Building Code.

H. ASTM A510: General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel.

I. ASTM A123: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

J. ASTM A569: Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality.

K. ASTM A570: Standard Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Commercial Quality.

L. ASTM B633: Electrodeposited Coatings of Zinc on Iron and Steel.

M. National Uniform Seismic Installation Guidelines (NUSIG).

1.04 SYSTEM DESCRIPTION

A. Furnish a continuous, rigid, welded steel wire mesh cable management system. The system shall be designed for installation on walls and ceilings with required mounting methods including, but not limited to, trapeze, side-hung, center-hung, and pipe stanchions.

1.05 QUALITY ASSURANCE

A. Comply with the following as a minimum requirement:

1. Ordinances and Regulations: The Work of this section shall conform to California Code of Regulations, Part 3, and other applicable codes and standards.

2. Installers shall be trained and certified by equipment manufacturer to install the products of this section.

1.06 WARRANTY

A. Provide a two year material and labor warranty.

B. Provide a 10 year manufacturer's guarantee for availability of spare parts for installed system.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Cooper B-Line – FLEXTRAY, Cablofil Inc., Chalfant Manufacturing Co. or equal.

2.02 CABLE MANAGEMENT SYSTEM

A. Description: Furnish a continuous, rigid, welded steel wire mesh cable management system. The system shall be designed for installation on walls and ceilings with required mounting methods including, but not limited to, trapeze, side-hung, center-hung, and pipe stanchions. Furnished cable tray system shall include a full line of factory-supplied, electroplated supports, splices, and accessories. System components shall be furnished through one source from a single manufacturer.

1. Mesh system permits continuous ventilation of cables and maximum dissipation of heat.

2. Continuous top wire safety edge kinked and T-welded.

3. Wire mesh welded at intersections.

4. Mesh sections furnished with one bottom longitudinal wire along entire length.

B. UL Classification: Straight sections shall be UL classified as an equipment grounding conductor.

C. Material: Carbon steel wire, ASTM A510, Grade 1008. Wire welded, formed, and then surface treated.

D. Welding Process and Weld Quality Testing:

1. A destructive weld test must be performed to verify strength of welds. This test must be performed on a welded sample of wires. Records including weld failure, lot number, and part number must be maintained on file for Owner review upon request.

2. Work not in accordance with destructive weld test will be deemed defective Work.

E. Finish for Carbon Steel Wire: Install finish after welding and bending of mesh.

1. Electro-Plated Zinc Galvanizing: ASTM B633, Type III, SC-1.

2. Hot-Dip Galvanizing: ASTM A123.

3. Black E-Coat: electrolytic painted surface treatment.

4. Powder Coating: painted surface of ASA 61 polyester coating.

F. Nominal Dimensions:

1. Mesh: 2-inch by 4-inch.

2. Straight Section Lengths: 118-inch.

3. Standard Widths:

a. 12 inches: available in 6-inch depths.

4. Standard Channel Depths: four inches and six inches.

5. Wire Diameters: 0.197-inch minimum on mesh sections.

6. Non-standard widths and depths shall be furnished as required.

7. Refer to Drawings for specific requirements for sizes and configurations.

G. Fittings: Field fabricated and furnished from straight sections, in accordance with manufacturer's instructions.

H. Hardware: Furnished by manufacturer including splice connectors and support components.

I. Vertical and horizontal bend fittings (90 degree and otherwise) shall conform to TIA/EIA/568A bend radius requirements for Category 6 UTP, and fiber optic cable.

J. Cross members shall be furnished at not more than six inch intervals.

K. Grounding and Bonding Conductor: Provide #6 AWG insulated solid copper conductor (green) to bond each end of all metallic pathways to the nearest telecommunications grounding busbar (TGB).

L. Labels: Provide labels as recommended in TIA/EIA 606. Furnished labels shall be permanently color-coded with legible type produced by a digital printer.

2.03 ACCESSORIES

A. Shielding Divider Strips: Furnish divider strips following contour of mesh sections to permit data PA/IC/telephone, and intrusion and television cables to be installed in the

same tray. Pre-galvanized steel, 1 ½-inch by 1 ½-inch, 2-inch by 1 ½-inch, 4-inch by 1 ½-inch, 6-inch by 1-1/2 inch.

B. Grounding: Grounding clip for continuous ground of cable management system.

PART 3 - EXECUTION

3.01 CABLE TRAY INSTALLATION

A. General:

1. Work shall comply with the CBC, Uniform Fire Code, BICSI TDMM, and the California Electrical Code and ANSI/TIA/EIA, as well as local codes.

a. Cable tray installed for voice and data communications circuit distribution is not permitted to be utilized for electrical power or non-power limited systems distribution as defined by the CEC. If installed voice and data cable tray is utilized for the distribution of other low-voltage signal or power limited circuits, cable tray shall be furnished with metallic channel dividers with a minimum configuration of one channel dedicated to voice circuit distribution and a separate channel for data distribution. If other power limited systems are indicated to be installed, a separate divider shall be provided for each structured cable system unless specified otherwise.

B. Examination:

1. Inspect areas to receive cable management system. Do not proceed with installation until unsatisfactory conditions are corrected.

C. Installation:

1. Install cable management system at locations indicated on the Drawings and in accordance with manufacturer's instructions.

2. Install and support cable management system as required by span load criteria.

3. Install cable management system with hardware, splice connectors, support components, and accessories furnished by the manufacturer.

4. Install cable tray routing as follows:

a. Maintain a clearance of 6 inches between bottom of cable tray and ceiling grid or other equipment or raceways.

b. Maintain a clearance of 4 feet to motors or transformers.

c. Maintain a clearance of one foot to conduit or cables furnished for electrical power distribution.

d. Maintain a clearance of 6 inches to fluorescent lighting.

e. Install cable tray to perpendicularly cross over fluorescent lighting.

f. Cable tray supports shall be fastened to the structural ceiling or walls with hardware or other furnished installation accessories specifically designed for the cable tray, weight, and volume. Design supports, including fastenings to the structure, to carry the total calculated potential load. Brackets shall be installed at intervals not to exceed five feet on center. Installation shall comply with CBC Seismic Design requirements.

g. Do not fasten cable tray supports to ceiling support system or other mechanical and electrical support systems.

h. Cable tray shall be installed without burrs, sharp edges, or projections, which may damage cable insulation.

i. Radius supports shall be provided at drop-offs, bends, or rises. Provide for changes in direction and elevation with standard fittings, or as required.

j. Cable trays installed on suspended rods longer than two feet in length shall be rigidly braced to prevent horizontal motion or swaying.

k. When connecting tray sections manufacturer's specifications regarding size and number of splicing or connection hardware shall be strictly adhered to.

l. Install expansion connectors where cable tray crosses a building expansion and/or seismic joint.

5. Slots and Sleeves (Wall Penetrations):

a. Provide slots and sleeves where required for wall and floor penetrations of cable tray. Provide core drilling where required for installation.

b. Provide firestopping material to maintain the fire rating of penetrated walls, floors, and ceiling structures. Firestop system shall be UL 1479 and ASTM E814 classified for though penetration applications of cable trays and raceways.

6. Grounding and Bonding:

a. Work shall comply with the CBC, Uniform Fire Code, California Electrical Code, UL 467, and ANSI/TIA/EIA, as well as local codes which may specify additional grounding and/or bonding requirements.

b. Bond metallic raceway at each end to the nearest grounding bus bar if cable tray is located in the MPOE or the MDF. Where the cable tray is located in other areas, bond to service ground. Ensure that bonding connects to bare metallic surface of painted metallic raceway.

c. Test cable trays to ensure electrical continuity of bonding and grounding connections. Submit two copies of test results for review and acceptance prior to substantial completion.

3.02 CERTIFICATION AND TESTING

A. Certifications and testing requirements are specified in individual requirements sections of this document.

3.03 PROJECT RECORD DOCUMENTS

A. Supply one complete set of As-built drawings. Indicate red/blue line deviations from the Owner approved installation Drawings.

3.04 PROTECTION

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

3.05 CLEANUP

A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

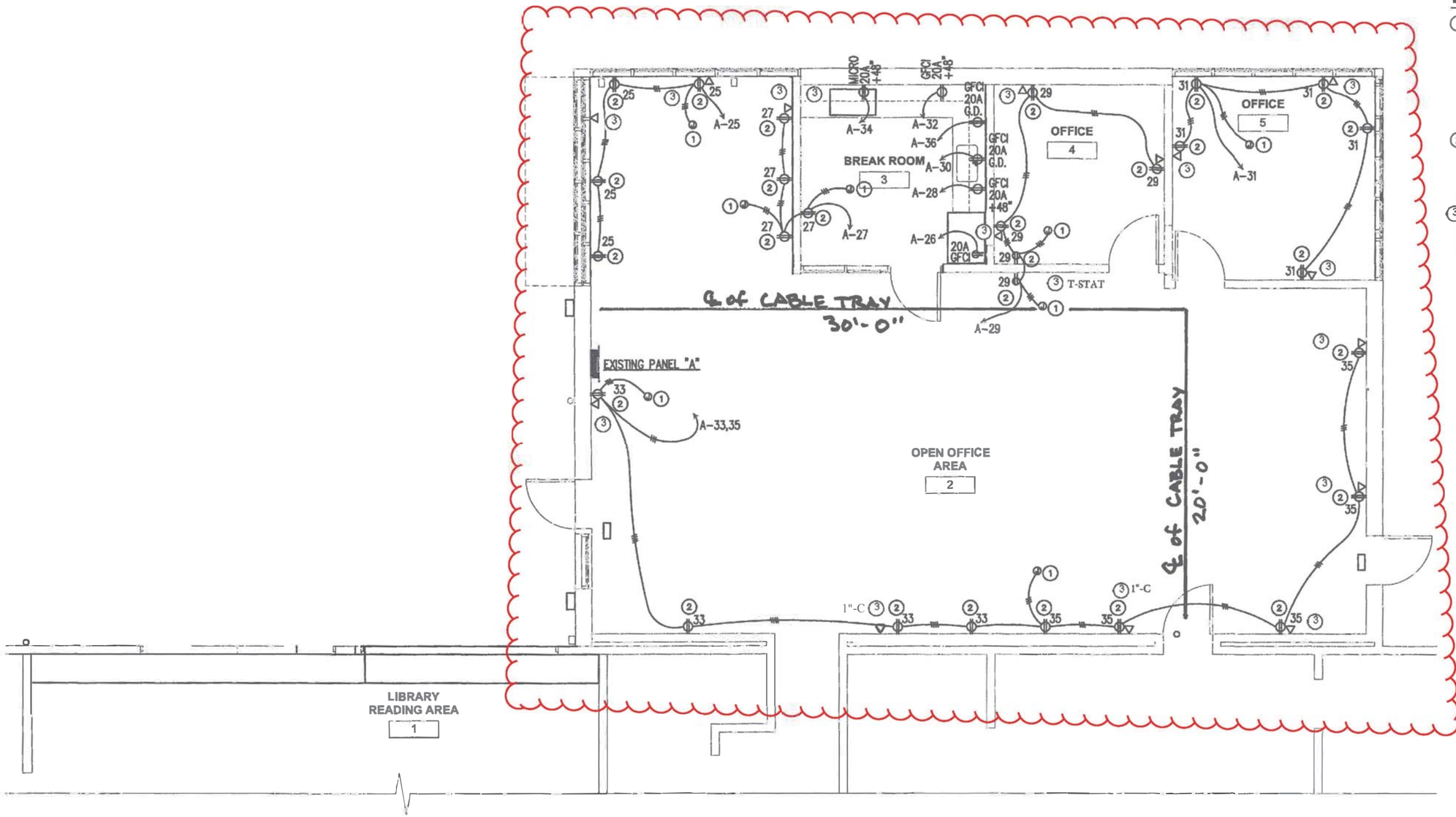
3.06 OWNER ORIENTATION

A. Completed Record Drawings, as specified in Article 3.03 above shall serve as the Owner's orientation.

3.07 CABLE TRAY LAYOUT

A. See separate drawing attached.

END OF SECTION



PLAN KEYED NOTES:

1. PROVIDE DIGITAL PLUG LOAD ROOM CONTROLLER FOR CONTROL OF PLUG LOAD.
   WATTSTOPPER LMPL-101 DIGITAL PLUG LOAD ROOM CONTROLLER.
   INTERCONNECT AS REQUIRED WITH LOW VOLTAGE CABLE TO DIGITAL LIGHT MANAGEMENT (DLM) ROOM CONTROLLER.
   CONNECT AS REQUIRED TO CONTROLLED RECEPTACLE (1/2" CONDUIT, 3#12 CONDUCTORS). COORDINATE AS REQUIRED.

2. RECEPTACLE SHALL BE SPLIT WIRED, WITH ONE CONTROLLED AND ONE UNCONTROLLED RECEPTACLE. PROVIDE MARKING TO IDENTIFY CONTROLLED RECEPTACLE. SEE KEYED NOTE #2 ABOVE. COORDINATE AS REQUIRED.

3. DATA OUTLET BOX 4S, MOUNTED +15" A.F.F. TO BOTTOM OF DEVICE U.O.N. STUB 3/4" C.O. 6" ABOVE CEILING SPACE, PROVIDE BUSHING AND PULL STRING

Section 16536

TELE/DATA ROUGH-IN SCOPE