Tacoma Public Library
Main Library
1102 Tacoma Ave South Tacoma, WA 98402

Passenger Elevator Modernization
Tacoma Public Library Project No. 180509

Bid Set
May 09, 2018

Consultant
Hultz/BHU Engineers, Inc.
1111 Fawcett Avenue, Suite 100
Tacoma, WA 98401
(253) 383-3257 Fax (253) 383-3283
Hultz/BHU Project No.: 18-049
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All of your signatures and dates written on these specifications must be in blue ink or your proposal will be rejected.
CALL FOR BIDS

Sealed Proposals for:

TACOMA PUBLIC LIBRARY
MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION
PER SPECIFICATIONS
TPL #180509

Will be received at the Administration Office, Third Floor, Board Room, Tacoma Public Library, 1102 Tacoma Avenue South, Tacoma, Washington 98402. Proposals will be received until 1:00 PM, Tuesday, June 12, 2018 at which time the proposals will be opened by the Business Manager or a representative designated by the Business Manager. Public Bid Opening will commence at approximately 1:35 P.M. at the same location.

Pre-Bid Walk-Through: A ‘mandatory’ pre-bid walk-through will be held on Thursday, May 31st, 2018 at 10:00 am & June 6, 2018 at 12:00 pm. Meet at Tacoma Public Library, 1102 Tacoma Avenue South, outside the Main Entrance. For directions to the site of the pre-bid walk-through, please contact the Consultant listed below.

Project Scope: The general character of the work is:

PASSENGER ELEVATOR MODERNIZATION PER SPECIFICATIONS TPL #180509 - Modernize existing passenger elevator. Provide Mechanical and electrical support work.

Main Library
1102 Tacoma Avenue South
Tacoma, Washington 98402

Engineers Estimate: $175,000 to $180,000

The Tacoma Public Library is soliciting performance proposals from qualified firms to provide all personnel, equipment, tools, supplies, supervision and other items and services necessary to perform the work for the MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION PER SPECIFICATIONS TPL #180509. Each proposal must be accompanied by a Certified Check or Bid Bond in an amount equal to five percent (5%) of the proposal. The successful Proposer will be required to furnish a Surety or Performance Bond for 100 percent (100%) of the actual contract price (including any taxes). Specifications may be inspected and obtained by the intending Proposers at the Administration Office, Third Floor, Tacoma Public Library, 1102 Tacoma Avenue South, Tacoma, Washington 98402 during regular office hours, Tuesday & Wednesday, 11:00 am to 4:30 pm, Thursday & Friday 9:00 am to 4:30 pm. Also online at www.tacomapubliclibrary.org, ABOUT THE LIBRARY/Employment/Request for Bid.

Tacoma Public Library

AGAIN, WE MUST HAVE YOUR PROPOSAL IN OUR HANDS NO LATER THAN TUESDAY, JUNE 12, 2018 AT 1 PM.

All of your signatures and dates written on these specifications must be in blue ink or your proposal will be rejected.
PLEASE NOTE: Be sure you have complied with all the specifications and requirements and have signed or have caused to be signed all required instruments. YOUR ATTENTION IS PARTICULARLY CALLED to the following forms which must be executed in full before the bid is submitted.

1. PERFORMANCE PROPOSAL SIGNATURE SHEET

All information requested needs to be filled-in on the proposal sheet. The proposal signature sheet must be signed AND DATED IN BLUE INK by the Proposer. Be sure all parties whose signatures are legally necessary, whether the Proposer is an individual, partnership or corporation.

2. BID BOND

The Bid Bond must be executed by the person legally authorized to sign the bid and must also be properly signed by the representatives of the Surety Company unless the bid is accompanied by a certified check. If Bid Bond is furnished, the form furnished by the Library must be followed—no variations from the language thereof will be accepted. The amount of the Bid Bond must be not less than five percent (5%) of the total amount bid, and, if shown in dollars and cents, the amount of said Bid Bond must be not less than the required five percent (5%).

Bids may be accompanied by a certified check, in lieu of a bid bond, for five percent (5%) of the amount of the proposal, and made payable to the Tacoma Public Library. The check of the successful Proposer will be returned immediately upon award of contract and acceptance of performance bond. All other checks will be returned immediately upon award of contract. Should the successful Proposer fail to enter into contract or furnish a satisfactory performance bond within ten (10) days from the date he is notified, the check shall be forfeited as liquidated damages.

3. SCHEDULE OF WRITTEN BID

The unit prices written quote must be shown in the spaces provided. Be sure to check computations for omissions and errors.

4. NON-COLLUSION AFFIDAVIT

This document must be signed by the Proposer IN BLUE INK and be subscribed and sworn to before a Notary Public.

FAILURE TO COMPLETE THE AFOREMENTIONED NON-COLLUSION DECLARATION AND TO SUBMIT SAID DECLARATION WITH THE BID SHALL BE DUE CAUSE FOR REJECTION OF BID.

MATERIAL MISSTATEMENTS CONCERNING COMPLETED ACTIONS BY THE PROPOSER IN ANY SWORN STATEMENT OR FAILURE TO COMPLETE AND SUBMIT ANY FORM MAY RENDER A BID NON-RESPONSIVE AND SHALL BE DUE CAUSE FOR REJECTION OF BID.
After the Contract is awarded, the following forms are to be executed by the successful Proposer:

1. **CONTRACT**

   The Contract must be executed by the successful Proposer **SIGNED AND DATED IN BLUE INK.**

2. **PREVAILING WAGE**

   The successful Proposer must comply with all Federal, State and Local laws and regulations including but not limited to: the State of Washington Department of Labor & Industries, Department of Employment Security, and Department of Revenue.

   a. The successful proposer must provide for their company and for all their subcontractors:
      An approved Statement of Intent to Pay Prevailing Wages from the Washington State Department of Labor and Industries.

      1) Invoices which show the classes of workers and pay rates so that the Library can ensure the wages paid agree to the Intent to Pay Prevailing Wages, and are the correct wages.

   b. Affidavit of Wages Paid.


   d. The exact wage publication date to use is May 2018.

   e. The work will be performed in Pierce County.

   f. Specifications may be inspected and obtained by the intending Proposers at the Administration Office, Third Floor, Tacoma Public Library, 1102 Tacoma Avenue South, Tacoma, Washington 98402 during regular office hours, Tuesday & Wednesday, 11:00 am to 4:30 pm, Thursday & Friday 9:00 am to 4:30 pm or on [www.tacomalibrary.org/About](http://www.tacomalibrary.org/About) the Library/Employment/Bid Information.

3. **INSURANCE COVERAGE**

   The successful Proposer must provide an insurance certificate indicating public liability and property damage insurance naming the Library as an additional insured in an amount of no less than $1,000,000 single limit. The successful Proposer must also provide satisfactory evidence that a Blanket Fidelity Bond on all of its employees is available in amounts of no less than $50,000.

4. **PERFORMANCE BOND**

   The Performance Bond must be executed by the successful Proposer and his surety company.

5. **LICENSING**

   The successful proposer must have or obtain a City of Tacoma Business License.

END OF SECTION
GENERAL INSTRUCTIONS TO BIDDERS

1. Proposals must be delivered to the Administration Office, Third Floor, Tacoma Public Library, 1102 Tacoma Avenue South, Tacoma, Washington 98402, by 1:00 PM, Tuesday, June 12, 2018.

FOR:

MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION
PER SPECIFICATIONS TPL #180509

No proposals will be considered which are received after the time mentioned, and any proposals so received after the scheduled closing time shall be returned to the Proposer unopened.

BIDS MAY BE SENT IN BY MAIL OR TURNED IN PERSONALLY; HOWEVER, IF SENT BY MAIL, THE RESPONSIBILITY OF ITS DELIVERY ON TIME TO THE LIBRARY IS WHOLLY UPON THE BIDDER.

1. Each bid must be accompanied by a Certified Check for five percent (5%) of the amount of the proposal, made payable to “Tacoma Public Library” or an approved Bid Bond for five percent (5%) of the amount of the proposal executed on the approved form attached to these specifications. If a Bid Bond is used, the five percent (5%) may be shown in dollars and cents, or the form may be filled in by inserting therein, in lieu thereof, five percent (5%) of amount of accompanying proposal. Certified Checks will be returned immediately upon award of Contract and acceptance of performance bond.

2. No bid can be withdrawn after having been opened by the Business Manager or representative.

3. Upon failure to enter into the Contract and furnish the required Performance Bond within the time required, the proposal guarantee which accompanied the bid, whether in the form of a bond or check, shall be forfeited to the Library as liquidated damages.

The award may then, at the discretion of the Library, be made to the next best performance responsible bidder or the Work may be re-advertised or may be provided by the Owner in any legal manner.

4. Each proposal, intact and bound with specifications, shall be completely sealed, properly addressed to the Library with the name of the Bidder and the item description written on the outside of the package.

5. No later than ten (10) days after award of Contract, the successful Proposer shall file with the Tacoma Public Library Director a surety bond (performance bond) in the full amount of his bid to ensure delivery of services according to said Contract and these specifications. Said bond shall be executed by a bonding company licensed in Washington with a Best rating of “A” or better. The bond shall be in a form and with a surety and in a form acceptable to the Library Director. Contractor shall pay all premiums or costs associated with maintaining the bond and shall keep the same in full force and effect at all times.

6. Section 6.68.225 of the Official Code of the City of Tacoma provides that all transactions within the City, wherever consummated, are subject to City Business and Occupation tax. It is the responsibility of the successful Proposer to register with the Department of Tax and License.

7. The successful Proposer agrees that its violation of the City of Tacoma’s Code of Ethics contained in Chapter 1.46 of the Tacoma Municipal Code shall constitute a breach of the contract subjecting the contract to termination.

8. The Tacoma Public Library hereby notifies all Proposers that in any contract entered into pursuant to this advertisement, there will not be discrimination on the grounds of race, sex, color or national origin in consideration of award.
9. The Proposer agrees to abide by all the laws, rules and regulations promulgated by the United States of America, the State of Washington, or any agencies or subdivisions thereof, specifically including WISHA and OSHA regulations currently in effect at time of bid opening.

10. It is also made a part of this submittal that the Library reserves the right to reject any or all bids, waive informalities and that the Library reserves the right to accept any/or all unit price items it deems appropriate.

11. For further information relating to these specifications, please contact Phillip Torgerson, Facilities Manager, Tacoma Public Library, (253) 292-2001, ext. 1915 or (253) 381-1347.

12. The Board of Trustees of the Tacoma Public Library shall make the selection of the successful vendor in consultation with the administrative staff and shall use the following criteria:
   A. Highest rated performance bid.
   B. The ability, capacity, and skill of the Proposer to perform the Contract or provide the services required.
   C. Whether the Proposer can perform the Contract or provide the service promptly, or within the time specified, without delay or interference.
   D. The character, integrity, reputation, judgment, experience and efficiency of the Proposer.
   E. The quality of performance of previous contracts or services.
   F. The previous and existing compliance by the Proposer with laws and ordinances relating to contracts or services.
   G. The sufficiency of the financial resources and ability of the Bidder to perform the Contract or provide the services.
   H. The quality, availability and adaptability of the supplies or contractual services to the particular use required.
   I. The ability of the Proposer to provide future maintenance and service for the use of the subject of the Contract.
   J. The number and scope of conditions attached to the bid.
   K. A proposer listed on the Federal or State Debarred Contractors List will be considered nonresponsive and that proposal shall be rejected.

13. The award of Contract, if it be awarded, shall be made within forty-five (45) calendar days after the date of opening of bids to the highest rated performance Proposer deemed responsible by the Library. The successful Proposer will be notified, by letter mailed to the address shown on his proposal, that his bid has been accepted and that he has been awarded the Contract. The Library reserves the right to reject any and all bids, and to waive informalities in the bidding.

14. The Proposer must be qualified by experience, financing, and equipment to do the Work called for in the specifications. The Library shall have the right to take such action as it deems necessary in determining the ability of the Proposer to perform the Work satisfactory. Upon request of the Library, a Proposer shall submit promptly to the Library satisfactory evidence of financial resources and his organization available for performance of the proposed Contract.

15. The Proposer's price quotation set forth on the Bidder's “Proposal Sheet” shall include all the costs of performing the service, including, but not limited to labor costs, material costs, taxes, permits, surety costs, overhead, and profit.

END OF SECTION
The undersigned, having carefully examined the drawings, specifications, and related documents, the site of the proposed Work, being familiar with all of the conditions relating to the work of the proposed project, including the availability of materials and labor hereby propose to furnish, within the requirements of the schedule for completion, all labor, supervision, materials, services, and equipment required in connection with or incidental to the MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION PER SPECIFICATIONS TPL #180509, and shall perform all work for the general contract in accordance with the subject bid documents for the following lump sum of money:

1. LUMP SUM BASE BID:
   Elevator Modernization
   a. Bid excluding retail sales tax $________________________
   b. Washington State Sales Tax (10.1%) $________________________
   c. Bid including Wash State Sales Tax $________________________

2. ADDITIVE ALTERNATE BID NO 1: REMOTE OIL COOLER FOR ELEVATOR #2
   a. Bid excluding retail sales tax $________________________
   b. Washington State Sales Tax (10.1%) $________________________
   c. Bid including Wash State Sales Tax $________________________

3. ADDITIVE ALTERNATE BID NO 2: BATTERY LOWERING DEVICE FOR ELEVATOR #2
   a. Bid excluding retail sales tax $________________________
   b. Washington State Sales Tax (10.1%) $________________________
   c. Bid including Wash State Sales Tax $________________________

Receipt of Addendum:

Receipt of the following Addenda is acknowledged:

Addendum No._____ Addendum No._____ Addendum No._____

Time for Completion:

Contract Time - The undersigned hereby agrees to Substantially Complete all the work under the Base Bid (and accepted Alternates) within 70 calendar days after the date of Notice to Proceed.

Punch List Completion – All Punch List items shall be completed within 7 calendar days after the date of Substantial Completion.
Final Completion – All the Work shall be fully and finally completed in accordance with the contract documents within 7 calendar days after the date of Substantial Completion.

Liquidated Damages:

The undersigned agrees to pay the Owner as liquidated damages the sum of $316 for each consecutive calendar day that is in default after the Contract time.

MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION
PER SPECIFICATIONS TPL #180509

RESPECTFULLY SUBMITTED,

CORPORATION FILL IN: BIDDERS FILL IN:

Legal Name of Corporation

State of Incorporation

Typed Name of Officer

Signature of Officer

Title of Officer

Telephone & Fax

Legal Name of Bidding Firm

Address

Typed Name of Officer

Signature of Officer

Title of Officer

Telephone & Fax

State of Washington CONTRACTOR’S LICENSE and REGISTRATION NUMBER

Herewith find deposit in the form of a Certified Check or Bid Bond in the amount of $____________ which amount is not less than five percent (5%) of the total bid. Sign here ______________________________
TACOMA PUBLIC LIBRARY
MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION

BID BOND

KNOW ALL MEN BY THESE PRESENTS:
That we, ____________________________________________________________, as Principal, and ______________________________________________________________, as Surety, are held and firmly bound unto the Board of Trustees, Tacoma Public Library as Obligee, in the penal sum of ___________________________ dollars, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

The condition of this obligation is such that if the Obligee shall make any award to the Principal for:

TACOMA PUBLIC LIBRARY – MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION TPL #180509

According to the terms of the proposal or bid made by the Principal therefore, and the Principal shall duly make and enter into a contract with the Obligee in accordance with the terms of said proposal or bid and award and shall give bond for the faithful performance thereof, with Surety or Sureties approved by the Obligee; or if the Principal shall, in case of failure so to do, pay and forfeit to the Obligee the penal amount of the deposit specified in the Call for Bids, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and liquidated damages, the amount of this bond.

SIGNED, SEALED AND DATED THIS ______ DAY OF ____________ 2018.

By: _______________________________________
Principal

By: _______________________________________
Surety
NON-COLLUSION AFFIDAVIT

STATE OF WASHINGTON

COUNTY OF PIERCE

_____________________________________, being first duly sworn, under oath says that as
(NAME)_, of ___________________________________, that the
(TITLE)_____________________, (FIRM)_____________________, that the
proposal above submitted is genuine and not a sham or collusive proposal, or made in the interest or in
behalf of any person not therein named; and further says that the said Proposer has not directly or
indirectly induced or solicited any Proposer on the above services, work or supplies to put in a sham
proposal or has not directly or indirectly induced or solicited any other person or corporation to refrain
from making a proposal; and that said Proposer has not in any manner sought by collusion to secure to
an advantage over any other Proposer or Proposers.

SIGN HERE: __________________________________________

Subscribed and sworn to before men this _____day of, __________________, 2018.

Notary Public in and for the State

of __________________________________________

residing at ______________________________________

______________________________________________

______________________________________________

______________________________________________
TACOMA PUBLIC LIBRARY
MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION
PER SPECIFICATIONS
TPL #180509

CONTRACT

THIS AGREEMENT made and entered into, in triplicate, this ___ day of ________, 2018, by and between the BOARD OF TRUSTEES OF THE TACOMA PUBLIC LIBRARY, hereinafter called the “Library,” and ________________________, hereinafter called the “Contractor.”

WITNESSETH:

That the Contractor, in consideration of the covenants, agreements, and payment to be performed and made by the Library, hereby covenants and agrees to perform the work and to furnish all labor, tools, materials, equipment, supplies, accessories and appurtenances, including the transfer and delivery of materials and equipment for constructing and completing the work provided for in this contract and every part thereof, required in the specifications and for:

MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION
PER SPECIFICATIONS
TPL #180509

In accordance with and pursuant to all the items and conditions of the Call for Bids, Special Reminder to Proposers, Instructions to Proposers, General/Special Conditions and Specifications and Plans, copies of which are hereunto attached, submitted, and hereby declared and accepted as parts of this agreement as fully as if set forth herein.

The Contractor acknowledges, and by signing this Agreement agrees, that the Indemnification Provisions set forth in the General Provisions, including the Industrial Insurance immunity waiver (if applicable), are totally and fully part of this Agreement and, within the context of the competitive bidding laws, have been mutually negotiated by the Parties hereto.

The Contractor, for himself, and for his heirs, executors, administrators, successors, and assigns, does hereby agree to the full performance of all the covenants herein contained upon the part of the Contractor.

It is further provided that no liability shall attach to the Library by reason of entering into this Agreement, except as expressly provided herein.

The Contractor agrees to accept as full payment hereunder the amounts specified in the Proposal, and the Library agrees to make payments at the times and in the manner and upon the terms and conditions specified in said Call for Bids, Special Reminder to Bidders, Instructions to Bidders, Specifications, Plans and Proposal, and Contractor’s Specifications (if any).

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be duly executed.

Countersigned this _________ day of ________________, 2018

BY: ________________________________  BY: _________________________________
Susan Calhoun                    Kate Larsen
Business Manager             Library Director

Contractor:

BY: ______________________________

Printed Name ________________________
Title ________________________________
PERFORMANCE BOND
TO THE BOARD OF TRUSTEES OF THE TACOMA PUBLIC LIBRARY

KNOW ALL MEN BY THESE PRESENTS:
That we, the undersigned, ____________________________, as principal, and ____________________________, a corporation organized and existing under the laws of the State of ____________________________, as a surety corporation, and qualified under the laws of the State of Washington to become surety upon bonds of contractors with municipal corporations, as surety, are jointly and severally held and firmly bound to the Board of Trustees of the Tacoma Public Library in the penal sum of $_____________________, plus applicable sales tax, for the payment of which sum on demand we bind ourselves and our successors, heirs, administrators or personal representatives, as the case may be.

This obligation is entered into pursuant to the statutes of the State of Washington and the Ordinances of the City of Tacoma.
Dated at Tacoma, Washington, this ______ day of _____________, 2018. Nevertheless, the conditions of the above obligation are such that:
WHEREAS, the Board of Trustees of the Tacoma Public Library has let or is about to let to the said ______________________________ the above bounden principal, a certain contract, the said contract being numbered Specification TPL #180509 and providing MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION PER SPECIFICATIONS TPL #180509 (which Contract is referred to herein and is made a part hereof as though attached hereto), and
WHEREAS, the said principal has accepted, or is about to accept, the said contract, and undertake to perform the Work therein provided for in the manner and within the time set forth:
NOW, THEREFORE, if the said ______________________________ shall faithfully perform all of the provisions of said contract in the manner and within the time therein set forth, or within such extensions of time as may be granted under said contract, and shall pay all laborers, mechanics, subcontractors and material men, and all persons who shall supply said principal or subcontractors with provisions and supplies for the carrying on of said Work, and shall hold said Board of Trustees of the Tacoma Public Library harmless from any loss or damage occasioned to any person or property by reason of any carelessness or negligence on the part of said principal, or any subcontractor in the performance of said Work and shall indemnify and hold the Board of Trustees of the Tacoma Public Library harmless from any damage or expense by reason of failure of performance as specified in said contract, then and in that event this obligation shall be void; but otherwise it shall be and remain in full force and effect.

Approved:  Principal:
________________________________________  ____________________________________
Susan Calhoun
Business Manager  By: _________________________________

Surety:
________________________________________
By: _____________________________________

Agent’s Name: _____________________________
Agent’s Address: ___________________________
GENERAL RELEASE TO THE TACOMA PUBLIC LIBRARY

The undersigned, named as the contractor for the:

MAIN LIBRARY PASSENGER ELEVATOR MODERNIZATION PER SPECIFICATIONS TPL #180509

Main Library, between ______________________ and the Tacoma Public Library, dated _______ day of __________, 2018, hereby releases the Tacoma Public Library, its departmental officers and agents from any and all claim or claims whatsoever in any manner whatsoever at any time whatsoever arising out of and/or in connection with and/or relating to said contract, excepting only the equity of the undersigned in the amount not retained by the Tacoma Public Library under said contract, to-wit; the sum of $___________________.

Signed at Tacoma, Washington this _______ day of __________, 2018.

Contractor

By____________________________________
Title__________________________________
RESPONSIBILITY CRITERIA

1.01 GENERAL REQUIREMENTS

A. General: Company's performing the Division 14 work shall meet the responsibility criteria outlined below. Company's which fail to meet this criterion will not be allowed to perform any Division 23 work on this project.

B. Company Experience: The Company responsible for performing the Division 14 work shall have experience with at least 3 projects similar to this project within the last 5 years. To be considered similar to this project the projects shall have involved modernizing public elevators, and have a Division 14 construction cost of at least $100,000.

C. Individual Experience: The individuals performing the Division 14 work shall have experience with at least 3 projects similar to this project within the last 5 years, and be performing tasks on this project similar to those they have performed on past projects.

1.02 SUBMITTALS

A. Submittals shall comply with Divisions 00 and 01.

B. Submittal: Upon request of the Engineer submit the following:

1. Company Resume: Provide information showing compliance with the above requirements. Provide for each project: name, description, location, Owner, reference (name, title, company, and phone number), Division 14 construction cost, and date completed.

2. Individual Resumes: Provide information showing compliance with the above requirements. Provide for each project: name, description, location, Owner, reference (name, title, company, and phone number), Division 14 construction cost, and date completed. Include individual's work history, qualifications, training/education, and certifications/licenses.

END OF SECTION
1.01 The Contractor agrees to be responsible for examining the site and to have compared them with the Specifications and Contract Drawings, and to be satisfied as to the facilities and difficulties attending the execution of the proposed Contract (such as uncertainty of weather, floods, nature and condition of materials to be handled and all other conditions, obstacles and contingencies) before the delivery of his/her Proposal. No allowance will be subsequently made by the Library on behalf of the Contractor of any error or neglect on Contractor’s part, for such uncertainties as aforesaid.

1.02 The provisions of Chapter 18.27 of the Revised Code of Washington apply to the Proposal. The Contractor’s Washington State Contractor’s Registration Number must accompany the proposal.

1.03 The Contractor shall not commence Work under the Contract or under any special condition until he has obtained all insurance as required and such insurance has been approved by the Library; nor shall the Contractor allow any subcontractor to commence Work on his subcontract until all similar insurance required of the subcontractor has been so obtained and approved.

1.04 The Contractor shall take out and maintain during the life of this Contract Workmen’s Compensation Insurance for all of his employees employed at the site of the project and, in case any Work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen’s Compensation Insurance for all the latter’s employees unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in hazardous Work under this Contract at the site of the project is not protected under Workmen’s Compensation statues, the Contractor shall provide, and shall cause each subcontractor to provide, compensation insurance with a private company in an amount equivalent to that provided by the Workmen’s Compensation status for the protection of his employees not otherwise protected.

1.05 The provisions of Chapter 39.12 RCW as amended are applicable and state that the applicable prevailing wages shall be paid on public Works and public building service and maintenance contracts. All personnel employed by a Contractor to perform Work under this contract shall be paid not less than the minimum hourly rate of wage established by the Washington State Department of Labor and Industries as the prevailing rate of wage for Pierce County. The Contractor shall be responsible for complete compliance with the statue, including the requirement that billings for payment be accompanied by a certified statement of hourly wages paid employees under the contract in a form approved by the State of Washington. The Contractor’s first billing for payment shall not be made until the Library is in receipt of a Department of Labor and Industries fully executed and approved “Statement of Intent to Pay Prevailing Wages,” Form LI-700-20. Prior to payment of the last monthly billing under this Agreement, a fully executed and approved “Affidavit of Wages Paid on Public Works Contract”, Form LI-700-7 shall be forwarded to the Library.

1.06 The Contractor shall obtain and keep in force during the term of the Contract public liability and property damage insurance on companies and in form to be approved by the Library. Said insurance shall provide coverage to the Contractor, any subcontractor performing Work provided by this Contract, and the Tacoma Public Library. The Tacoma Public Library and their agents shall be named as an additional insured on said policy insofar as the Work and obligations performed under the Contract are concerned. The coverage so provided shall protect against claims for personal injuries, including accidental death, as well as claims for property damages which may arise from any act or omission of the Contractor or the subcontractor or by anyone directly or indirectly employed by either of them.
1.07 The successful Proposer must provide an insurance certificate indicating public liability and property damage insurance naming the Library as an additional insured in an amount of no less than $1,000,000 single limit. The successful Proposer must also provide satisfactory evidence that a Blanket Fidelity Bond on all of its employees is available in amounts of no less than $50,000.

“It is hereby understood and agreed that such insurance as is afforded by this policy on behalf of the Tacoma Public Library and their agents as an additional insured shall apply as Primary Insurance on behalf of such additional insured, as respects Work done for the Tacoma Public Library by ________________________________.”

1.08 The Contractor hereby agrees to save the Owner harmless from all loss or damage occasioned to it or to any third person or property by reason of any acts or omissions on the part of the Contractor, subcontractor, agents and employees in the performance of the Contract and will, after reasonable notice thereof, defend and pay the expense of defending any suit which may be commenced against the Owner by any third person alleging injury by reason of such acts or omissions, and will pay any judgment which may be obtained against the Owner in such suite.

1.09 The designated Owner’s Representatives of the Library on this project shall be:

<table>
<thead>
<tr>
<th>Primary Representative</th>
<th>Project Engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillip Torgerson</td>
<td>Michael Tagles</td>
</tr>
<tr>
<td>Tacoma Public Library</td>
<td>Hultz</td>
</tr>
<tr>
<td>1102 Tacoma Avenue South</td>
<td>1111 Fawcett Avenue, Suite 100</td>
</tr>
<tr>
<td>Tacoma, WA 98402</td>
<td>Tacoma, WA 98402</td>
</tr>
<tr>
<td>(253) 292-2001 ext. 1915</td>
<td>(253) 383-3257</td>
</tr>
<tr>
<td>(253) 381-1347 (cell)</td>
<td></td>
</tr>
</tbody>
</table>

The project location is as follows:
Main Library
1102 Tacoma Avenue South
Tacoma, Washington 98402

1.10-A. The Owner shall retain five percent (5%) of the monies earned by the contractor as a trust fund for the protection of payment of:

1) The claims of any person arising under the contract; and
2) The state with respect to taxes imposed pursuant to Title 82 RCW which may be due from such contractor.

B. After completion of all contract Work and verification that all subcontractors, material-men, and taxes have been paid, the Contractor may request the Owner to release and pay in-full the amounts retained during the performance of the contract.

C. Applications for Payment shall be made not later than the 15TH and 1ST of each month. The Contractor shall submit a signed, itemized Application for Payment for the period ending on the 5TH and 20TH day of the month, supported by data substantiating:

1) The Contractor’s right to payment.
2) Verifying with a submission of a bill of sale, invoice or other documentation that all subcontractors and material-men have been paid within the fifteen (15) days of payment by Owner for all prior progress payments.
3) Written certification along with a progress schedule that the Work is on or behind schedule.

It shall reflect retainage as provided in RCW Chapter 60.28. All applications for payment shall be submitted to the Project Engineer in quadruplicate. Project Engineer and Phillip Torgerson, Library Superintendent of Maintenance must approve contractor invoices in writing before the contractor will be paid.
D. The Project Engineer will, within ten (10) days after the receipt of the Contractor’s Application for Payment, either certify such Application for Payment to the Owner, with a copy to the Contractor, for such amount as the Project Engineer determines is properly due, or notify the Contractor in writing of his reasons for withholding such certification.

E. The certification of an Application for Payment will constitute a representation by the Project Engineer, Representative to the Owner, based on his observations at the site and the data comprising the Application for Payment, that the Work has progressed to the point indicated; that, to the best of his knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work for conformance with the Contract Documents, to minor deviations from the Contract Documents correctable prior to completion, and to any specific qualifications state in his Certificate); and that the Contractor is entitled to payment in the amount certified.

F. Twice each calendar month, the Owner will make a progress payment to the Contractor on the basis of the Certificate for Payment issued by the Project Engineer.

G. No Certificate for a Payment, nor any payment, nor any provision in the Contract Documents, shall constitute an acceptance on any Work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibilities for faulty materials or Workmanship.

H. In the event such claims are filed, the Contractor shall be paid less an amount sufficient to pay any such claims, together with a sum sufficient to pay the cost of such action, and to cover attorney fees as determined by the Library.

I. The acceptance by the Contractor of final payment shall be and shall operate as a release to the Library of all claims and all liability to the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the Library and others relating to or arising out of this Work. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from any obligation under this Contract or the Performance Bond.

1.11-A. Time is of the essence of the Contract; therefore, Work shall commence within five (5) days from the date the Contract has been properly executed and a written notice to proceed delivered to the Contractor; no Working days shall be charged during this period.

B. Contractor shall provide adequate forces and manage the project schedule and progress to achieve Substantial Completion and Final Completion within the timeframes prescribed on the Proposal Signature Sheet.

C. Liquidated Damages:
   1) Reason for Liquidated Damages: Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence. Owner will incur serious and substantial damages if Substantial Completion of the Work does not occur within the Contract Time. However, it would be difficult if not impossible to determine the exact amount of such damages. Consequently, provisions for liquidated damages are included in the Contract Documents.
   2) Calculation of Liquidated Damages amount: The liquidated damage amounts set forth in the Contract Documents will be assessed not as a penalty, but as liquidated damages for breach of the Contract Documents. This amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain. This amount shall be construed as the actual amount of damages sustained by the Owner, and may be retained by the Owner and deducted from periodic payments to the Contractor.
   3) Contractor responsible even if Liquidated Damages assessed: Assessment of liquidated damages shall not release Contractor from any further obligations or liabilities pursuant to the Contract Documents.
1.12-A. If the Contractor is delayed at any time in the progress of the Work by an act or neglect of the Library, or by any employee of the Library, or by any separate contractor employed by the Library, or by labor disputes, fire, floor, weather of unusual severity such as hurricanes, tornadoes and other extreme weather conditions, acts of government, or by any cause which the Library determined may justify the delay, then the Contract Time shall be extended by change order for a period to commensurate with the period of excusable delay.

B. The extended time period shall be reasonable; determined and fixed by the Library, which determination shall be final, but no such allowance shall be made unless a claim therefor is presented in writing to the Library within ten (10) days after the occurrence of such delay.

C. The Contractor shall not be entitled to any claim for damages because of delays caused by any of the aforesaid causes, but may be entitled to an extension of time in the above cases.

1.13 Prior to commencement of the project, the Contractor shall submit to the Owner's Representative of the Library a detailed schedule of how he proposes to complete each phase of the project.

1.14-A. The Tacoma Public Library may make changes in the scope of the Work required to be performed by the Contractor by making additions thereto or by omitting Work therefrom, without invalidating the Contract, and without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds provided that the total net amount of the changes does not change the Contract amount by more than twenty-five (25%). All such Work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

B. Except for the purposes of affording protection against any emergency endangering life or property, the Contractor shall make no change in the Work, provide any extra or additional Work, or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written change order from the Tacoma Public Library authorizing the change. No claim for an adjustment of the Contract price will be valid unless so ordered.

C. If applicable unit prices are contained in the Agreement (established as a result of either a unit price bid or a Supplemental Schedule of the Unit Prices submitted with a lump sum bid) the Tacoma Public Library shall order the Contractor to proceed with desired changes in the Work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices; provided that in case of a unit price contract the net value of all changes does not increase or decrease the original total amount shown in the Agreement more than twenty-five percent (25%).

D. If applicable unit prices are not contained in the agreement or if the total net changes increase or decrease the total Contract price more than twenty-five (25%) the Tacoma Public Library shall before ordering the Contractor to proceed with the desired changes, request an itemized proposal from him covering the Work involved in the change after which the procedure shall be as follows:
   1) If the proposal is acceptable the Tacoma Public Library will prepare the change order in accordance therewith for acceptance by the Contractor, and
   2) If the proposal is not acceptable and prompt agreement between the two parties cannot be reached, the Tacoma Public Library may order the Contractor to proceed with the Work on a force account basis.

In the case of (2) above, to the estimated or actual cost of labor, including foremen; materials entering permanently into the Work; the ownership or rental cost of construction plan and equipment during the time of use on the extra Work, power and consumable supplies for the operation of power equipment; insurance; social security; and old age and unemployment contribution; there shall be added a fixed fee to be agreed upon but not to exceed fifteen percent (15%) of the actual cost of the Work. The fee shall be compensation to cover the cost of
supervision, overhead profit, bond and any other general expenses.

E. Each change order shall include in its final form:
1) A detailed description of the change in the Work;
2) The Contractor’s proposal, (if any) or a conformed copy thereof;
3) A definite statement as to the resulting change in the Contract price and/or time and:
4) The statement that all Work involved in the change shall be performed in accordance with
   Contract requirements except as modified by the change order.
5) Each change order must be approved by Phillip Torgerson, Facilities Manager.

1.15-A. If the Contractor refuses or fails to advance the Work with such diligence as will insure its
completion within the time specified in these Contract Documents, plus any extension thereof as
provided in these Contract Documents, the Tacoma Public Library, by written notice to the
Contractor, may terminate the Contractor’s right to proceed with the Work. Upon such termination
the Tacoma Public Library may take over the Work and prosecute the same to completion by
contract or otherwise, and the Contractor and his sureties shall be liable to the Tacoma Public
Library for liquidated damages for any delay in the completion of the Work as provided below. If
the Contractor’s right to proceed is terminated, the Tacoma Public Library may take possession of
and utilize in completing the Work such materials, tools, equipment and plant as may be on the
site of the Work and necessary therefore.

B. The Contractor shall submit in detail his claim and his proof thereof. Each decision by the
governing body of the Tacoma Public Library will be mailed to the Contractor by registered mail,
return receipt requested.

C. If the Contractor does not agree with any decision of the Tacoma Public Library, he shall in no
case allow the dispute to delay the Work but shall notify the Tacoma Public Library promptly and
he may then accept the matter in question from the final release.

D. Performance of work under this Contract may be terminated in whole or in part at any time
by the LIBRARY by giving the CONTRACTOR ten (10) days written notice of such
termination, specifying the extent and effective date thereof. After receipt of any such notice,
the CONTRACTOR shall stop work hereunder to the extent and on the date specified in such
notice, terminate all subcontracts and other commitments to the extent they relate to the work
terminated, and deliver to the LIBRARY all designs, computations, drawings, specifications, and
other material and information prepared or developed to the date of the written notice of
termination in connection with the work terminated.

E. In the event this Contract is terminated by the LIBRARY other than for default on the part of the
CONTRACTOR, a final payment shall be made to the CONTRACTOR which when added to any
payments previously made shall total the same percentage of the fees as the work completed at
the time of termination is to the total work required for the Project. In addition, the
CONTRACTOR shall be paid for any authorized extra work completed. No payment shall be
made for any work completed after ten days following receipt by the CONTRACTOR of the Notice
to terminate. If the accumulated payment made to the CONTRACTOR prior to Notice of
Termination exceeds the total amount that would be due computed as set forth herein above,
then no final payments shall be due and the CONTRACTOR shall immediately reimburse the
LIBRARY for any excess paid.

F. Any such termination shall not alter or affect the rights or obligations of the parties under this
Contract.

G. If the services of the CONTRACTOR are terminated by the LIBRARY for default on the part
of the CONTRACTOR, the above formula for payment shall not apply. In such an event, the
amount to be paid shall be determined by the LIBRARY with consideration given to the actual
costs incurred by the CONTRACTOR in performing the work to the date of termination, the
amount of work originally required which was satisfactorily completed to date of termination,
whether that work is in a form or a type which is usable to the LIBRARY at the time of termination; the cost to the LIBRARY of employing another firm to complete the work required and the time which may be required to do so, and other factors which affect the value to the LIBRARY of the work performed at the time of termination. Under no circumstances shall payment made under this subsection exceed the amount which would have been made using the formula set forth in the previous paragraph.

H. If it is determined for any reason that the CONTRACTOR was not in default or that the CONTRACTOR’s failure to perform is without it or its employee’s fault or negligence, the termination shall be deemed to be a termination for the convenience of the LIBRARY in accordance with the provision of this Contract.

I. Payment for any part of the work by the LIBRARY shall not constitute a waiver by the LIBRARY of any remedies of any type it may have against the CONTRACTOR for any breach of this Contract by the CONTRACTOR, or for failure of the CONTRACTOR to perform work required of it by the LIBRARY. Forbearance of any rights under the Contract will not constitute waiver of entitlement to exercise those rights with respect to any future act or omission by the CONTRACTOR.

1.16 Anything mentioned in the Technical Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Technical Specifications, shall be of like effect as if shown on or mentioned in both. In case of differences between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings or Technical Specifications, the matter shall be immediately submitted to the Tacoma Public Library, without whose decision said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

1.17-A. The Contractor shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the advancement of the Work and shall be responsible for the proper care and protection of all Work performed until completion and final acceptance, whether or not the same has been covered in whole or in party by payments made by the Tacoma Public Library.

B. In an emergency affecting the safety of life or property, on or adjoining the site, the Contractor shall act, either at his own discretion or as instructed by the Tacoma Public Library to prevent such threatened loss or injury. Any compensation claimed by the Contractor on account of such emergency Work will be determined by the Tacoma Public Library as provided above.

C. The Contractor shall avoid damaging sidewalks, streets, curbs, pavements, utilities, structures or any other (except that which to be replaced or removed) either on or adjacent to the site. He shall repair at his own expense and in a manner satisfactory to the Tacoma Public Library, any damage thereto caused by his operations.

D. The Contractor shall secure, and protect as may be necessary all parts of structures to remain on the project site or which are adjacent to or in the vicinity of the site and which may be in any way affected by his operations. The Contractor shall indemnify and save harmless the Tacoma Public Library from liability for any injury or damage to said structures and their premises or to persons due to his operations. He shall issue any and all required notices to property owners or other parties on, or in the vicinity of the site.

1.18-A. The Contractor shall, at all times, exercise adequate precautions for the safety of all persons, including employees, in the performance of this Contract and shall comply with all applicable provision of federal, state, county and municipal safety laws and regulations. Protective hats shall be worn at all times when an employee is at the job site, except where doing so would interfere with proper performance of the job.
B. The Inspector may advise the Contractor and the Safety Officer of any safety violations. It is the Contractor’s responsibility to make the necessary corrections. Failure to correct safety violations shall be grounds for an order from the Safety Officer, Inspector, Project Engineer, or Phillip Torgerson Facilities Manager to cease further work and remove from the job site until the condition is corrected. Time and wages lost due to such safety shutdowns shall be at the sole cost of the Contractor and shall not relieve the Contractor of the obligation to complete the work on time.

C. Any of the above actions by employees of the Tacoma Public Library shall in no way relieve the Contractor of his/her responsibility to provide for the safety of all persons, including his/her employees.

D. The Contractor shall erect and maintain good and sufficient guards, barricades and signals at all unsafe places at or near the work and shall, in all cases, maintain safe passageways at all road crossings, and crosswalks, and shall do all other things necessary to prevent accident or loss of any kind.

E. The Contractor shall protect from damage all utilities, improvements and all property that is likely to become displaced or damaged by the execution of the work under this Contract.

F. The Contractor is responsible for all roads and property damaged by his/her operations as determined by the Library. The Contractor shall be responsible for repairing all damage to roads caused by his/her operations to the satisfaction of the particular governmental body having jurisdiction over the road.

1.19-A. The Contractor shall confine his equipment, storage of materials, and demolition Work operations to the limits prescribed by ordinances or permits, or as may be directed by the Tacoma Public Library and shall not unreasonably encumber the premises.

B. The Contractor shall be expected to protect and ensure from loss any tools and equipment owned or rented by the Contractor, subcontractor, and the employees of the Contractor and subcontractor. Until the work is completed and accepted by the Library, the construction is at risk of the Contractor and no partial payment shall constitute acceptance of the work or relieve the Contractor of responsibility to delivery to the Library the completed as required by the contract.

C. The Contractor shall comply with all reasonable instructions of the Tacoma Public Library and the ordinances and codes of the City of Tacoma regarding signs, advertising, traffic fires, danger signals, barricades and fire prevention.

1.20 If the Tacoma Public Library deems it not expedient to require the Contractor to correct Work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Tacoma Public Library, and subject to settlement, in case of dispute, as herein provided.

1.21 The Contractor shall assume all responsibility for damage attributed to him to any property upon, or passing through, the Project Area, but excluded from the Work or not owned by the Tacoma Public Library, such as utility lines, surface improvements or like items.

1.22 All rubbish and debris found on the Project Area at the start of the Work as well as that resulting from the construction activities or deposited on the site by others during the duration of the Contract shall be removed and legally disposed of by the Contractor who shall keep the Project Area and public rights of way reasonably clear at all times. Upon completion of the Work, the Contractor shall remove all temporary construction, equipment, salvaged materials, trash and debris of all kinds leaving the entire Project Area in a neat condition. Trash burning on the site will be subject to prior approval of the Library and in accordance with existing state and local laws.
1.23 Neither the final certificate of payment nor any provision in the Contract Documents nor partial or entire occupancy of the premises by the Library shall constitute an acceptance of Work not done in accordance with the Contract Documents or relieve the Contractor of Liability in respect to any express warranties or responsibility for faulty materials or Workmanship. **The Contractor shall remedy any defects in the Work and pay for any damage to Work resulting therefrom, which shall appear within a period of five (5) years from the date of final acceptance of Work unless a longer period is specified.** The Library will give notice of observed defects with reasonable promptness.

1.24 Except when modified by the Specifications, the Contractor shall procure and pay for all permits and licenses necessary for the completion of this Contract including those permits required by the City of Tacoma. In the event a necessary permit is not obtained, the Contractor will not be permitted to work on items subject to said permit and any delays caused thereby will not be subject to extra compensation or extensions.

1.25-A. The Contractor shall keep on his/her work, during its progress, a competent superintendent and any necessary assistants, all of whom must be satisfactory to the Library. The Contractor’s superintendent shall not be changed except with the consent of the Library, unless the Contractor’s superintendent proves to be unsatisfactory to the Contractor and ceases to be in his/her employ. The Contractor’s superintendent shall represent the Contractor in his/her absence and all directions given to him/her shall be binding as if give to the Contractor directly. The Contractor shall give efficient supervision to the work, using his/her best skill and attention.

B. The Contractor shall employ only competent, skillful, faithful and orderly persons to do the work and, whenever the Library shall notify the Contractor in writing that any person on the work is, in its opinion, incompetent, unfaithful, disorderly or otherwise unsatisfactory, the Contractor shall forthwith discharge such persons from the work and shall not again employ him or her on this contract.

1.26 All materials furnished and work done shall be subject to inspection. The Inspector administering the Contract shall at all times have access to the work wherever it is in progress or being performed, and the Contractor shall provide proper facilities for such access and inspection. Such inspection shall not relieve the Contractor of the responsibility of performing the work correctly, utilizing the best labor and materials in strict accordance with the Specifications of this Contract. All materials or work approved and later found to be defective shall be replaced without cost to the Library.

1.27 The Inspector shall have power to reject materials or workmanship which do not fulfill the requirements of these Specifications, but in case of dispute the Contractor may appeal to the Superintendent of Maintenance whose decision shall be final. The Contract shall be carried out under the general control of the Superintendent of Maintenance who may exercise such control over the conduct of the work as may be necessary, in his or her opinion, to safeguard the interest of the Library. The Contractor shall comply with any and all orders and instructions given by the Superintendent of Maintenance in accordance with the terms of the Contracts. Nothing herein contained, however, shall be taken to relieve the Contractor of his/her obligations or responsibilities.

1.28 Neither the final certificate or payment or any provision in the Contract documents, nor partial or entire occupancy of the premises by the Library, shall constitute an acceptance of work not done in accordance with the Contract documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. **The Contractor shall remedy any defects in the work and pay for any damage to other work resulting there from, which shall appear within a period of one year from the date of final acceptance of the work unless a longer period is specified.** The Library will give notice of observed defects with reasonable promptness. If it has been discovered, before payment is required, under the terms of the Contract, that there is a failure to comply with any terms and provisions of this Contract, the Library has the right and may withhold payment.
In case of a failure of any part of the work, materials, labor and equipment furnished by the Contractor to fully meet all of the requirements of the Contract, the Contractor shall make such changes as may be necessary to fully meet all of the specifications and requirements of this Contract. Such changes shall be made at the Contractor’s sole cost and expense without delay and with the least practicable inconvenience to the Library. Rejected material and equipment shall be removed from the Library’s property by and at the expense of the Contractor.

Contractor’s warrants that all materials, equipment and/or services provided as a result of this proposal shall be fit for the purpose(s) for which intended, for merchantability, and shall conform to the requirements and specifications of the proposal; all items comply with all applicable safety and health standards established for such products by the Washington Industrial Safety and Health Act (WISHA), RCW Chapter 49.17, the U. S. Occupational Safety and Health Act (OSHA) and/or Consumer Products Safety Act, and all other applicable federal laws or agency rules; all items are properly packaged; and all appropriate instructions or warnings are supplied including any applicable MSDS sheets.

END OF SECTION
PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Title of work and type of contract.
B. Work by others.
C. Use of premises and protection of property.
D. Owner Occupancy.
E. Time of Completion.

1.02 RELATED REQUIREMENTS

A. Instructions to Bidders.
B. Agreement Form.
C. General and Supplementary General Conditions.

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. The work of this Contract comprises the modernization of the Passenger Elevator (Elevator #2) at the Tacoma Public Library, Main Library. Also includes mechanical and electrical support work for operational systems.

B. The above is a summary description only. Provide for the work as shown in the Contract Documents including all labor, materials, equipment, transportation and services required to complete the project.

1.04 CONTRACT METHOD

A. Construct the Work under a single fixed-price contract, which includes general, mechanical and electrical work.

1.05 CONTRACTOR'S USE OF PREMISES

A. Confine all materials, equipment, storage, staging areas, refuse, employee parking to within the extent of work line established at the building area. Where the extent of the work line is not clear to the Contractor, or if areas outside the work line are needed, coordinate and discuss with the Architect/Engineer to obtain clarification and approval. Secure Architect/Engineer's approval for any areas of question. The building will remain in use by Owner and shall not be used by the Contractor other than for the work of this project.

B. Schedule any work outside the extent of the work line at the convenience of the Owner and take measures to insure the safety of the Owner's employees and the public.

C. Fill all trenches crossing traffic lanes and sidewalks on a daily basis to restore a drivable/walkable surface. Leave no open trenches or excavations unprotected.

D. Before starting the work, establish with the Owner and Architect/Engineer (and with their approval), the point of entry to the site and the route within the site that may be used by
Contractor's personnel to gain access to the work area.

E. Conduct all operations in such a manner as to avoid damage to existing structures, walks, curbs, paving, grass areas, plantings, etc., that are to remain. Damaged items shall be replaced to match pre-construction conditions.

F. Provide the necessary protection and replace, repair or restore all damaged surfaces to their original condition; the expense of such work shall be borne by the Contractor.

G. Perform operations in such a manner and sequence that interference with the operations and activities of the Owner is kept to an absolute minimum.

H. Coordinate with Owner utility tie-ins and work requiring road closures to minimize impact to Owner's normal operations.

I. Contractor shall limit his use of the premises for Work and for storage, to allow for:
   1. Owner occupancy of existing buildings.
   2. Public use of existing buildings, parking lots and grounds.
   3. Public use of all roadways.

J. Assume full responsibility for the protection and safekeeping of products under this Contract, stored and installed on the site.

K. Move any stored products, under Contractor's control, which interfere with operations of the Owner.

L. Obtain and pay for the use of additional storage or work areas needed for operations.

M. Control dust, heat, smoke, water and pollutants as required by Agencies having jurisdiction.

N. Complete cleanup of all construction area and retrieval of any litter material from construction which has spread off-site.

O. Remove all waste material resulting from construction, as it occurs, to prevent accumulation; dispose of off-site at Contractor's expense.

P. Provide security of the building at Contractor's work (and material storage) areas.

Q. See also Section 01 50 00 for Construction Facilities and Temporary Controls and Division 23, 26.

1.06 PROTECTION OF PROPERTY

A. The Contractor shall be responsible for the protection of all existing utilities, pavement and structures on or adjoining the premises, whether shown on drawings or not. In the event of damage, such items shall be immediately repaired or replaced by the Contractor at his expense to the satisfaction of the Owner.

B. The Contractor shall be responsible for the protection of all existing property, equipment and system in the building and in the vicinity of the work from damage due to the work.
1.07 ACCEPTANCE OF SITE
   A. Contractor shall accept site in an "as-is" condition.

1.08 OWNER OCCUPANCY
   A. Owner will occupy the building during the project. Contractor must coordinate with the Owner and Architect/Engineer to avoid interfering with building use.

1.09 WORK RESTRICTIONS
   A. On-Site Work Hours: See plans for normal work hours. Work will not be permitted during holidays.
   B. Hours for Utility Interruptions: All utility interruptions shall be scheduled outside of normal library hours and shall be agreed upon and coordinated with the Owner. Utility interruptions longer than one hour are performed, subject to prior Owner approval. Notify Owner a minimum of three working days (72 hours minimum) in advance. Do not proceed with utility interruptions without Owners written permission.
   C. Hours for Noise Generating Work: Noisy work, including concrete drilling, saw-cutting, and similar noisy work shall not be performed during posted Library operation hours, without prior Owner approval (and requirements of authority having jurisdiction). Notify Owner a minimum of three working days (72 hours minimum) in advance and obtain permission.

1.10 TIME OF COMPLETION
   A. General: Time is of the essence in the execution of this contract. Construct work to accommodate Owner use of premises during construction and to be complete at the time agreed to in the Contract, see Proposal Signature Sheet for Contract Time.
   B. Substantial Completion: "Substantial Completion" is defined to mean when all equipment is completely connected up and ready to operate for the purpose intended. Final operator training and representative testing is immediately ready to occur as of this date. Contractor shall notify Engineer when he feels he is substantially complete to allow for review.
   C. Punchlist: Engineer will develop a project list of correction items once project is agreed to be substantially complete. Punchlist items shall be corrected within the time period indicated on the bid form.
   D. Final Completion: This includes all punchlist items, O&M Manuals, final affidavit of wages paid, record drawings, and all related close-out documentation. Final completion shall be completed within the time period indicated on the proposal form.

1.11 CONTRACTOR/SUBCONTRACTOR WORK
   A. General: The procedure followed by the Architect/Engineer has been to contact governing authorities where necessary to obtain information needed for the purpose of preparing Contract Documents; recognizing that such information may or may not be of significance in relation to the Contractor's responsibilities for performing the Work. All trades shall contact governing authorities directly for necessary information and decisions having a bearing on performance of the Work.
B. Trade Union Jurisdictions: The Contractor shall maintain, and shall require all trades to maintain complete current information on jurisdictional matters, regulations, actions and pending actions, as applicable to the Work. Discuss new developments at appropriate project meetings at the earliest feasible dates. Record information of relevance along with the actions agreed upon. The manner in which Contract Documents have been organized and subdivided is not intended to be an indication of jurisdictional or trade union agreements. Assign and subcontract the work, and employ tradesmen and laborers, in a manner which will not unduly risk jurisdictional disputes of a kind which could result in conflicts, delays, claims and losses in the performance of the Work.

C. Submittals: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, in conjunction with compliance with standards and regulations bearing upon performance of the Work.

1.12 TRAFFIC WAYS

A. Conduct work to ensure minimum interference with adjacent roads, streets, and walks. Do not close or obstruct roads, streets, walks or other occupied or used facilities without permission from the Owner authorities having jurisdiction.

B. Provide alternate routes around closed or obstructed traffic ways (or portions of) as required by the Owner and governing authorities to ensure safe site entry/exit and allow as close to normal traffic flows as possible. Provide signage and flaggers as required.

END OF SECTION
PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. This Section establishes general requirements pertaining to cutting, patching, and repairing for fitting of the Work.

1.02 RELATED REQUIREMENTS

A. Section 01 01 00 - Summary of Work.
B. Section 01 60 00 - Material and Equipment.
C. Division 23 - HVAC.
D. Division 26 - Electrical.

1.03 SUBMITTALS

A. Submit a written request to Architect/Engineer well in advance of executing any cutting or alteration not in the Contract Documents which affects:
   1. Work of the Owner or any other person not under the Contractor.
   2. Structural value or integrity of any element of the Project.
   3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
   4. Efficiency, operational life, maintenance or safety of operation elements.
   5. Visual qualities of sight-exposed elements.

B. Request shall include:
   1. Identification of the Project.
   2. Description of affected work.
   3. The necessity for cutting, alteration or excavation.
   4. Effect of work on related areas or trades.
   5. Description of proposed work:
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades who will execute the work.
      c. Products proposed to be used.
      d. Extent of refinishing to be done.
   6. Alternatives to cutting and patching.
7. Cost proposal, when applicable.
8. Written permission of any separate contractor whose work will be affected.

C. Should conditions of work or the schedule indicate a change of products from original installation, Contractor shall submit request for substitution as specified in Section 01 60 00 - Material and Equipment.

D. Submit written notice to Architect/Engineer designating the date and the time the work will be uncovered.

1.04 GENERAL REQUIREMENTS

A. Provide all labor and materials for the work, so as to:
   1. Make the several parts fit properly.
   2. Accommodate the work of all trades.

B. Remove and replace existing construction as required for alterations and additions.

C. Uncover work to provide for inspection, installation, or both, of ill-timed work.

D. Remove and replace defective work or work not conforming to the requirements of the Contract.

E. Repair work of new construction, removal of existing material, or existing material to remain, damaged during construction.

F. Provide all required spaces and provisions in structures for the installation of the work. Cutting and patching of new structures in place made necessary to admit work, repair defective work, or by neglect of subcontractors to properly anticipate their requirements, shall be done at no cost to the Owner.

G. Unless otherwise noted, each trade shall be responsible for cutting, patching and repairing of existing materials where altered to allow installation of new work. Removal of existing material in areas which are not scheduled for new work, other than cosmetic finishing, shall have any resulting opening repaired by patching. Removal of existing material shall be complete.

H. Each trade shall do all cutting through existing conditions for site related work and provide trenching, compacted backfill or other work as necessary and in accordance with Division 23 and 26. The same trade shall patch, repair, replace and restore the area of work as necessary to comply with the Contract Documents.

I. If patching is not proper, or does not occur, the Contractor shall resolve the dispute internally or do the patching, all at no cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Comply with specifications, manufacturer's requirements, and standards for each specific product involved.
B. Patching shall be with materials of like kind and quality of the adjoining surface by skilled labor experienced in that particular trade.

PART 3 - EXECUTION

3.01 INSPECTION

A. Inspect existing conditions of Project, including elements subject to damage or to movement during cutting and patching.

B. After uncovering work, inspect conditions affecting installation or products, or performance of work.

C. Provide protection from elements for that portion of the Project which may be exposed by cutting and patching work, and maintain excavation free from water.

D. The Contractor shall give the Architect/Engineer twenty-four (24) hours notice of his intention to cover his work. If the law or ordinance of any public authority, or the requirements of any utility company, requires any work to be inspected, tested or approved, the Contractor shall arrange and pay for such inspection or test. Any work covered up without proper notification or required inspection shall, upon request of the Architect/Engineer, be uncovered for inspection and recovered when approved, at no expense to the Owner.

E. Carefully review all Drawings to determine which areas are being worked, in order to establish the extent of patching which is to be part of the Work.

3.02 PERFORMANCE

A. Execute cutting and demolition by methods which prevent damage to other work, and provide proper surfaces to receive installation of repairs.

B. Execute excavating and backfilling by methods which shall prevent settlement or damage to other work.

C. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.

D. Restore work which has been cut or removed; install new products to provide complete Work in accordance with requirements of Contract Documents.

E. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

F. Make no cuts or alterations to any structural framing members without explicit consent of the Architect/Engineer, and then only under his direction. Locate cuttings so they will not weaken structural components. Cut carefully and only the minimum amount necessary. All required cutting to install new material shall be accomplished with the use of saw cutting equipment. Breaking out of existing material is not permitted.

G. Wherever floors, walls, ceilings, plates, firestops and framing members are cut, these openings shall be reinforced and sealed as directed to maintain structural integrity and to comply with Code requirements.

H. Contractor shall be held fully responsible for any weather and water damage occurring to
existing buildings and their contents due to his failure to provide adequate temporary
weatherproofing protection.

I. Painting of damaged or changed existing surfaces shall match adjacent areas including
the entire plane of a surface when part of the surface is damaged or changed.

J. Where existing construction is removed to provide working access to areas previously
concealed, the Contractor shall remove doors, partitions, walls, ceiling systems, piping,
conduit outlet boxes, wiring, light fixtures, ductwork and equipment, etc., to provide this
access and shall reinstall the same (or new materials, equipment or systems as approved
by the Architect/Engineer) upon completion of work in the areas affected, and all exposed
new surfaces shall be restored to a condition equal or better than the original existing
condition.

END OF SECTION
PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Definitions, acronyms used to identify reference standards and abbreviations which may be in the Contract Documents.

1.02 QUALITY ASSURANCE

A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes establish stricter standards.

B. Publication Date: The latest published or adopted editions in effect on the date of issue of Contract Documents, except when a specific date is referenced.

1.03 DEFINITIONS

The following definitions, of terms or words which may be used in the Contract Documents, are in addition to those stated elsewhere:

A. The term "product" as used herein, includes materials, systems and equipment.

B. The term "Architect," "Architect/Engineer" or "Engineer," as used herein, shall mean Hultz/BHU Engineers, 1111 Fawcett Avenue, Suite 100, Tacoma, WA 98402.

C. The term "Owner", as used herein, shall mean "the appointed representative(s) of Tacoma Public Library.

D. Where the words "or approved" or "as approved" or "for approval" are used, the Architect is the sole judge of the quality and suitability of the proposed substitutions or work.

E. The word "furnish", as used herein, shall mean "purchase, pay for, receive and/or store the material, item or equipment at the Site ready for installation or erection" unless otherwise specifically noted.

F. The word "install", as used herein, shall mean "pay for, and do all work necessary for installing and/or erecting and/or connecting the item or material complete in place", unless otherwise specifically noted.

G. The word "provide", as used herein, shall mean "furnish, install, and pay for, complete in place".

H. Where the words "similar to" are used and followed by a manufacturers name and product, model, or type number, such manufacturer, product, model or type number shall be considered as the standard of quality for the product or work specified, in a general and technical sense, not meaning "identical".

I. The word "trade", as used herein, shall mean "an individual or group of people providing materials and/or labor on this Project".

J. The words "local jurisdiction" shall mean the nearest governmental or other agency with authority regarding construction of this Project.

K. The work "cut" or "cutting" shall mean saw cut, unless other neat and straight line
methods of removal are approved by the Architect.

L. Wherever in these documents an article, device or piece of equipment is referred to in the singular number, such reference shall mean to include as many such articles as are shown on the drawings or are required to complete the installation.

M. These Specifications are, for certain Sections, written in the imperative mood, abbreviated, or "streamlined", and frequently include incomplete sentences. In sections or parts of Sections written in the imperative mood, words such as "shall", "shall be", "the Contractor shall", and similar mandatory phrases and the words "of", "The", "a", "an", and "all", shall be supplied by inference in the same manner as they are in note on the Drawings. The Contractor shall furnish, install or provide, as applicable, all items and perform all operations, services, and incidentals required for Completion of the work.

N. For purposes of abbreviation, the words "install" and/or "erect" and or "Connect" and/or "apply" in accordance with the manufacturer's written recommendations shall not, in all cases, be repeated hereinafter in these specifications. However, in all cases, each and every item, material and/or equipment shall be installed and/or erected and/or connected and/or applied strictly in accordance with the manufacturer's written recommendations.

1.04 REFERENCE STANDARDS

A. Applicable standards and codes listed include, but are not necessarily limited, to standards promulgated by the following agencies and organizations, and may be used in the Contract Documents. Obtain copies of referenced standards direct from publication source, when needed for proper performance of work, or when required for submittal by Contract Documents:

- **AABC** Associated Air Balance Council
  1518 K Street NW
  Washington, DC 20005

- **AASHTO** American Association of State Highway and Transportation Officials
  444 North Capitol Street, N.W., Suite 249
  Washington, DC 20001

- **AHRI** Air-Conditioning, Heating, and Refrigeration Institute
  2111 Wilson Blvd, Suite 500
  Arlington, VA 22201

- **AIA** American Institute of Architects
  1735 New York Ave. N.W.
  Washington, DC 20006

- **AISC** American Institute of Steel Construction
  One East Wacker Drive Suite 700
  Chicago, IL 60601-1802

- **AISI** American Iron and Steel Institute
  1140 Connecticut Ave., NW, Suite 705
  Washington, DC 20036

- **AMCA** Air Movement and Control Association
30 West University Drive
Arlington Heights, IL 60004

ANSI
American National Standards Institute (Operations)
25 West 43rd Street, 4th Floor
New York, NY 10036

ASHRAE
American Society of Heating, Refrigerating and Conditioning Engineers
1791 Tullie Circle, NE
Atlanta, GA 30329

ASME
American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

ASTM
American Society for Testing and Materials International
100 Barr Harbor Drive
PO Box C700
West Conshohocken, PA 19428-2959

AWS
American Welding Society
550 NW LeJeune Road
Miami, FL 33126

CDA
Copper Development Association
260 Madison Avenue
New York, NY 10016

CFR
Code of Federal Regulations
Available from the Government Printing Office
North Capitol Street
Between G and H Streets, NW
Washington, DC 20402
(Material is usually first published in the Federal Register)

CS
Commercial Standard (US Department of Commerce)
Government Printing Office
Washington, DC 20402

CSA
Canadian Standard Association
5060 Spectrum Way, Suite 100
Mississauga, Ontario, CA L4W 5N6
8501 East Pleasant Valley Road
Cleveland, OH 44131-5575

DLI
Washington State Department of Labor & Industries
7273 Linderson Way SW
Tumwater, WA 98501-5414

DOC
Department of Commerce
1401 Constitution Ave, NW
Washington, DC 20230
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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</table>
| DOT          | Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, DC 20590 |
| EPA          | Environmental Protection Agency  
1595 Wynkoop Street  
Denver, CO 80202-1129 |
| FM           | Factory Mutual System  
1151 Boston-Providence Turnpike  
Norwood, MA 02062 |
| FS           | Federal Specification  
General Services Administration  
Specifications and Consumer Information  
Distribution Section (WFSIS)  
Washington Navy Yard, Bldg. 197  
Washington, DC 20407 |
| IAPMO        | International Association of Plumbing and Mechanical Officials  
4755 E. Philadelphia St.  
Ontario, CA 91761 – USA |
| IBC          | International Building Code of ICC  
500 New Jersey Avenue, NW  
6th Floor  
Washington, DC 20001 |
| IFC          | International Fire Code of ICC  
500 New Jersey Avenue, NW  
6th Floor  
Washington, DC 20001 |
| IMC          | International Mechanical Code of ICC  
500 New Jersey Avenue, NW  
6th Floor  
Washington, DC 20001 |
| MIL          | Military Standardization Documents  
(U.S. Department of Defense)  
Naval Publications and Forms Center  
5801 Tabor Avenue  
Philadelphia, PA 19120 |
| NIST         | National Institute of Standards and Technology  
100 Bureau Drive, Stop 1070  
Gaithersburg, MD 20899-1070 |
| NEC          | National Electrical Code  
1 BatteryMarch Park  
Quincy, MA 02169-7471 |
| NFC          | National Fire Code  
of National Fire Protection Association  
1 BatteryMarch Park |

C. The State Building Code supersedes all county, city or town building regulations containing less than the minimum performance Standards and objectives contained in the State Building Code.

1.05 ABBREVIATIONS

A. Abbreviations on the following list, including symbols used as abbreviations, may be used in the Contract Documents. See other drawings and 26 05 00 for additional abbreviations.

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<tr>
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MAT  MATERIAL
MAX  MAXIMUM
MB   MACHINE BOLT
MC   MECHANICAL CONTRACTOR
MECH MECHANICAL OR MECHANICAL CONTRACTOR
MFR  MANUFACTURER
MIN  MINIMUM
MISC MISCELLANEOUS
MOD  MODIFIED
MTL  METAL

NFPA NATIONAL FIRE PROTECTION ASSOCIATION
NIC  NOT IN CONTRACT
NO   NUMBER
NC   NORMALLY CLOSED
NA   NOT APPLICABLE
NOM  NOMINAL
NTS  NOT TO SCALE

OC   ON CENTER
OV   OUTLET VELOCITY
OA   OUTSIDE AIR
OD   OUTSIDE DIAMETER
OPG  OPENING
OPP  OPPOSITE
ORIG ORIGINAL

PART PARTITION
H    PHASE
PLCS PLACES
LAS  PLASTER
PLAS LAM  PLASTIC LAMINATE
PSI  POUNDS PER SQUARE INCH
PT   POINT
PVC  POLYVINYL CHLORIDE
PD   PRESSURE DROP
PRV  PRESSURE REDUCING VALVE

RLA  RATED LOAD AMPS
RPM  REVOLUTIONS PER MINUTE
RAD  RADIUS
RD   ROOF DRAIN
REF  REFERENCE
REINF REINFORCED, OR REINFORCING
REQ'D REQUIRED
RH   RIGHT HAND
RM   ROOM

SCHED SCHEDULE
SECT SECTION
SF   SQUARE FEET
SHT  SHEET
SQ. IN. SQUARE INCH
SIM  SIMILAR
SIM OPP SIMILAR, OPPOSITE HAND
S&L  STAIN & LACQUER
SP  STATIC PRESSURE
SA  SUPPLY AIR
SPEC  SPECIFICATION
SQ  SQUARE
SS OR SST  STAINLESS STEEL
ST  STORM DRAIN
STD  STANDARD
STL  STEEL
STOR  STORAGE
STRUCT  STRUCTURAL
SUSP  SUSPENDED

TEL  TELEPHONE
TEMP  TEMPERATURE
TEMP'D  TEMPERED
TOS  TOP OF SLAB
TYP  TYPICAL

UL  UNDERWRITER'S LABORATORY

VAV  VARIABLE AIR VOLUME
VFD  VARIABLE FREQUENCY DRIVE
VEL  VELOCITY
VTR  VENT THROUGH ROOF
V  VOLTS, VOLTAGE
VERT  VERTICAL

W  WIDTH
W/  WITH
H2O  WATER
WPD  WATER PRESSURE DROP
WB  WET BULB

END OF SECTION
PART 1 - GENERAL

1.01 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of specifications to assure proper efficient and orderly sequence of preparation and installation of interdependent construction elements, with provisions for accommodating items installed later. Prior to preparing the Construction Schedule, consult with the Owner to determine scheduling and coordination requirements.

B. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Coordinate space requirements and installation of mechanical and electrical work. Route pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of all items with finish elements.

E. Coordinate completion and cleanup of work of separate sections in preparation for completion and for portions of the work designated for Owner's partial occupancy or use.

F. Coordinate access to site for all work, and for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

G. Coordination Meetings: At least one day prior to the regular Progress Meeting, Contractor shall meet with his subcontractors, at a time and location to be established by the Contractor, to discuss such matters as he deems necessary for his use in the next job coordination meeting.

H. Security: Coordinate all access to site and security issues with Owner.

1.02 ALTERATION PROJECT PROCEDURES

A. Materials: Match existing general building products and work for patching.

B. Close openings in interior and exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

C. Remove, cut, and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original condition.

D. Where new work abuts or aligns with existing, match lines and grades to perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.

E. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.

F. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect/Engineer.
G. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition for Architect review.

H. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections as a result of new work.

1.03 PRECONSTRUCTION CONFERENCE

A. Architect will schedule a conference after Notice of Award.

B. Attendance Required: Owner, Owner’s Representative, Architect/Engineer, and Contractor.

C. Agenda:
   1. Discussion of list of Subcontractors, list of products, schedule of values, and progress schedule.
   2. Designation of personnel representing the parties in contract and the Architect.
   3. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, change orders and contract closeout procedures.
   4. Scheduling.
   5. Coordination with Owner.
   7. Procedures for maintaining record documents.
   8. Requirements for start-up of equipment.
   9. Inspection and acceptance of equipment put into service during construction period.

1.04 PROGRESS MEETINGS

A. Architect/Engineer will schedule and administer progress meetings. Progress meetings will be held on a regularly scheduled basis not exceeding once per week.
   1. Architect/Engineer will record minutes.
   2. The Architect/Engineer will reproduce and distribute copies of minutes to the Owner’s Representatives, Consultants and General Contractor. The General Contractor will be responsible to distribute copies to his field representative and to all Subcontractors.

B. Location of Meeting: Progress meetings will be held at the job site. The Contractor shall coordinate with the Owner for the meeting space. Refer to Section 01 50 00.

C. Attendance: Contractor, Job Superintendent, Subcontractors, and Suppliers as appropriate to agenda; Owner, Architect/Engineer, professional consultants and others
may attend as appropriate.

D. Minimum Agenda:

1. Approval of minutes of previous meetings.
2. Review project schedule.
3. Review safety plan and any safety issues.
4. Review work progress since previous meeting.
5. Review work planned.
6. Review submittal status and schedules; expedite as required.
8. Review any planned deliveries.
9. Review proposed changes and associated FA/COP’s.
11. Field observations.
12. Inspection and test reports.
13. Establish next meeting time and confirm actions required prior to.

E. Prior to each meeting, the Contractor will prepare a 2 week schedule of work that is in progress for the current week and work planned for the next week. This 2 week schedule, which is revised weekly by the Contractor, will be presented by the Contractor at the progress meeting and a copy will be given to the Architect/Engineer and to the Owner at that time.

F. Representatives of Contractor, Subcontractors and Suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

G. Contractor and Subcontractors shall have the updated Record Documents presented at the meeting to be held just prior to each monthly payment request.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION
PART 1 - GENERAL

1.01 SUBMITTALS PROCEDURES

A. Schedule submittals to expedite the project. Transmit submittals in accordance with approved Progress Schedule and in such sequence to avoid delay in the work. Coordinate submission of related items with schedule.

B. Make and deliver all submittals to Architect/Engineer.

C. Contractor must review and certify each submittals prior to submission to Architect.

D. Reproduce and distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions. Pay all costs for reproduction, distribution and materials.

E. Submit items requiring color selection within 30 calendar days of contract award. Colors will be selected after all color submittals are received by the Architect.

F. Coordinate submittals into logical groupings to facilitate inter-relation of several items.

G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed work.

H. Accompany submittals with transmittal letter containing:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Number of copies of shop drawings, product data and samples submitted.
5. Identification of submittal as it relates to:
   a. Subcontractor/Supplier/Manufacturer:
      1) Name.
      2) Address.
      3) Telephone number.
      4) Representative's name.
   b. Detail number and location in Construction Documents.
   c. Specification reference number and paragraph.
   d. Applicable standards.
   e. Finishes.
f. Identification of deviations from Contract Documents.

I. Additional information required:

1. Relation to adjacent structure or materials.

2. Fabrication methods, assembly, special installation requirements, accessories, fasteners, and other pertinent information.

3. Field dimensions, clearly identified.

4. Coordination with other trades. Stamped and signed by affected trades.

1.02 PROPOSED PRODUCTS LIST AND SUBCONTRACTOR'S LIST

A. Prior to submission of First Invoice Voucher, submit complete list of subcontractors and suppliers to be used for the work. Provide specification section identification number, addresses and telephone numbers for each listed subcontractor and supplier.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.03 SHOP DRAWINGS

A. Present in clear and thorough manner. Title each drawing with Project name and number; identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.

B. Identify field dimensions; show relation to adjacent or critical features or work or products.

C. Minimum Sheet Size: 8-1/2 x 11 inches; except where shop drawing is illustrating installation on the building plan, size shall be 36 x 24 inches minimum, not less than 1/8" = 1'0" scale.

D. Do not submit freehand drawings.

E. On shop drawings requiring Code Agency approval, submit on format and media required by Approval Agency. Include information required by Project Documents and Approval Agency.

F. For shop drawings larger than 11" x 17" submit shop drawings in the form of three opaque reproductions. The Architect/Engineer will return one reviewed reproducible with comments. After review, the Contractor will reproduce and distribute copies of the shop drawings.

1.04 PRODUCT DATA

A. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to specification section and article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

B. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.
C. Submit number of copies of product data and manufacturer's instructions Contractor requires, plus 2 copies which will be retained by Architect.

1.05 MANUFACTURER'S CERTIFICATES
A. When specified in individual specification sections, submit manufacturer's certificate to Architect/Engineer for review, in quantities specified for Product Data.
B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
C. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect/Engineer.

1.06 CONTRACTOR REVIEW
A. Revise and resubmit submittals as required, identify all changes made since previous submittals.
B. Shop Drawings and Product Data:
   1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
   2. Indicate any changes which have been made including those requested by the Architect.

1.07 ARCHITECT/ENGINEER REVIEW
A. Architect/Engineer will review shop drawings, product data and samples and return submittals within 14 calendar days (or sooner if project schedule requires).
B. For Architect's color selection, allow 30 calendar days from time all color samples for the work have been delivered to the Architect.
C. Reviewing is only for general conformance and compliance with project design concept and Contract Documents. Any action shown is subject to Contract Document's requirements. Contractor is responsible for dimensions (confirm and correlate at job site); fabrication processes; construction techniques; quantities; space requirements; coordination of work with that of all other trades; union jurisdiction; infringements of patent rights; possible cause of injury to persons or property; and satisfactory performance of the work.
D. Architect/Engineer's review of separate items does not constitute review of assembly in which it functions.

PART 2 - PRODUCTS
NOT USED

PART 3 - EXECUTION
NOT USED

END OF SECTION
PART 1 - GENERAL

1.01 GENERAL

A. The intent of the progress schedule is to assist the Contractor, Architect/Engineer and Owner in monitoring the construction progress for the purpose of coordination, communication, evaluation of Applications and Certificates for Payment, and evaluation of time extension requests.

B. The Architect/Engineer's review of the schedule will be to ensure that it conforms to the requirements of the specifications. The sequence and scheduling of the work is the Contractor's responsibility. Contract completion date(s) is as specified in the Contract Documents. The Architect's review of the schedule does not change, revise, or amend that date(s).

1.02 FORMAT

A. Listings: Reading from left to right, in ascending order for each activity. Identify each activity with the applicable specification section number.

B. Diagram Sheet Size: 11 x 17 inches.

C. Scale and Spacing: Weekly increments to be a minimum of 5/8" long. Lettering to be a minimum of 1/16" high. Schedule to be legible and allow for notations and revisions.

1.03 SCHEDULES

A. Provide a time scaled diagram with a separate activity bar for each work activity. Diagram to illustrate order and interdependence of activities and sequence of work, how start of a given activity depends on completion of preceding activities, and how completion of the activity may restrain start of subsequent activities. Indicate early and late start, early and late finish, manpower loading and description of each activity. Indicate critical path.

B. Provide as many activities as necessary to clearly show how the project will be constructed within the time allowed. As a minimum, every item on the schedule of values must be shown on the progress schedule. Provide sub-net schedules where necessary to enhance clarity.

C. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities.

D. Show accumulated percentage of completion of each item of work at time of each Application for Progress Payment.

E. As a sub-net show submittal dates including specified Architects' review time for shop drawings, product data, and samples. Indicate decision date for selection of finishes.

F. Show product delivery dates, including those furnished and/or installed by Owner.

G. Show dates when application for separate permits (i.e., fire alarm, fire sprinkler, etc.) will be made and when permit will be received.

H. Show dates when application for warranties/guarantees will be made and when warranties will be delivered. Final payment will not be made until all...
A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity at the time of the revision date. Update diagrams to graphically depict current status of work.

C. Indicate revision date on revised schedule.

D. Show changes occurring since previous schedule submission such as:
   1. Any major changes in scope;
   2. Activities modified since previous submission;
   3. Revised projections for progress and completion, as applicable;
   4. Any other identifiable changes.

E. Provide narrative report with each revision to define:
   1. Problem areas; anticipated delays; and impact of these on schedule.
   2. Corrective action recommended, and its effect.

F. The Applications and Certificates for Payment will not be processed until the progress schedule is updated as specified.

A. Within 10 days after date established in Notice to Proceed, submit proposed preliminary network diagram defining planned operations for the project.

B. If required by Architect, participate in review of preliminary and complete network diagrams jointly with Architect.

C. Within 7 days after review of proposed preliminary network diagram, submit complete network diagram.

D. Submit updated network schedules with each Application and Certificate for Payment, or more frequently if directed by the Architect.

E. Submit the number of opaque reproductions the Contractor requires, plus two copies which will be retained by Architect.

F. Application and Certificate for Payment will not be processed until complete network analysis has been reviewed by Architect and found to be in conformance with requirements of the specifications.
1.06 DISTRIBUTION

A. Distribute copies of reviewed schedules to project site file, Subcontractors, Suppliers, Architect/Engineer, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION
PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Submit to the Architect/Engineer a Schedule of Values, including labor and materials, for their work and subcontracted work for each specification section of the Project within ten (10) days after the date of Notice of Award. Schedule of Values shall directly relate to the Progress Schedule.

B. Upon request of the Architect/Engineer, support the values with data which will substantiate their correctness.

C. The Owner approved Schedule of Values, shall be used as the only basis for the Contractor's Application for Payment.

1.02 RELATED REQUIREMENTS

A. Conditions of the Contract.

1.03 FORM AND CONTENT OF SCHEDULE OF VALUES

A. Type schedule on 8-1/2 inch x 11 inch white paper; Contractor's standard forms and automated printout will be considered for approval by Architect/Engineer upon Contractor's request. Identify schedule with:

1. Title of Project and location.
2. Architect and Project number.
3. Name and Address of Contractor.
5. Date of submission.
6. Percent of work completed.

B. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction.

C. Follow the table of contents of this Project Manual as the format for listing component items.

1. Identify each line item with the number and title of the respective major section of the specifications.
2. Provide line items for mobilization, bond, O&M manuals, various categories of site work, demolition, mechanical, electrical, tanks, piping, and equipment.

D. Provide a breakdown as follows:

1. Mobilization, Bonding, Insurance.
2. Submittals and Project Coordination.
3. Demolition/Cutting.

4. Elevator.

5. Mechanical.

6. Electrical.


8. O & M Manuals.

9. Punchlist, Closeout, and Owner Training.

E. The dollar value for "Punchlist, Closeout, and Owner Training" shall in no case be less than 3% of the total dollar value of the work.

F. For the various portions of the Work:

1. Each item shall include a directly proportional amount of the Contractor's labor, materials, overhead and profit.

2. Identify items on which progress payments will be requested for site(s) stored materials and break down the value into:

   a. The cost of the materials, delivered, unloaded, and stored.
   
   b. The total installed value.

3. Do not list off site(s) stored materials. Payment will not be made for materials stored off site(s).

G. The sum of all values listed in the schedule shall equal the total Contract Sum.

1.04 SUBSTANTIATING DATA

A. When Architect/Engineer requires substantiating information, submit data justifying line item amounts in question.

1.05 APPLICATION AND CERTIFICATE FOR PAYMENT

A. See General Conditions of the Contract.

B. The approved Schedule of Values will be typed by the Contractor onto forms which have been previously approved by the Owner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

01 37 00 - 2
PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Electricity, Lighting
B. Heat, Ventilation
C. Telephone Service
D. Water
E. Sanitary Facilities
F. Construction Aids
G. Barriers
H. Temporary Enclosures
I. Cleaning During Construction
J. Safety
K. Pollution/Environmental Controls

1.02 RELATED REQUIREMENTS

A. Section 01 01 00 - Summary of Work.
B. Section 01 60 00 - Material and Equipment.
C. Section 01 70 00 - Contract Closeout.

1.03 ELECTRICITY, LIGHTING

A. Existing building systems may be used. Electrical power will be paid by Owner.

1.04 HEAT, VENTILATION

A. The Contractor shall provide temporary heat, including fuel and power, and ventilation as required to protect site(s) stored materials, and to allow for the work of this Contract.

1.05 JOB TELEPHONE

A. The Contractor shall provide a cell type telephone to the project superintendent.

1.06 WATER

A. The Contractor shall provide water for drinking and for construction from a proven safe source, for all those connected with the work. Pipe or transport in such a manner as to keep it clean and fresh.

1.07 SANITARY FACILITIES
A. The Contractor shall provide adequate temporary toilet facilities for all those connected with the work. Locate where directed when work is started; keep in sanitary condition. Remove from site upon completion of the work. Existing building restrooms may not be used by construction personnel.

1.08 CONSTRUCTION AIDS

A. Provide and operate drainage and pumping equipment; maintain excavations and site construction free of standing water.

B. All Owner areas used by Contractor shall be kept clean (including mechanical rooms, outside areas, etc.). If areas area not kept sufficiently clean, the Owner will clean such areas and charge the Contractor $100.00 per hour to cover the cleaning costs for each man-hour spent in cleaning.

1.09 BARRIERS

A. Provide as required to prevent public entry to construction areas, to provide for Owner's use of facilities, and to protect existing facilities and adjacent properties from damage from construction operations and to maintain traffic flow around site(s).

B. Provide barricades as required by governing authorities for public rights-of-way and for public access to existing buildings.

C. Provide barriers around trees and plants to remain. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water.

D. Contractor shall keep construction area secure by fencing, temporary partitions or other proven means. The Contractor may provide additional security measures, guards, etc.

1.10 CLEANING DURING CONSTRUCTION

A. Control accumulation of waste materials and rubbish; periodically dispose of off-site.

1.11 SAFETY

A. The Contract Documents and actions of the Contractor, subcontractors, etc., shall be governed at all times by the requirements of the Washington Industrial Safety and Health Act (WISHA) in the enforcement of the Federal Safety and Health Regulations for Construction, as amended, and with the State of Washington, Department of Labor and Industries, Division of Safety "General Safety Requirements" and "Safety Actuated Tools" and "Occupational Health Standards" where same are more restrictive than the federal laws and standards.

B. The Contractor and each subcontractor shall be required to immediately report all job accidents, injuries or health hazards to the WISHA officials in charge.

1.12 DUST CONTROL

A. Provide positive methods and apply dust control materials to minimize raising dust from dispersing into the atmosphere.

1.13 WATER CONTROL
A. Provide methods to control surface water. Prevent damage to Project, site and adjoining properties. Control fill, grading, and ditches to direct surface drainage away from excavations, construction areas, existing systems and existing construction. Direct all drainage to proper run-off.

B. Provide, operate, and maintain hydraulic equipment of adequate capacity to control surface water.

C. Dispose of drainage water in a manner to prevent flooding, erosion, siltation, and other damage to any portion of the site or adjoining areas.

1.14 DEBRIS CONTROL

A. Maintain all areas under Contractor's control free of extraneous debris.

B. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking areas, or along access roads and haul routes.
   1. Provide containers for deposit of debris.
   2. Prohibit overloading of trucks to prevent spillages on access and haul routes. Provide periodic inspection of traffic areas to enforce requirements.

C. Schedule periodic collection and disposal of debris. Provide additional collections and disposal of debris whenever the periodic schedule is inadequate to prevent accumulation.

D. Keep storm sewers free of debris or extraneous materials.

1.15 POLLUTION CONTROL

A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere. Allow no discharge of noxious substances from construction operations.

B. Provide equipment and personnel; perform emergency measures required to contain any spillages. Remove contaminated soils or liquids. Excavate and dispose of any contaminated earth off site. Replace with suitable compacted fill and topsoil.

C. Take special measures to prevent harmful substances from entering public waters. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to bodies of water, or in sanitary or storm sewers.

D. Provide systems for control of atmospheric pollutants.
   1. Prevent toxic concentrations of chemicals.
   2. Prevent harmful disposal of pollutants into the atmosphere.
   3. Provide adequate ventilation in all areas during and after application of paint, when welding, or for any activity that may release hazardous or odorous fumes.

1.16 NOISE CONTROL

A. Conform to Regulatory Agencies requirements. Be familiar with applicable laws and ordinances.
1. Test all powered construction equipment for noise emission.
   a. Use Standard sound level.
      1) Do not exceed established requirements.
      2) Modify or replace equipment exceeding established levels.

2. When available, use electric powered pumps rather than gas or diesel.

3. Use trucks, compressors, and the like equipped with satisfactorily functioning air effective exhaust mufflers.

4. Equip jack hammers with air outlet silencers and sound controlling pick housing.

5. If earth drills are used, equip with sound-controlling housings made of leaded vinyl or other effective sound controlling materials.

6. Substitute quiet fabricating techniques for noise such as welding in lieu of riveting.

7. Mix concrete off site.

1.17 OWNER IMPACT DAMAGES

A. General: The Contractor shall reimburse the Owner for damages or costs incurred by the Owner (or their representative) as a result of actions (or inaction) by the Contractor. Such damages could include (and is not limited to) fees or fines imposed on the Owner by others due to the Contractor, added time incurred by the Owner to troubleshoot or repair incomplete work that was represented as being complete, providing access to areas after work was to be complete but found to be incomplete, added project management time due to delays in completing the project, and impacts due to non-functioning systems. Such amounts will be deducted from the Contractor by a deductive change order.

B. Nuisance Fire Alarms: Since the local Fire Department imposes a fine to the Owner for nuisance fire alarms, the Contractor shall pay the Owner the amount of $250 for every nuisance fire alarm event that is caused by the Contractor. A nuisance fire alarm event is when the fire alarm is tripped without coordination and permission from the Fire Department and Owner which results in mobilization of the Fire Department or Owner’s forces.

END OF SECTION
PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Products.
B. Workmanship.
C. Manufacturers’ Instructions.
D. Transportation and Handling.
E. Storage and Protection.
F. Product Options.
G. Substitutions.

1.02 RELATED REQUIREMENTS

A. Instructions to Bidders.
B. General and Supplementary General Conditions.
C. Section 01 01 00 - Summary of Work.
D. Section 01 34 00 - Submittals.
E. Section 01 70 00 - Contract Closeout.

1.03 ACCEPTABLE MANUFACTURERS

A. Any reference in the Specifications or on the Drawings to any article, device, product, material, fixture, form or type of construction by manufacturer, name, make, or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition.

B. The manufacturers listed as Acceptable Manufacturers are approved to bid the project for the items indicated without obtaining prior approval. Other manufacturers desiring to bid the project require prior approval. See paragraph entitled “Substitutions” in this specification section, for requirements.

C. The listing of a manufacturer as an Acceptable Manufacturer does not necessarily mean that the products of that manufacturer are equal to those specified. The listing is only an indication of those manufacturers which may be capable of manufacturing, or have in the past manufactured, items equal to those specified, and is intended to aid the Contractor in identifying manufacturers. The Architect/Engineer shall be the final judge as to whether an item is equal to that specified.

D. Products provided by Acceptable Manufacturers shall be equal to or superior to the specified manufacturer's item in function, appearance, and quality, and shall fulfill all requirements of the plans and specifications. The Architect/Engineer shall be the final judge as to whether an item meets these requirements or not. If a manufacturer is not certain that his product meets these requirements or not then the manufacturer shall submit data as required in paragraph entitled “Substitutions” in this specification section,
to obtain the Architect/Engineer’s approval prior to bidding.

E. The approval of a manufacturer applies to the Manufacturer only and does not relieve the Contractor from the responsibility of meeting all applicable requirements of the plans and specifications.

F. Contractor shall be responsible for all costs to other trades and all revisions required to accommodate any products which are different than those specified or shown.

G. In reviewing a manufacturer for acceptance, factors considered include the following: engineering data showing item's performance, proper local representation of manufacturer, likelihood of future manufacturer's local support of product, service availability, previous installation, previous use by Owner/Engineer/Architect and record, product quality, availability/quality of maintenance and operation data, capacity/performance compared to specified items, acoustics, items geometry/access utility needs, and similar concerns.

1.04 PRODUCTS

A. Products include material, equipment, and systems.

B. Comply with Specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a Specification section shall be the same, and shall be interchangeable.

1.05 WORKMANSHP

A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. Perform work by persons qualified to produce workmanship of specified quality.

C. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.06 MANUFACTURERS’ INSTRUCTIONS

A. When work is specified to comply with manufacturers' instructions, submit copies as specified in Section 01 34 00, distribute copies to persons involved, and maintain one set in field office.

B. Perform work in accordance with details of instructions and specified requirements. Should a conflict exist between Specifications and instructions, consult with Architect/Engineer.

1.07 TRANSPORTATION AND HANDLING

A. Transport Products by methods to avoid Product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.

B. Provide equipment and personnel to handle Products by methods to prevent soiling or damage.

C. Promptly inspect shipments to assure that Products comply with requirements, quantities
are correct, and Products are undamaged.

1.08 STORAGE AND PROTECTION

A. Store Products in accordance with manufacturers' instructions, with seals and labels intact and legible. Store sensitive (roofing) products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturers' instructions.

B. For exterior storage of fabricated Products, place on sloped supports above ground. Cover Products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

C. Store loose granular materials on solid surfaces in a well drained area; prevent mixing with foreign matter.

D. Arrange storage to provide access for inspection. Periodically inspect to assure Products are undamaged, and are maintained under required conditions.

E. After installation, provide coverings to protect Products from damage from traffic and construction operations, remove when no longer needed.

1.09 PRODUCT OPTIONS

A. Provide all product submittals and shop drawings complete in accordance with provisions of Section 01 34 00.

1.10 SUBSTITUTIONS

A. Substitutions will be considered only during bidding until 7 days before bids are opened, if a specified item is unattainable in time to avoid delay to the Work, or when a product becomes unavailable, through no fault of the Contractor.

B. If a product becomes unattainable or unavailable, document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

1. Include product identification and description, performance and test data, references and samples where applicable, and an itemized comparison of the proposed substitution with the products specified or named by Addenda, with data relating to Contract time schedule, design and artistic effect where applicable, and its relationship to separate contracts.

2. The request shall be accompanied by accurate cost data on the proposed substitution in comparison with the product specified, whether or not modification of the Contract Sum is to be a consideration.

C. Request constitutes a representation that Contractor:

1. Has investigated proposed Product and determined that it meets or exceeds, in all respects, specified Product.

2. Will provide the same warranty for substitution as for specified Product.

3. Will coordinate installation and make other changes which may be required for Work to be complete in all respects.
4. Certifies that the cost data presented is complete and includes all related costs under this Contract, and that he waives all claims for additional costs related to the substitution which subsequently becomes apparent.

D. Architect/Engineer will determine acceptability of proposed substitution, and will notify Contractor of his findings.

E. All substitution requests shall be accompanied with the Substitution Request Form, completely filled out. See Section 01 61 00.

F. The Architect/Engineer will not review any substitution requests without an accompanying Substitution Request Form.

1.11 SUBSTITUTE BID SHOP DRAWINGS AND DESIGN

A. The Contract Documents show design configurations based on particular manufacturers equipment. Use of other manufacturers' equipment (i.e. substituted equipment) from what is shown will require redesign of structural, fire suppression, plumbing, piping, flue, electrical, structural, drainage, and general building construction to accommodate the substituted equipment. Such redesign shall be done by the Contractor and shall meet the requirements and have the approval of the Architect/Engineer prior to fabrication.

B. Contractor shall submit complete shop drawings and design plans showing all alternate equipment installation plans and details; and design plans shall comply with Section 01 34 00.

C. The redesign shall be equal or superior in all respects to the Architect/Engineer's design (as judged by the Architect/Engineer), including such aspects as equipment access, ease of maintenance, piping routing and connection locations, unit electrical requirements, noise considerations, unit performance, and similar concerns.

D. Cost of redesign and all additional cost incurred to accommodate the equipment shall be borne by the Contractor.

END OF SECTION
TO:  Hultz/ BHU Engineers, Inc.
     1111 Fawcett Avenue, Suite 100
     Tacoma, WA 98402

PROJECT NAME:______________________________________________________________

We hereby submit for consideration, the following product instead of specified item for above project:
Section  Paragraph  Specified Item

Proposed Substitution:
Attach complete dimensional information and technical data including laboratory tests, if applicable.
Include complete information on changes to drawings and/or specifications which proposed substitution
will require for its proper installation.
Submit with request all necessary samples and substantiating data to provide equal quality, performance
and appearance to that which is specified. Clearly mark manufacturer's literature to indicate equality in
performance. Differences in quality of materials and construction shall be indicated.
The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1.  The proposed substitution does not affect dimensions shown on drawings.
2.  The undersigned will pay for changes to the building design, including engineering design,
detailing and construction costs caused by the requested substitution.
3.  The proposed substitution will have no adverse effect on other trades, the construction schedule,
or specified warranty requirements.
4.  Maintenance and service parts will be locally available for the proposed substitution.
5.  The proposed substitution will have no affect on applicable codes.
6.  The manufacturer's guarantees or warranties of proposed product is equivalent to or exceeds that
of the specified product.

List of names and location of three similar projects on which products was used, date of installation, and
Architect's name and phone number.

CERTIFICATE OF EQUAL FOR USE BY ARCHITECT:
PERFORMANCE AND Accepted      Accepted as Noted
ASSUMPTION OF LIABILITY       ___Not Accepted       ___Rec'd Too Late
FOR EQUAL PERFORMANCE

UNDERSIGNED ATTESTS THAT
FUNCTION AND QUALITY ARE
EQUAL TO OR SUPERIOR TO
SPECIFIED ITEMS.

Submitted By:

Signature                        Title                       City, State      Zip

Firm

Address

Telephone       Date
Above signature must be by person
having authority to legally bind
his firm to the above terms.

END OF SECTION
1.01 REQUIREMENTS INCLUDED

A. Closeout Procedures.
B. Final Cleaning.
C. Systems Demonstration.
D. Final Inspection.
E. Final Record Documents.
F. Operation and Maintenance Data.
G. Spare Parts and General Requirements.
H. Submittals before Final Payment.
I. Warranty Inspection of the Project.
J. Reinspection Fees.
K. Construction Completion Checklist

1.02 RELATED REQUIREMENTS

A. Conditions of the Contract.
B. Section 01 01 00 - Summary of Work.
C. Section 01 50 00 - Construction Facilities and Temporary Controls.
D. Division 23 - Mechanical.
E. Division 26 - Electrical.

1.03 CLOSEOUT PROCEDURES

A. General: Comply with procedures stated in Division 00 for Project closeout and issuance of Certificate of Final Acceptance.

B. Written Notification: When Contractor considers Work has reached final conclusion, 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 Architect/Engineer's final inspection and closeout.

C. Final Change Order: Architect/Engineer will issue a final change order reflecting approved adjustments to Contract Sum not previously made by Change Order.

D. Final Pay Request: In addition to submittals required by the Contract Documents, provide submittals required by governing authorities, and submit a final pay request giving total adjusted Contract Sum, previous payments, and sum remaining due.
1.04 FINAL CLEANING

A. General:
   1. Perform final cleaning prior to final inspection.
   2. Clean all interior and exterior surfaces exposed to view, clean glass, remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces. Follow manufacturer's recommendations for cleaning installed products.
   3. Leave entire Work perfectly clean and ready for use including existing surfaces exposed to view that are not re-finished under this Contract.
   4. Clean all areas affected by the work; e.g. clean construction debris from drainage systems.

B. Damaged Surfaces: Replace or repair damaged surfaces as directed to new condition and to match adjacent surfaces.

C. Equipment: Clean equipment to new condition. Dusty, dirty equipment will not be accepted.

D. Filters: Replace filters of operating equipment.

E. Site: Clean site; sweep paved areas, rake clean landscaped surfaces. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.05 ADJUSTING

A. Adjust operating products and equipment in accordance with manufacturer's recommendations and specification section to ensure smooth and unhindered operation.

1.06 SYSTEMS DEMONSTRATION

A. Prior to final inspection, demonstrate operation of each system to Architect/Engineer and Owner.

B. Instruct Owner's personnel in operation, adjustment and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction. See Division 23.

1.07 FINAL INSPECTION

A. Inspection Notification: Notify the Architect/Engineer, in writing, that the work is ready for final inspection. The Architect/Engineer will then make an inspection of the Contractor's work and record any deficiencies in such work in a written report to the Contractor.

B. Deficiency Corrections: The Contractor shall correct the deficiencies within the time period specified (30 days unless indicated otherwise), and notify the Architect/Engineer when such deficiencies have been corrected.

C. Re-Inspection: The Architect/Engineer shall then re-inspect the Work to verify that all noted deficiencies have been corrected. If any such deficiencies are found not to have
been corrected, the contractor shall pay the Architect/Engineer, at the Architect/Engineer's standard hourly work rate, for any additional work, including travel time and expense, necessitated by the Contractor's failure to correct the deficiencies.

1.08 FINAL RECORD DOCUMENTS

A. Field Record Drawings: The Contractor shall maintain a set of full size contract plans at the project site upon which all changes from the as-bid plans are noted. These plans shall also include actual locations (with dimensions) of all underground utilities, including mechanical and electrical systems. Connection points of utilities (exiting the building) to site utilities shall be located by field measurements and so noted on these record drawings. All addenda, change order, field orders, design clarifications, request for information, and all other clarifications and revisions to the plans shall also be made a part of these record drawings. See individual specification sections for additional requirements. Plans shall be available for weekly review by the Architect/Engineer.

B. Final Record Drawings Submittal: Upon completion of the work, prior to final acceptance, deliver to the Architect/Engineer the original field record drawings and two full size copies. Label drawings "As-Builts" with date, name of Contractor, and name of individual overseeing the construction work.

C. Photographs: Photograph with minimum 12 pixel digital camera (or better) all concealed utilities located below ground, and in building. Photographs shall be taken with multiple views so as to allow clear understanding and locations of the systems from the photographs. Provide two labeled CD's of all photos with O&M's. Provide tabbed section in O&M for printed photographs. Printed photographs shall be minimum 3"x5" size and shall be provided with a written description of the location where it was taken and the utility it depicts.

1.09 OPERATION AND MAINTENANCE DATA

A. Upon or prior to completion of the work, and before final payment will be made, the Contractor shall deliver to the Architect/Engineer the Operation and Maintenance Data as specified in project specification Sections.

B. Submit five (5) sets and as many additional sets as required for return to Contractor prior to final inspection, bound in 8-1/2 x 11 inch three-ring side binder with durable plastic covers.

C. At the beginning of each volume, provide directory listing names, addresses, and telephone number of: Architect, Engineer, Contractor, Testing Labor Inspectors, Subcontractors and Material Suppliers. Provide a detailed table of contents. Provide indexed tabbed dividers between each section.

D. After directory table of contents provide operation and maintenance instructions, arranged by Specification division to include the following:

1. Appropriate design criteria.
2. List of equipment.
3. Parts list.
4. Operating instructions.
5. Maintenance instructions, equipment.
7. Shop Drawings and Product Data.

1.10 SPARE PARTS AND GENERAL REQUIREMENTS
   A. Provide products, spare parts and maintenance materials in quantities specified in each section, in addition to that used for construction of work. Coordinate with Owner, deliver to project site and obtain receipt prior to final payment.
   B. List of paints and colors used on the project, and prepared paint samples with their composition noted, to be delivered to the Owner’s maintenance personnel.
   C. Copies of results of all tests required by public authorities, utility companies, or by these specifications.
   D. Provide two (2) original signed receipts for all materials furnished to the Owner in substantially the following form. No other evidence of delivery is acceptable, unless the Owner agrees to having received the item. A copy of each receipt shall be delivered to the Architect/Engineer. Receipt to be substantially in the following form:

   (Owner)
   (Address)
   SUBJ: (Project)
   Gentlemen:

   We, as representatives/personnel for the (Owner), would like to attest to the fact that the below stated materials were furnished for future maintenance needs by a representative of (Contractor/Subcontractor) for the (Project).

   OWNER ___________________________ DATE ___________________________

   OWNER ___________________________ DATE ___________________________

   GENERAL/SUBCONTRACTOR

1.11 SUBMITTALS BEFORE FINAL PAYMENT
   A. In addition to those items listed in 1.07, 1.08 and 1.09 above, submit the items required by the General Conditions, and the following:

   1. Submit Contractor's Affidavit of Payment of Debts and Claims.

   2. Written warranty addressed to the Owner, covering the entire work for one-year period from date of Final Acceptance. Letter to be substantially as follows:

      (Owner)
      (Address)
SUBJ: (Project)

Gentlemen:

I (We), the undersigned, do hereby warrant for a period of one year from the date of Final Acceptance ( ) all work performed under the terms of the contract documents. I (We) will remedy at my (our) expense any defects appearing during that period due to poor or defective materials and/or workmanship and will pay for any damage resulting from occurrence of said defects or the correction of same.

The following subcontractors performed or furnished materials subject to the one-year warranty as stated above.

<table>
<thead>
<tr>
<th>Subcontract</th>
<th>Firm Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td>John Doe Company</td>
</tr>
<tr>
<td>Electrical</td>
<td>Smith &amp; Smith Co.</td>
</tr>
</tbody>
</table>

3. Certification that Owner’s personnel have been instructed in operation, adjustment and maintenance of equipment and systems, in substantially the following form:

(Owner)
(Address)
SUBJ: (Project)
Gentlemen:

We, as representatives/personnel for the (Owner), would like to attest to the fact that a representative of (subcontractor) has given us an orientation on the operation and maintenance of the (products) for the (Project).

__________________________________________
OWNER DATE

__________________________________________
OWNER DATE

__________________________________________
SUBCONTRACTOR


5. Electrical Inspector’s certificate of acceptance of the electrical work.

1.12 WARRANTY INSPECTION OF THE PROJECT

A. A general inspection of the Contract work will be made by the Contractor, Architect, project engineer, maintenance director or Owner’s representative a month prior to expiration of the one year warranty period.

1.13 RE-INSPECTION FEES

A. The project budget provides for two final visits to the project site by the Architect/Engineer. The first will be in response to the Contractor’s notice of final completion of the work and if necessary, the second will be after notification by the
Contractor that all deficiencies noted during final review have been corrected.

B. Should additional reviews by the Architect/Engineer be required due to the Contractor's failure to correct all deficient work, the Owner will deduct the amount of Architect/Engineer compensation for reinspection services from final payment to Contractor.

1.14 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to Architect/Engineer.

B. Reflect all adjustments to Contract Sum. Indicate following:
   1. The Original Contract Sum;
   2. Additions and deductions resulting from:
      a. Previous change orders;
      b. Alternates;
      c. Unit price adjustments;
      d. Deductions for uncorrected work;
      e. Deductions for liquidated damages;
      f. Deductions for additional review services;
      g. Other adjustments;
   3. Total Contract Sum, as adjusted;
   4. Previous Payments; and
   5. Sums remaining due.

C. Prior to processing of Final Application and Certificate for Payment, all Closeout Documents including Project Record Documents, Operations and Maintenance Manuals and Warranty Binders must be submitted, reviewed and accepted by the Architect.

PART 2 - PRODUCTS
NOT USED

PART 3 - EXECUTION
NOT USED

END OF SECTION
1.01 SCOPE

A. This section includes all work as a turnkey project required in completing the Elevator Modernization of one (1) existing Dover Elevator passenger elevators, as stated in the Contract Documents. Project also includes all ASME A17.1, Firefighters' Service, Seismic and the Americans with Disability Act (ADA) requirements. The project is Tacoma Library. The elevator is #1.

1. Applicable Documents:


b. City of Tacoma Requirements and Regulations.

c. ASME A17.1; Safety Code for Elevators and Escalators including Part XXIV Elevator Safety Requirements for Seismic Risk Zone 3 or Greater. (Also stated in these specifications as Elevator Safety Code).

d. WAC Chapter 296-96 WAC: Safety Regulations and Fees for All Elevators, Dumbwaiters, Escalators and Other Conveyances.


g. NFPA 70 - National Electrical Code (current adopted version).

h. NFPA 72 - National Fire Alarm and Signaling Code (current adopted version).

i. NFPA 13 - Standard for the Installation of Sprinkler Systems.


k. Definitions:

1) AHJ: Regulatory Authority Having Jurisdiction. (Washington State L&I Elevator Division)

2) MCP: Maintenance Control Program.

3) ASME: American Society of Mechanical Engineers.


5) NRTL: Nationally Recognized Testing Laboratory.

l. Permits, Codes and Tests:

1) All equipment and Elevator Modernization work shall comply with
requirements of the Elevator Safety Code, and other applicable Codes/Rules/Regulations of Washington State and City of Tacoma.

2) Obtain all licenses and permits, and pay all fees and all other costs, including making arrangements for all inspections and tests required by regulating agencies (AHJ-Washington State L&I Elevator Division), in accordance with this Elevator Specifications.

3) File necessary plans prepare documents, and obtain necessary approval of governmental departments having jurisdiction and required certificates of inspection for work (AHJ), in accordance with the Elevator Specification.

4) Elevator Contractor is not relieved from furnishing and installing work shown or specified which may be beyond requirements of ordinances, laws, regulations and codes.

5) Perform tests required by Elevator Consulting Services Inc., AHJ and/or the ASME A17.1- with procedures described in ASME A17.2 Guide for the Inspection of Elevators, Escalators, and Moving Walks, in the presence of Washington State Elevator Inspector and Elevator Consulting Services Inc., and all other required tests for all equipment/material installed under this Specification.

6) Supply personnel and equipment for all tests and final inspections. All cost of such testing and inspections shall be included in the Base Bid.

7) Furnish/provide/install all elevator components as required by Washington State L&I Elevator Division.

1.02 GENERAL REQUIREMENTS

A. Scope of Work Required by other than Elevator Contractor:

1. Provide one 20A GFCI duplex receptacle in the elevator machine room. Existing may be retained.

2. Provide illumination in the elevator machine room sufficient to meet code; currently a minimum of 200 lx (19 fc). The light switch to be installed adjacent to the lock side of the machine room access door. Add one additional light above disconnect space.

3. The machine room must have a self-closing/self-locking door fire rated door. Retain existing

4. The room must be mechanically or naturally vented to keep the equipment operating within the temperature range specified by the equipment manufacturer. HVAC is recommended. Add AC for machine room cooling shown on mechanical plans.

5. Provide a Class ABC fire extinguisher (approx. 15#) in the new machine room
located within easy reach of the lock side of the machine room door. It shall be security mounted to the wall with suitable brackets. Retain existing.

6. Replace or modify main line disconnects and add auxiliary contacts to accommodate the Battery lowering device on new elevator controls. Provide wiring, including an electrical ground conductor, from the disconnecting means to the new controller.

7. Provide and interface smoke detectors with the elevator recall system. A detector will be required at each enclosed elevator lobby and one in the elevator machine room and one in the top of shaft. Each detector is required to be connected to the building fire alarm system providing the system is capable of handling elevator recall signals. Existing system can be retained and tied into new controllers. Machine room and top of shaft smokes shall trigger flashing hat signal to Elevator. Reference NFPA 72.

8. Provide a 20A GFCI duplex receptacle in the elevator pit. Retain existing.


10. Provide a car lighting, AC Oil cooler, and intercom circuits with over current protection in the elevator machine room. The disconnecting means shall be located in the elevator machine room (ref. NFPA 70 Art. 620-22 & 620-53). Provide wiring from the disconnect to the new elevator controller. Disconnect shall be lockable and fused. Breaker type also acceptable.

11. Provide a telephone line to the elevator machine room. All wiring in the machine room must be in conduit or other approved raceway. Retain existing ok.


13. Remove and install new elevator finish flooring. Style and design to be determined by Elevator Consultant and owner during submittal phase.


B. Work also Included in Elevator Contractor scope:

1. Furnish, provide, car station, hall stations, controller/selector, power unit, electrical wiring in machine room/car/hoistway, seismic requirements for over speed, traveling cables, car door operator, complete car door package, car top inspection station, hoistway interlocks/tracks/hangers/door gib, intercoms, Firefighters' Emergency Operation, Seismic requirements, oil cooler, all requirements of The Americans with Disability Act (ADA) and all other elevator components as listed in this Elevator Specification.

2. Retain existing car speed, capacity, and elevator entrance size.

3. The Owner shall incur no extra cost for the Elevator Modernization stated in the elevator specifications. Provide any and all overtime work in order to complete the total Elevator Modernization on schedule. Cost, if any, to Owner for the above stated items shall be included in Base Bid.
4. All existing elevator equipment that is being retained/reused shall be placed in first-class operating condition by the Elevator Contractor at no extra cost to the Owner.

5. Cutting and Patching:
   a. All repairs shall be made as necessary to complete the entire Elevator Modernization in original condition, including all cutting, fitting and drilling of masonry, concrete, metal and other materials as specified or required for proper assembly, fabrication, installation and completion of all Work under the Contract, and including any patching and redecorating as may be necessary. This includes all work in the elevator machine room, hoistway, pit, car, guide rails brackets/fastenings, lobby hall station and all others areas of the Elevator Modernization.
   b. Any provision that requires facilitating removal of existing equipment and installation of new equipment in the machine room, lobbies, pit, hoistway, cab and repair thereof shall be the total responsibility of Elevator Contractor.
   c. All holes/cracks in the hoistway shall be sealed. All hoistway sides of the hall station boxes shall be sealed. All sealed areas shall meet fire rating equivalent to existing hoistway.

6. Main Line Electrical Power Requirements:
   a. All main line electrical power and electrical ground requirements shall be verified by Elevator Contractor. Elevator Contractor shall notify, via RFI prior to bid, to Elevator Consulting Services Inc., if their electrical equipment will not be compatible with the existing electrical main line feeders. If the electrical feeders are not of sufficient size, Elevator Contractor shall state what size feeders are required. This information must be submitted with the Elevator Contractors Bid. If new electrical disconnects, feeders and a dedicated ground are required Elevator Contractors shall provide all engineering and design of all new equipment.

7. Welding:
   a. All welding shall comply with ASME A17.1 -Design for welding, repair, cutting or splicing of members upon which the support of the car, counterweight shall be prepared by a licensed professional engineer.
   b. Welding shall be by welders qualified in accordance with the requirements of Section 5 of ANSI/AWS D1.1.
   c. At the option of Elevator Contractor, the welders may be qualified by one of the following: (a) the manufacturer contractor. (b) A professional consulting engineer. (c) A recognized testing laboratory.
   d. Elevator Contractor shall furnish all required documentation to Elevator Consulting Services Inc., before starting the Elevator Modernization.

8. Definitions:
a. Where "as shows", "as indicated", "as detailed" or words of similar meaning are used, it shall be understood that reference to the Specifications are made unless otherwise stated. Where "as directed", "as required", "as authorized", "as reviewed", "as accepted" or words of similar meaning are used, it shall be understood that the direction, requirement, permission, authorization, review or acceptance of Elevator Consulting Services Inc., is intended, unless otherwise stated.

b. When used in the Contract Documents, "provide" shall be understood to mean "provide complete, furnish and install".


d. Reference to a device or a part of the equipment applies to the number of devices or parts required to complete the installation.

9. SDS Information:

a. Elevator Contractor shall provide General Contractor Safety Data Sheets for products Elevator Contractor intends to employ under this Contract prior to commencement of the Elevator Modernization. It shall remain the responsibility of Elevator Contractor to inform and train Elevator Contractor's employees on the use of the SDS requirements.

1.03 ELEVATOR MODERNIZATION ITEMS

A. All existing elevator equipment that is not being retained shall be removed from the job-site by the Elevator Contractor at the sole cost to the Elevator Contractor. This includes all existing machine room, hoistway and car elevator equipment.

B. Elevator Contractor shall verify exact distances between points shown on their Shop Drawings by actual measurements at the site. This includes fit and finish of surface mount Hall fixtures and lanterns covering existing cutouts.

C. Standard Products: Unless otherwise indicated, the equipment to be furnished under these Specifications shall be the standard products of manufacturers regularly engaged in the production of such equipment. Apparatus, equipment and systems furnished must be similar and equal thereto with respect to quality, functional performance, capacity and efficiency.

D. Submittals: Submit Shop Drawings for approval. The Shop Drawings shall contain detailed information to determine that the equipment conforms to the requirements of this Specification and not less than the following information:

1. Plan view of the elevator machine room. Show location of machinery and controls in machine rooms,

2. Include all clearance dimensions required by the Elevator Safety Code.

3. The elevator equipment is to be arranged in a neat and professional manner so that all elevator equipment is readily accessible.

4. Submit layout drawings as required by the Authority Having Jurisdiction (AHJ).
Submittals to the AHJ shall have all information pertinent to the Elevator Modernization to determine whether the Elevator Modernization complies with all applicable Codes.

5. Provide Shop Drawings and catalog cuts for all Elevator Contractor furnished material and equipment, including but not limited to doors, car enclosure, car and hall fixtures, controls and motors.

6. Complete information on motor, electrical services, controls, and all other coordination information.

7. Wiring Diagrams, Maintenance Manuals:
   a. Wiring Diagrams:
      1) Provide complete "As Built and Installed" straight-line wiring diagrams showing the electrical connections, functions, and sequence of operation of all apparatus connected with the elevator, in the machine room, hoistway and car.
      2) Provide two (2) electronic copies.
      3) Furnish one complete draft electronic set for Elevator Consultant and Elevator Consultant. Review not later than one (1) week before issue of the permanent Washington State Elevator Operating Permit.
   b. Modernization Data:
      1) Provide "As Built and Installed" wireman's original pull sheets showing raceway, junction box, traveling cable wire nomenclature and origination and termination locations.
      2) Provide a legible copy of the elevator adjuster's final control settings, such as feet per minute, door open, door close, car door nudging time, door dwell times and all other adjustable features and/or timers.
   c. Operations and Maintenance Manuals:
      1) Furnish two (2) complete electronic Operation and Maintenance Manuals covering the stipulated mechanical systems and equipment. The manual shall comply with all requirements indicated in the Project Closeout section of the Specifications.
      2) Complete MCP program to include the complete testing methods for all.
      3) Furnish one (1) complete electronic draft manual for Elevator Consulting Services Inc. review not later than one (1) week before issue of the permanent Washington State Elevator Operating Permit.
      4) The manual shall be complete in all respects for all equipment furnished and installed, controls, accessories and appurtenances
stipulated. Include as a minimum the following:

a) Machine room drawing showing equipment location of controller, machine, transformer, governor, main line electrical disconnects, machine room light switch.

b) The original factory Adjustor's Manual used to adjust the specific modernization including "As Built, As Installed and As Adjusted" field notes.

c) Step-by-step procedure for elevator start-up, operation and shutdown.

d) Maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides for all elevator equipment.

e) Preventive maintenance schedule.

f) Lubrication schedule including type, grade, temperature, range and frequency.

g) Safety precautions, including diagrams and illustrations as needed for clarity.

h) All testing procedures, including no-load, full-load safety tests, Seismic and Firefighters' Service.

i) Parts list, with manufacturers' names and catalog numbers. Lists shall be complete for the materials installed.

j) Serial number of all equipment furnished and installed.

k) Service organizations and sources of replacement parts with company names, addresses, fax and telephone numbers.

1.04 MAINTENANCE CONTROL PROGRAM (MCP)

A. Provide an MCP for each elevator. The MCP shall include, but is not limited to the following:

1. Examinations, maintenance, and tests of equipment at scheduled monthly intervals in order to ensure that the installation conforms to the requirements of ASME A17.1/CSA B44/CSA B44 Section 8.6. The maintenance procedures and intervals shall be based on:
   a. Equipment age, condition, and accumulated wear.
   b. Design and inherent quality of the equipment.
   c. Usage.
   d. Environmental conditions.
e. Improved technology.

f. The manufacturer’s recommendations for any SIL rated devices or circuits.

g. Cleaning, lubricating, and adjusting applicable components at regular monthly intervals and repairing or replacing all worn or defective components where necessary to maintain the installation in compliance with the requirements of ASME A17.1/CSA B44/CSA B44 Section 8.6.

h. The instructions for locating the Maintenance Control Program shall be provided in or on the controller along with instructions on how to report any corrective action that might be necessary to Owner.

i. The maintenance records required shall be kept at a central location agreeable and accessible to Owner and the Elevator Contractor’s elevator personnel.

j. The Maintenance Control Program shall be accessible to the elevator personnel and shall document compliance with ASME A17.1/CSA B44/CSA B44 Section 8.6.

1) Procedures for tests, periodic inspections, maintenance, replacements, adjustments, and repairs for all SIL rated E/E/PES electrical protective devices and circuits shall be incorporated into and made part of the Maintenance Control Program.

2) Where unique or product-specific procedures or methods are required to inspect or test equipment, such procedures or methods shall be included in the Maintenance Control Program.

2. The MCP shall be unique to this building’s elevator equipment. Instructions for locating the MCP on site shall be located in or on the controller of each elevator. All record keeping shall be in conformance with ASME A17.1/CSA B44, Section 8.6 and be kept on site.

3. MCP shall be submitted as a submittals. Once approved it will become part of the O+M’s manuals given to the owner.

1.05 WARRANTY MAINTENANCE

A. Warranty the completed elevator in accordance with Washington State law and regulation, but in no case less than complete coverage of parts and labor for one (1) year after substantial completion.

B. Elevator Contractor shall furnish Owner with all special tools, meters, diagnostic tools/devices, troubleshooting special hand-held tools/devices, printed information, adjusting information and all other special tools/devices to perform maintenance, troubleshooting, repairing and adjusting at conclusion of Elevator Modernization. If any special tool, meter, diagnostic tools/device requires readjusting or re-programming Elevator Contractor shall pay for all costs including freight for a period of one (1) year from date of elevator substantial completion. Cost, if any to Owner, for the above stated items shall be included in Base Bid. After the initial one (1) year period all upgrades, readjustments or reprogramming of any or all diagnostic tools or devices will be provided as needed or required on a purchase order basis with the original Elevator Contractor.
that installed/manufactured the elevator equipment.

C. Elevator Manufacturer shall provide and install all software improvement up-grades for a period of one (1) year from date of substantial completion. The up-grades are defined as improvements for the elevator operation. If any elevator safety software up-grades are designed or discovered by the elevator manufacturer, the elevator manufacturer shall install the up-grades immediately. Elevator Contractor shall pay all costs of software upgrades.

D. Twelve (12) Month Period: Elevator Preventive Maintenance Technical Specifications

1. Elevator Contractor shall provide Full Preventive Maintenance service for all elevator systems as stated in this contract for the 12-month warranty period. This includes all labor and material to perform routine preventative maintenance, requirements of the Maintenance Control Program (MCP), as well as any required callbacks, adjustments, lubrication, repairs, parts replacements, testing and cleaning as required to maintain all elevator equipment in first class condition and safe operating order, at all times.

2. Provide 24/7 elevator callback service at no additional cost to the Owner.

3. Elevator Contractor shall provide two (2) hours minimum per month, which equals 1 hour per car/per month mechanic hours, each and every month, performing preventive maintenance. Visits shall be once monthly.

   a. The above noted hours shall be the minimum actual hours performing full preventive maintenance duties. The preventive maintenance specified is considered the minimum for all equipment. If equipment included in this Contract requires additional maintenance for safe and reliable operation, Elevator Contractor shall perform the required maintenance. These hours do not include call-backs, repairs, adjustments or testing. Documentation of hours is required for monthly payment due Contractor. For any hours less than the stated not spent on Preventive Maintenance, $300.00 for each and every hour not on-site will be deducted from that month's invoice.

   b. Elevator Contractor shall maintain all elevator equipment in a safe condition within proper operating limits, as originally specified, with minimum elevator callbacks and shutdowns.

   c. The work shall be performed in a proper workmanlike manner to the entire satisfaction of Owner and Elevator Consultant.

   d. In performance of this contract, Elevator Contractor agrees to carry out all work in strict compliance with all laws, Codes, rules and regulations set forth with regard to the equipment by Municipal, State and Federal authorities having jurisdiction in effect on the date of this contract.

   e. Elevator Contractor shall protect all building equipment, surfaces, etc. from damage and shall perform repairs/replacement of any damaged items to as new condition thereto at their own expense to the entire satisfaction of Owner and Elevator Consultant.

   f. Elevator Contractor shall clean up all work areas and shall remove from the premises all debris resulting from their operations. Adequate
precautions shall be taken by Elevator Contractor to prevent any injury to building users while Elevator Contractor's work is in progress.

g. Elevator Contractor's field personnel shall wear uniforms identifying them as employees of Elevator Contractor for ease of identification by Owner. Elevator Contractor shall enforce strict discipline and order among their employees while on Owner premises, and shall be subject to the rules and regulations established by Owner. Personnel deemed unacceptable by Owner, for any reason, will not be allowed to perform work under this contract with Owner.

h. Elevator Contractor shall provide Owner with the names of Service Technician that will be assigned to the project. List shall be up-graded to current if Service Technician changes routes or assignments.

i. An Elevator Contractors representative shall be designated who shall be the main contact person relating to all information, requests or any other items relating to the contract.

j. Owner keys for elevator control rooms shall be checked out from the Owner. A signature log of key use shall be maintained. All keys shall be returned after work is completed. Elevator Contractor's Service Technician assigned to Owner shall be issued keys for the elevator control room. Duplication of any Owner key is not allowed. Any and all costs occurring due to the loss of keys by Elevator Contractor, including the changing of locks shall be paid at the sole cost and expense of Elevator Contractor.

k. All labor furnished by Elevator Contractor shall be trained journeyman level mechanics and apprentices, thoroughly skilled in Elevator Preventive Maintenance and directly employed and supervised by Elevator Contractor. They will use all reasonable care to maintain the elevator equipment in a proper and safe operating condition at all times.

l. Elevator Contractor shall post a (MCP) Preventive Maintenance Schedule and Work Log in the control room. The log shall include all entries for routine maintenance and repairs. Entries shall include date work is completed, brief description of work completed and the Mechanic's name. Owner may review and copy the log and maintenance schedule at any time.

m. Elevator Contractor shall maintain a complete set of wiring diagrams showing "as built" conditions with any changes or modifications to circuits resulting from control modifications, parts replacement or equipment Up-Grade. Owner retains sole possession of these wiring diagrams. Wiring diagrams shall be kept in a neat and orderly fashion and be located in the elevator control room.

n. If any elevator is shut down for more than twenty-four (24) continuous hours from the date and time of notification from Owner or from building personnel, except for pre-scheduled or major equipment repairs, the per elevator monthly billing shall be suspended until the elevator is restored to service.

o. Elevator Contractor shall not perform any alterations or additions to the
elevator equipment without Owner's prior written approval. Elevator Contractor shall, in writing, provide Owner with a scope of work description if alterations or additions are necessary for the continued operation of the elevator equipment.

p. During the course of each visit, all accumulated refuse in the hoistway, pit areas and elevator control room will be removed by the Elevator Contractor.

q. Elevator Contractor shall mark and identify all lubricating oils and cleaning solvents that are stored on-site. All storage shall be Code approved. All unmarked cans shall be removed from Owner premises. Elevator control room shall not be used for storage of materials or items that do not pertain to the elevator maintenance of Owner elevators.

r. Check the operating system for each elevator continuously and perform necessary tests and corrections to ensure all circuits are operating and time settings are properly adjusted.

s. Check the group dispatching systems and make necessary tests to insure that all circuits and time settings are properly adjusted, and all systems are performing as designed and installed.

t. Elevator Contractor shall conduct every six (6) months evaluations of equipment performance, including car speed, door operations, ride quality, and car leveling. Following such evaluations, Elevator Contractor shall perform adjustment, repairs and replacements required to maintain manufacturer's operating performance. A copy of evaluation will be delivered to Elevator Consultant and reviewed with Elevator Consultant.

u. Elevator Contractor shall immediately shut down and remove any elevator equipment from service when it appears to Elevator Contractor to be unsafe or operating in a manner which might cause injury to anyone using said elevator equipment. Elevator Contractor shall provide Owner written notice of such action immediately, in writing, stating the reason the elevator was placed out of service and measures required to place the elevator in service.

v. Maintain hoistway, pit, machinery, elevator control room and any assigned Elevator Contractor work space in a clean, orderly condition, free of dirt, dust, oil and grease spills, trash and debris, at all times.

w. Replace burned out indicator lamps in cars and hall call stations during Preventive Maintenance visits.

x. Elevator Contractor shall conduct the following tests and any other tests required by City, State, Federal and any other Governing or Code Agency that is in effect at the date of signing this contract:

1) Annual no-load safety tests.

2) Written signed reports of all tests shall be submitted to Owner within five (5) days from completion and also as required to the State of Washington Elevator Inspection Department. Seven (7)
days prior written notification shall be given so that a representative of Owner may witness said test or tests.

3) Elevator Contractor shall perform all required Firefighters' Emergency Operation tests and maintain all required documentation. Results of such testing shall be submitted to Owner on a quarterly basis.

4) Elevator Contractor shall "standby on-site" during Emergency Generator and Fire Alarm Initiating Devices Testing, at no extra cost to the Owner.

y. Renew car slide, or roller guides components to insure a smooth and quite operation.

z. State of Washington Elevator Inspection fees shall be paid by Owner. Owner shall notify Elevator Contractor, in writing, of items required to be completed and the responsibility of Elevator Contractor. Fees for re-inspection due to failure to eliminate deficiencies included in this contract and the responsibility of Elevator Contractor shall be paid by Elevator Contractor. Elevator Contractor shall correct all deficiencies immediately if items are included in the contract, upon written notice from Owner. Elevator Contractor shall notify State of Washington Elevator Inspector, in writing, of items completed with copy of report to Owner.

aa. Elevator Contractor shall be responsible for maintaining exterior of the elevator machinery and other parts of the elevator equipment properly painted, identified, and presentable at all times.

bb. Repairs required because of negligence, accident or misuse of the equipment by anyone other than Elevator Contractor, their employees, subcontractors, agents or other causes beyond Elevator Contractors control except ordinary use shall be an extra cost to the Owner.

cc. Repairs and parts replacement pertaining to the car enclosure including removable panels, door panels, car gates, suspended ceilings, light fixtures, tubes and bulbs for general lighting, handrails, car finish, flooring coverings, hoistway enclosures, hoistway entrance frames and sills and emergency telephone instruments are not the responsibility of Elevator Contractor.

dd. Elevator Contractor shall not be required under this agreement to install new attachments or devices as may be recommended or directed by insurance companies, federal, state, municipal or governmental authorities, subsequent to the date of this contract, unless compensated for such installation.

ee. Owner agrees to maintain the elevator pits and control room free from water and from unauthorized use.

ff. Elevator Contractor agrees to provide only genuine parts recommended by the manufacturers of the equipment for replacement or repair, and to use only those lubricants obtained from and/or recommended by the manufacturer of the equipment. If Elevator Contractor wishes to provide parts or lubricants other than recommended by the Elevator
Manufacture, Elevator Contractor shall, in writing, state the type proposed and the lubrication specifications to Owner and Elevator Consultant for review. Equivalent parts or lubricants may be used if approved in writing by Owner and Elevator Consultant.

gg. Elevator Contractor shall maintain an inventory level of replacement elevator parts, in the control room, which will permit prompt repair or replacement of components that fail or become worn. No elevator shall be left shut down more than four (4) hours, except for pre-scheduled repairs.

hh. Safety Data Sheets for products Elevator Contractor intends to employ under this contract will be provided to Owner prior to commencement of work. It will remain the responsibility of Elevator Contractor to inform and train the Elevator Contractor's employees on the use of Safety Data Sheets.

ii. Elevator Contractor shall be fully responsible for removal and disposal of all oils, greases, solvents and soiled cleaning cloths/rags that are used in their duties. All items will be disposed in accordance with all present or future City, State, Federal Laws and Regulations, which may be applicable.

jj. In the event of an elevator failure to operate properly, Owner will notify Elevator Contractor by telephone and request immediate repair. For this purpose, Elevator Contractor shall maintain, at all times, office facilities, a twenty-four (24) hour telephone service and personnel to promptly dispatch competent mechanics to repair any reported elevator.

kk. Removal of elevators for Preventive Maintenance shall be approved by Owner. Elevator Contractor shall provide Owner with a written schedule of when each elevator shall be taken out of service for Preventive Maintenance.

ll. A maximum of thirty (30) minute service availability time shall be provided during weekdays, Monday through Friday, 7:30 a.m. to 4:30 p.m. A maximum thirty (30) minute response time will be allowed at all other times unless a person is trapped in the elevator. If a person is trapped all reasonable measures shall be taken to arrive on job-site within sixty (60) minutes on overtime.

mm. All normal work under the contract is to be performed during regular working days of the elevator trade, 7:30 a.m. to 4:30 p.m. Elevator Contractor shall pay all parking expenses.

nn. All work to be performed, not included in this contract will be authorized by Owner by written notification to Elevator Contractor prior to commencement of the work. The maximum hourly rates, and material markup from cost, will be as follows:

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<thead>
<tr>
<th></th>
<th>MECHANIC</th>
<th>APPRENTICE</th>
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<tbody>
<tr>
<td>1) STRAIGHT TIME</td>
<td>$200.00</td>
<td>$175.00</td>
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<tr>
<td>2) TIME x 1.7</td>
<td>$245.00</td>
<td>$205.00</td>
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3) DOUBLE TIME $260.00 $220.00

4) MATERIAL MARK UP 15% above true cost to Elevator Contractor

5) Straight Time, Time x 1.7 and Double Time pay will be as defined in the Standard Agreement between Elevator Contractor and the International Union of Elevator Constructors, Local #19.

pp. After each service/trouble call and regularly scheduled maintenance, a legible work ticket will be completed indicating the elevator serviced, work performed, parts replaced, total hours on the job and the serviceman performing the work. In the case of an elevator shutdown or repair, the work ticket will describe the cause of the elevator failure and the action taken to correct the failure.

qq. All Work tickets shall be sent to Owner on a monthly basis. Preventive Maintenance tickets shall be separated for work completed.

rr. Owner reserves the right to make surveys, inspections and tests at their expense when deemed necessary to ascertain if the requirements of the contract are being fulfilled. Deficiencies noted of items that are included in the contract shall be expeditiously corrected at Elevator Contractor's expense.

ss. If Elevator Contractor fails to perform the work required by the terms of the contract in a diligent and satisfactory manner, Owner may, after ten (10) days written notice to Elevator Contractor, perform or cause to be performed all or part of the work required thereunder. Elevator Contractor shall reimburse Owner for any expense incurred therefor or Owner at its election may deduct the amount from any sum owed or to be owed Elevator Contractor.

tt. When work is determined not to be Elevator Contractor's responsibility, a written report signed by Elevator Contractor shall be delivered within twenty-four (24) hours to Owner for further action.

uu. If a safety or potential safety problem exists, Elevator Contractor shall immediately correct the problem. A written report shall be delivered to Owner within twelve hours (12) hours stating the work performed.

vv. In case of an elevator accident, Elevator Contractor shall be notified immediately by Owner. The elevator will not be placed in operation until an investigation is performed by Owner's representative and State of Washington Elevator Inspector. Elevator Contractor shall provide a written report to Owner before the elevator mechanic leaves the building.

ww. Inspections and tests may be completed by Owner to ascertain that requirements of this contract are being fulfilled by Elevator Contractor. Deficiencies noted shall be promptly corrected at Elevator Contractor's total expense.

xx. If Elevator Contractor violates any of the provisions of this Contract or fails to properly provide the services required by this contract, Owner shall advise Elevator Contractor of specific deficiencies and shall allow
twenty-one (21) calendar days to correct these deficiencies to Owner's total satisfaction.

1) In the event Elevator Contractor fails to correct the deficiencies in the allotted time, Owner shall have the right to terminate this agreement on thirty (30) calendar day's written notice to Elevator Contractor.

1.06 MATERIAL AND EQUIPMENT

A. Transportation and Handling:

1. Materials, products and equipment shall be properly packaged and protected to prevent damage during transportation and handling.

2. Storage and Protection:

a. Provide suitable temporary weather-tight storage facilities as may be required for materials that may be damaged by storage in the open.

b. Available storage space inside the building is limited. Coordinate with the Tacoma Library representative / GC for storage space.

c. If off-site storage of equipment is required, Elevator Contractor shall pay for all costs incurred.

d. Store and protect delivered materials from damage. Do not use any damaged material in the Elevator Modernization.

3. Installation Requirements:

a. A complete Elevator Technical Specification shall be on-site, at all times, during the entire Elevator Modernization.

b. Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the respective manufacturer's instructions unless more stringent requirements are specified.

c. Elevator Contractor shall provide written documentation that Elevator Contractor has installed and adjusted the elevator controller/selector as specified in these Specifications. Elevator Contractor shall evidence, in writing, that Elevator Contractor's Adjustor has attended the controller/selector manufacturer's training. Elevator Contractor shall provide controller/selector installation/troubleshooting training to their on-site Journeymen/Apprentices that will be installing and servicing/maintaining all the elevator equipment.

d. On-site Installation and Maintenance Technicians shall always have, on-site, a working cell phone. The phone number(s) shall be provided to the Owner before the Elevator Modernization begins.

4. Manufacturers’ Names and Data Plates:

a. Manufacturers’ data plates and other identifying markings shall not be
affixed on exposed surfaces to public view unless approved by Owner.

b. Each major component of mechanical and electrical equipment shall have, on a securely attached plate, the manufacturer's name, address, model number rating and any other information required by governing codes.

c. This requirement does not apply to Nationally Recognized Testing Laboratories (NRTL) and code required data labels.

5. Colors of Factory-Finished Equipment:

a. All colors will be selected by Owner from the manufacturer's standard color charts.

b. Elevator Contractor shall submit samples of all colors available for review upon request from Owner's Authorized Representative.

1.07 PROJECT CLOSEOUT

A. Final Cleaning:

1. Elevator hoistway and equipment shall be cleaned and free from rust, rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt and dust.

2. Care shall be taken by workers not to mark, soil, or otherwise deface existing surfaces. In the event that finished surfaces become defaced, clean and restore such surfaces to the original condition at the total cost of Elevator Contractor.

3. Clean areas in which painting and finishing work is to be performed just prior to the start of this Elevator Modernization, and maintain these areas in a clean condition. Cleaning includes the removal of rubbish, broom cleaning of floors, the removal of any plaster, mortar, dust and other extraneous materials from finish surfaces, and surfaces that will remain visible after the Elevator Modernization is complete.

4. Clean machine room equipment and floor of dirt, oil, and grease. Paint machine room floor with dark gray enamel.

5. Clean car, entrances, operating, signal fixtures and all elevator equipment of dirt, lint, oil, grease, and finger marks.

6. Cleaning During the Elevator Modernization:

a. Total project shall be cleaned on a daily basis by Elevator Contractor. Dust must be kept at a minimum at all times, especially in the hoistways.

7. Punch Listing; Final Observation and Review:

a. Elevator Contractor shall complete the entire Elevator Modernization prior to requesting Elevator Consultants final inspection.

b. Elevator Consultant will attempt to schedule the final inspection during the same period the Washington State Elevator Inspector inspects the elevator. Provide Elevator Consultant with copies of the Elevator
Inspectors Report within two (2) calendar days of the on-site Elevator Inspectors visit. Provide a written report of all items which have been corrected by Elevator Contractor.

c. If a second (2nd) follow-up inspection is required of Elevator Consultant or Washington State Elevator Inspector, the Elevator Contractor shall pay all costs for such inspections/surveys including all expenses for the Elevator Inspector, Elevator Consultant, and Elevator Consultant.

1.08 ALTERATIONS

A. Description:

1. General: Perform alterations and related Work in accordance with requirements of all Contract Documents.

2. Scheduling:

   a. Before commencing any alteration Work, submit for review and approval by and Elevator Consultant, a schedule showing the material ship dates, time of material on-site, commencement of work, the order and the completion dates for the various parts of the elevator modernization.

      1) Provide a monthly updated schedule to Elevator Consultant and Consultant with payment application.

      2) Provide a list of names of Adjustors, Journeymen, and Apprentices on-site.

      3) Update list when Adjustors, Journeymen and/or Apprentices are changed.

      4) All information shall be delivered to Owner’s Authorized Representative.

      5) Elevator Contractor is required to submit a three (3)-week look-ahead schedule to Elevator Consultant every week, and a full project schedule with each pay request.

3. Protection:

   a. Provide, erect, and maintain lights, barriers, weather protection, warning signs, and other items as required for proper protection of building tenants, visitors and all workers engaged in Elevator Modernization, either directly or indirectly for the Elevator Modernization.

   b. Provide and maintain temporary protection of the existing structure designated to remain where removal and new work is being completed, connections made, materials handled or equipment moved.

   c. Take necessary precautions to prevent dust from rising by wetting removed masonry, concrete, plaster and similar debris. Protect unaltered portions of the existing building affected by the operations under this Section by dust-proof partitions and other adequate means.
d. Provide adequate fire protection in accordance with City of Tacoma Fire Department rules and requirements.

e. Do not close or obstruct walkways, passageways or stairways. Do not store or place materials in passageways, stairs or other means of egress. Conduct operations with minimum traffic interference.

f. Be responsible for any damage to the existing structure or contents by reason of the insufficiency of protection provided. Elevator Contractor shall repair or replace any damaged building equipment that is damaged by Elevator Contractor.

4. Quality of Work:

a. Perform removal and alteration Elevator Modernization as shown, with due care, including shoring, bracing, etc. Be responsible for damage, which may be caused by such Work, to any part or parts of existing structures or items designated for reuse. Perform patching restoration and new Work in accordance with the Contract Documents.

b. Materials or items designated to be reinstalled, as stated in Section 14 24 00, shall be removed with care, under the supervision of the Elevator Contractor and protected and stored until reinstalled. Replace any material or items damaged in its removal or reinstallation.

c. Materials or items removed and not designated to become the property of Owner shall be removed from the job site by Elevator Contractor.

d. Execute the Elevator Modernization in a careful and orderly manner, with the least possible disturbance to the building occupants.

e. Where alterations occur, or new and old Work join, cut, remove, patch, repair or refinish the adjacent surfaces or so much thereof as is required by the involved conditions, and leave in the condition which existed prior to the commencing of the Elevator Modernization.

f. Finish new and adjacent existing surfaces as specified for Elevator Modernization. Clean existing surfaces of dirt, grease, loose paint, etc. before refinishing. Where any existing equipment is to be re-used; repair/renovate such equipment to place in perfect working order.

1.09 ELECTRICAL

A. Provide electrical components of the elevator equipment and systems, including motors, motor starters, controllers, control instruments, switches, conduit, wire and relays as specified herein and as necessary for complete and operable systems.

B. Furnish interconnecting wiring for components of equipment as an integral part of the equipment.

C. Electrical equipment and wiring shall conform to NFPA 70 - National Electrical Code, current adopted edition.

D. For equipment with electrical components, provide an NRTL label on each component for which published standards exist.
E. The frames of all motors, pump unit, controller, transformers, and the metal enclosures for all electrical equipment in or on the car, hoistway and machine room shall be grounded in accordance with NFPA 70-Article 250.

F. Provide "daisy chain" electrical grounding for all machine room electrical cabinets.

G. Provide required and adequate electrical wiring gauge sizing and number of electrical conductors to totally eliminate any voltage/amperage drop/variation for all the machine room equipment, hoistway switches; door interlocks; car operating fixtures; positions indicators; exhaust fan; car lighting; inspection station; leveling devices, hall stations; position indicators, and all other elevator electrical equipment.

H. Conductors and Connections:

1. Provide new wiring in machine room, hoistway and car. Copper throughout with individual wires coded and connections on identified studs or terminal blocks.

2. Use no splices or similar connections in wiring except at terminal blocks, control cabinets, and junction boxes.

3. Provide 10% spare wires in all wiring runs. Separate and mark all spare wires. All spare wire ends shall be turned back or protected against accidental exposure to any live electrical circuit or electrical ground.

4. Provide all material and labor to connect machine room telephone wires to elevator controller and to the in-car emergency telephone. Owner to provide telephone wires to elevator machine room. All wiring shall be enclosed in EMT.

5. Conduit and Raceway:

   a. Provide new painted or galvanized steel conduit (EMT) and duct. Conduit size, one-half (1/2") minimum.

   b. Do not use flexible conduit exceeding thirty-six inches (36") in length.

   c. Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protection devices.

   d. Plastic wire ties shall not be allowed for conduit fastening.

6. Traveling Cables:

   a. Traveling cables shall comply with NFPA 70, Article 400.

   b. Provide new with flame and moisture-resistant outer cover.

   c. Traveling cables shall terminate in the elevator machine room controller and on the elevator car top junction box with marked terminals.

   d. Prevent traveling cables from rubbing or chafing against hoistway or elevator equipment within hoistway.

   e. Provide ten percent (10%) spare conductors in each traveling cable.

   f. Provide two (2) spare conductors of coaxial traveling cables.
g. Provide four (4) spare pair of twisted/shielded conductors in traveling cables.

h. Provide two (2) spare pair of number fourteen (#14) conductors.

i. All spare wire ends shall be turned back or protected against accidental exposure to any live electrical circuit or electrical ground.

j. Tag all spare conductors indicating termination points at each end. Provide all wiring for car lighting, fan and emergency communication from elevator controller to car.

k. Provide traveling cable for in-car lighting, fan, emergency communication device and intercom to main floor and elevator machine room.

I. Painting:
   1. All exposed metal work furnished in these specifications, except as otherwise specified, shall be properly painted after Elevator Modernization.
   2. Paint machine room and pit floors with light gray enamel.

J. Quality Assurance:
   1. Elevator Contractor shall furnish all special tools, meters, diagnostic tools/devices, troubleshooting special hand-held tools/devices, printed information, adjusting information and all other special tools/devices to perform maintenance, testing, troubleshooting, repairing and adjusting, before starting the elevator project. No substitutions of proprietary circuit boards, EPROMS, hardware locks, software passwords or coding shall be allowed. All tools and software necessary to diagnose problems and/or change operational parameters of the elevator system shall be retained by Tacoma Library and shall function for the life of the installed equipment. Hardware and software required for diagnosis and operating parameter modification shall be products offered as standard by the manufacturer of the control system.

   2. Elevator Contractor shall provide and install all software improvement up-grades for a period of five (5) years from date of Elevator Modernization final acceptance by Tacoma Library. The up-grades are defined as improvements for the elevator operation. If any elevator safety software up-grades are designed or discovered by Elevator Contractor, Elevator Contractor shall install the up-grades immediately. All costs of the software up-grades shall be paid by Elevator Contractor.

   3. Elevator Contractor shall provide the availability of any spare parts within seventy-two (72) hours from date of parts order by Tacoma Library. Replacement and spare parts are defined as any and all items required to maintain, test, service, repair, adjust and operate the elevator as designed and installed, in a safe and trouble free manner. Elevator Contractor shall sell any and all spare parts including proprietary parts to Tacoma Library or an Elevator Maintenance Contractor employed by Tacoma Library, during the entire life cycle of the elevator equipment.

   4. Elevator Contractor shall provide, in writing, all proprietary equipment that will be provided for this Elevator Modernization. The list shall include individual item
cost and part numbers or coding. Parts ordering information shall be provided. A list of these items shall be provided together with a guarantee of availability. This guarantee shall specify that all proprietary parts shall be available within a twenty-four (24) hour period of order placed. Tacoma Library may return the worn or defective part to Elevator Contractor after the replaced part is delivered to and the elevator has been placed in normal operation. The final Elevator Modernization shall be maintainable by a trained Elevator Mechanic without the need to purchase or lease additional tools or software to diagnose problems and/or change operational parameters of the elevator system. As a condition of the Elevator Modernization, Elevator Contractor shall guarantee to sell and deliver, on a timely basis, replacement parts and software updates to Tacoma Library and/or to a third-party elevator maintenance company at a fair market price.

K. Acceptable Elevator Installers/Manufacturers:

1. Acceptable Elevator Manufacturers:

a. Controls:

1) Motion Control Engineering, Inc. Motion 2000
2) Elevator Controls Company
3) Otis Elevator Company
4) ThyssenKrupp Elevator Company
5) KONE Elevator Company
6) Elevator Controls Company
7) GAL Galaxy Hydro
8) Or approved equivalent.

b. Hydraulic Pump Unit, Cab, Limit Switches, Hydraulic Jack Unit:

1) Canton Elevator Company
2) EE.CO-Elevator Equipment Company, Inc.
3) Minnesota Elevator, Inc.
4) Otis Elevator Company
5) KONE Elevator Company
6) ThyssenKrupp Elevator Company
7) Or approved equivalent.

c. Hydraulic Valve:
1) Maxton Manufacturing Company
2) EECO-Elevator Equipment Company, Inc.
3) Or approved equivalent.

d. Muffler:
1) MEI gas charged silencer.
2) No approved equivalent.

e. Oil Cooler:
1) MEI (BOL) 208 vac 3/4HP pump.
2) No approved equivalent.

f. Cab Finishes:
1) Canton Elevator Company.
2) Minnesota Elevator, Inc.
3) Otis Elevator Company.
4) KONE Elevator Company
5) ThyssenKrupp Elevator Company
6) Elevator Manufacturing
7) Winter and Bain
8) Or approved equivalent.

g. Car Door Operator:
2) Otis Elevator Company
3) KONE Elevator Company
4) ThyssenKrupp Elevator Company
5) Or approved equivalent.

h. Door Tracks, Hangers, Interlocks, Gate Switch:
1) G.A.L. Manufacturing Corporation
2) Otis Elevator Company
3) KONE Elevator Company
4) ThyssenKrupp Elevator Company
5) Or approved equivalent.

i. Hoistway and Car Door Gibs:
   1) SEES-Enforcer Safety Door Gib
   2) No equivalent

j. Hostway Door Closers:
   1) Smart Torque
   2) No approved equivalent

k. Car Slide Guide inserts:
   1) Dover Omega type
   2) Or approved equivalent.

l. Car Door Protective Device:
   1) Janus "Panachrome-3D"
   2) Or approved equivalent.

m. Fixtures-Vandal Resistant:
   1) Hall Stations:
      a) Innovation Industries Incorporated "The Bruiser Vandal Resistant" Low profile surface mount, field measured and verified. to cover existing cutouts.
      b) Or approved equivalent.

n. Car Fixtures, including In-Car Directional Lanterns:
   1) Innovation Industries Incorporated "The Bruiser-Vandal Resistant".
   2) Or approved equivalent.

o. Hoistway Access Door Safety Plugs:
   1) Tri-Lok Manufacturing and Maintenance Corporation.

p. Car/ Surface mount Hall Position Indicators/Signals:
   1) C. E. Electronics, Inc.
2) Or approved equivalent.

q. Intercoms:
   1) JFillips, LLC
   2) Or approved equivalent.

r. Alarm Bell:
   1) Nylube Model ELB-6
   2) Or approved equivalent.

s. In-Car Emergency Light:
   1) Nylube Products Model EL-SS
   2) Or approved equivalent.

PART 2 - PRODUCTS

2.01 GENERAL

A. The completed elevator modernization shall conform to the Elevator Safety Code except as specifically otherwise indicated or specified.

B. The Elevator Modernization, including equipment, material, workmanship, design, and tests shall be in accordance with the standards, rules and Specifications referenced.

C. All material and equipment shall be new.

D. Electrical materials shall meet and bear evidence of meeting the requirements of a Nationally Recognized Testing Laboratory (NRTL).

E. The equipment shall be the product of a manufacturer regularly engaged in the manufacture and modernization of this type of equipment.

F. Working parts shall be accessible for inspection, servicing and repair.

G. Adequate means shall be provided for the lubrication of all wearing parts that require lubrication.

H. Description and Performance: Modernization will be in accordance with the following details and consist of the following; all dimensions to be verified by the elevator contractor.

   1. Elevator #2:

      a. One (1) In Ground Hydraulic Elevator

      b. Installed: 1990
c. Manufacturer: Dover

d. Control System: Simplex Selective Collective

e. Controller/Selector: New

f. Door Equipment: Dover

g. Door Size: 4' wide x 7'-0" high

h. Door Type: Two Speed/Side Opening. Front and rear directly across from each other.

i. Door Operation: Automatic

j. Stops: 3

k. Landings: 5- 3 Front / 2 Rear

l. Floor Designation: Front = B*1-2 / Rear C1, C2

m. Rated Speed (fpm): 100

n. Capacity: 4000 pounds

o. Machine Location: Remote 50 feet. (Elevator contractor verify)

2.02 MATERIALS

A. Steel:


2. Stainless Steel:

a. Type 302 or 304 complying with ASTM A167, with standard tempers and hardness required for fabrication, strength and durability.

1) Apply mechanical finish on fabricated Work in the locations shown or specified. Federal Standard and NAAMM nomenclature, with texture and reflectivity required matching sample. Protect with adhesive-paper covering until final inspection.

2) No. 4: Bright directional polish (satin finish). Graining directions as shown or, if not shown, in longest dimension.

3) Rimex-texture 5-SM-304 Stainless Steel. Thickness .032.
3. Aluminum:
   a. Extrusions per ASTM B221; sheet and plate per ASTM B209.

4. Plastic Laminate: ASTM E84 Class A and NEMA LD3, Fire-Rated Grade (FR-50), Type 7, 0.050" +/- .005" thick; color and texture as follows:
   a. Exposed Surfaces: Color and texture selected by Owner.
   b. Concealed Surfaces: Manufacturer’s standard color and finish.

5. Fire Retardant-Treated Particleboard Panels:
   a. Minimum 3/4” thick backup for natural finished wood and plastic laminate veneered panels, edged and faced. Provide with suitable anti-warp backing; meet ASTM E84 Class “I” rating with a flame-spread rating of 25 or less.

6. Baked Enamel:
   a. Apply factory applied baked enamel in the selected solid color.

2.03 OPERATION

A. Simplex Automatic Operation:

1. Automatic operation by means of a car button in the car for each landing served and an up and down button at each landing except for the terminal landing that shall have only one button.

2. When elevator is idle, automatically start car and dispatch it to floor corresponding to registered car or hall call. Slow down and stop car automatically at floor corresponding to registered call.

3. As slowdown is initiated for a hall call, automatically cancel the call and render the hall button for that direction of travel ineffective until the car leaves the floor.

4. Cancel car calls in same manner.

5. Hold car at arrival floor an adjustable time interval to allow passenger transfer.

6. Illuminate appropriate button to indicate call registration.

7. Extinguish light when call is answered.

8. Door Operation:
   a. Open doors automatically when the car arrives at a floor to permit transfer of passengers. Automatically close doors after a timed interval.

9. Automatic Stopping Accuracy:
a. Two-way automatic leveling feature shall stop the car within 1/4" regardless of load or direction of travel. Landing level will be maintained within the leveling zone irrespective of the hoistway doors being open or closed.

10. Hydraulic Control System:

a. The hydraulic control system shall be designed suitable for operation under the required pressure and shall be mounted in the storage tank. The control valve will be a unit type with UP, DOWN and check valve included. All of the functions shall be fully adjustable for maximum smoothness and to meet contract conditions.

b. A manual-lowering valve will be provided to lower the elevator at slow speed.

c. The hydraulic valve shall have the capability of providing a smooth, comfortable acceleration, retardation and final stop.

11. Emergency Car Lighting and Alarm:

a. Car-mounted, battery unit with solid-state charger to operate alarm bell and lighting, per Code. Battery to be rechargeable with 5-year minimum life expectancy. Provide test button in service cabinet of car station, which causes illumination of standby lighting bulbs.

b. Emergency lighting fixture shall be integral part of car operating station.

12. Security:

a. Elevator currently has Key pad security on COP. System shall be retained and reused with new elevator controls.

b. Elevator shall be equipped with Card reader security software and hardware for future implementation by owner.

2.04 MACHINE ROOM EQUIPMENT

A. Hydraulic Pump Unit:

1. Assembled unit consisting "wet type" of positive-displacement pump, induction motor, master-type control valves combining safety features, holding, direction, bypass, stopping and manual-lowering functions, shut-off valve, oil reservoir with protected-vent opening, oil gauge and outlet strainer, drip pan and connections all mounted on isolating pads.

2. Controller:

a. Provide reduced voltage (solid state) motor starting circuits.

b. Provide Independent Service feature.

c. Provide viscosity control unit.

d. Provide battery-lowering device (Alternate Bid Item #2).
1) If normal electrical building power is not in operation the car shall close the doors and return to the main lobby and open the doors. All safety circuits shall be monitored.

2) Car shall remain out of service until normal electrical building power is restored.

e. Firefighters' Emergency Operation:

1) Operate and recall elevator to designated floor during fire. Provide sensor signal wiring from hoistway or machine room connection point to controller terminals. Operate visual/audible signal until return is complete or automatic operation restored. Provide Phase I key switch with engraved instruction at main recall floor hall station.

f. Low-Oil Control:

1) In the event hydraulic oil level is insufficient for travel to the top floor, provide controls to return elevator to the main level and park with car doors open, until oil is added and elevator is manually re-set.

2) Elevator Control system must be capable of generating reports on demand from service provider. No on site computer required

3) As a minimum, the following reports shall be provided:

a) Job Configuration-This report shall provide a brief description of the system, including the job number, programmable job name, number of landings, openings per landing for the car, programmable car designation, programmable landing designation, Firefighters' Service, Seismic operation, serial communication port definitions and other system options.

b) System Performance Graph-This report shall provide elevator system performance data based on hall call waiting times. At the end of each hour, the quantity of up and down hall calls and up and down waiting time averages shall be calculated and saved in the controller's non-volatile memory. This information shall be stored for a minimum of seven (7) days.

4) Special Event Calendar Menu:

a) The special event calendar menu shall provide three options. The first display of Special Events Entries allows the user to examine the documented faults or events. The second, List, and Description of Events, allows the user to examine the faults and events, which are monitored. The third, Initialize the Special Event Calendar, allows the user to clear all the documented faults and events.
3. Muffler:
   a. A gas charged blowout-proof muffler shall be installed in the discharge oil line near the hydraulic pump unit.
   b. Muffler shall be designed to dampen and absorb pulsation and noise in the flow of hydraulic oil fluid.

4. Oil Cooler (Alternate Bid Item #1):
   a. Provide Oil cooler that is powered by 208 VAC. 3/4 HP pump motor
   b. Radiator portion of oil cooler shall be mounted remotely to prevent recirculation of heat in elevator machine room.
   c. If remote location not achievable to outside of building mount radiator portion in elevator pit.

5. Piping and Oil:
   a. Provide Schedule 80 steel piping and connections for all exposed sections of pipe. With new Victaulic couplings. Ok to retain existing if no visible leaks exist.
   b. Provide "ISO 32 Hydraulic oil.
   c. Provide rolled or cut groove type pipe joint for Victaulic couplings.
   d. Provide isolation couplings between the pump unit and oil line.
   e. Provide isolation brackets attached to wall or floor to eliminate sound/vibration from pump unit to building structure.
   f. Provide isolation around piping in hoistway/machine room wall.
   g. Provide a new shutoff ball valve in the elevator machine room. Ok to retain existing.

6. Shutoff Valve:
   a. Provide shutoff ball valve in oil line in elevator pit. Ok to retain existing.

7. Seismic Safety Valve:
   a. Provide Seismic Safety Valve in oil line in pit area. Ok to retain existing as long as it is in 1st class operating condition.
   b. Install Seismic Safety Valve adjacent to hydraulic cylinder inlet-outlet connection. Ok to retain existing.
   c. Provide seal on Seismic Safety Valve after adjusting for correct setting.

8. Noise and Vibration Control:
a. To minimize noise and vibration, mechanically isolate elevator equipment from the structure; electrically isolate controller and motor. Limit noise level relating to elevator equipment and its operation to no more than 60 decibels in elevator car under any condition including door operation and exhaust fan on highest speed.

b. Under no instances metal from tank, oil line pipe stands, or cutouts through walls can come into contact with structure allowing noise transmission to the structure.

9. Signs:
   a. Provide sign on outside of machine room door stating "Authorized Personnel Only-Storage or Installation of Equipment Not Pertaining to the Elevator is prohibited".
   b. Letters shall be not less than 3/8" high.
   c. Sign shall be plastic or metal and securely fastened so as not be readily removed without the use of special tools.

10. Keys:
   a. Key Box:
      1) Provide approved key lock box, located as per requirements of Washington State Elevator Inspector and City of Tacoma Fire Department. Provide in this lock box, one (1) Phase I re-call key, one (1) Phase II operation key, one (1) stop switch keys, one (1) access plug lock key, one (1) door unlocking device and one (1) machine room key and any other keys required by Washington State Elevator Inspector and City of Tacoma Fire Department.
      2) Provide three (3) sets of "all" keys for the operation of the elevator. Provide a metal tag on each set of keys noting what function of each key.
      3) Keys Required in Machine Room:
         a) Three (3) sets of keys to operate all keyed switches and locks shall be furnished upon completion. Keys shall be properly marked with metal tags. Each tag shall include ¼" letters or numbers as to the function of each key set. Each set shall be separated as a total group.
         b) Provide all required sets of keys with marking tags as required by the Washington State Elevator Inspector and ASME A17.1-2010/CSA B44-10, Section 8.1.
         c) Keys shall be separated into groups as required by ASME A17.1-2010/CSA B44-10, Section 8.1.

2.05 HOISTWAY EQUIPMENT
   A. Guide Rails:
1. Existing guide rails shall be retained.
   a. Realign guide rails to within one-sixteenth of an inch (1/16") vertical and one thirty-second of an inch (1/32") (DBG) tram.
   b. File all joints-area to file shall be at least 16" above and 16" below each joint. Power disk sander shall not be allowed to file joints. Flat file that is enclosed in a Rail File Holder shall be the method of filing rail joints.
      1) Replace any missing or broken fastening devices.
      2) Provide bevel washers for any bolt/nut that is installed in a plane of 5 degrees or greater.

2. Guide Rail Fishplates:
   a. Retain

3. Spring Buffers:
   a. Retain existing.
   b. Provide required tags on the new buffers as required by Code.
   c. Paint with one coat of light gray enamel.

4. Jack Assembly:
   a. Retain existing.

5. Plunger:
   a. Retain existing. The packing shall be replaced when the alteration is completed.
   b. Platen Plate shall not be welded to the top of the plunger.
   c. Existing plunger will be thoroughly inspected and all scratches, nicks, and joints will be dressed up to a smooth finish so new packing will not be damaged.

6. Hydraulic Jack Support:
   a. Retain existing. Clean and paint with gray enamel paint.

7. Entrance Equipment:
   a. Door Hangers
      1) Retain:
      2) Provide safety retainer plates for the top and bottom of the door panels.
3) Door Tracks:
   a) Retain
   b) Install all new rollers.

4) Interlocks:
   a) New
   b) Provide "Fire Rated" wires from interlock to elevator controller. Interlock wires shall be flame retardant and suitable for a temperature of not less than 392 degrees F. Conductors shall be Type SF or equivalent.
   c) Provide electrical ground wire to each interlock. Electrical ground wire shall terminate at elevator controller at an electrical ground stud or connection as defined by NFPA 70.

5) Emergency Access:
   a) Access to all hoistway doors shall be provided by mechanical lunar key.
   b) Provide hoistway door lunar key holes with Safety Plug Locks at all floors.
   c) Provide keyed hoistway access control at top and bottom landings.

8. Door Closers:
   a. New

9. Pit Stop Switch:
   a. An emergency type stop switch shall be located in the pit as to be accessible from the hoistway access door, per ASME A17.1/CSA B44. Locate stop switch adjacent to the pit ladder.

10. Pit:
    a. Extend the vertical pit ladder to a height of 48" above the hoistway sill of lowest level/landing. Maintain rung spacing and spacing from pit wall.
    b. Provide a horizontal hand-hold at the top of the ladder.
    c. Pit ladders to be provided in Work by Others section.

11. Floor Numbers:
    a. Paint 4" high floor numbers within the hoistway as required by ASME A17.1/CSA B44. Color to be in contrast with the surrounding background.
2.06 HOISTWAY ENTRANCES

A. Frames:

1. Retain existing.

2. Provide all new mechanically attached floor plates with Braille white on black.

3. Door Panels:
   a. Retain door panels. Repaint or reskin finish to match existing color.
   b. Provide two (2) gibds per door panel—one at the leading edge and one at the trailing edge.
   c. Provide steel safety retainer plates between each standard door gibs. Plate shall span the "total" distance between each standard door gibs. Plates shall vertically penetrate into the hoistway door sill groove the maximum vertical depth without bottoming out on the groove.
   d. Provide drop-leaf key access at all landings, including Safety Plug Locks.

4. Sight Guards:
   a. New. Match door finishes
   b. Fasten to doors with 1/8" pop rivets or "shake-proof" fasteners every 6".

5. Sills:
   a. Retain existing.

6. Fascia, and Hanger Covers:
   a. Retain existing. Clean and paint with one coat of gray enamel.

7. Toe Guard:
   a. Retain existing. Clean and paint with one coat of gray enamel.

8. Dust Cover:
   a. Retain existing. Clean and paint with one coat of gray enamel.

9. Struts:
   a. Retain existing. Clean and paint with one coat of gray enamel.
   b. Provide door open bumpers on the vertical struts.

10. Retain existing.

2.07 CAR EQUIPMENT
A. Car Sling:

1. Retain existing. Replace any missing or broken components.

2. Buffer Striking Plates:
   a. Retain existing. Ensure plates are securely mounted to bolster channel.

3. Platform:
   a. Retain existing platform. Replace any damaged or missing component.
   b. Provide fire proofing on underside of platform.

4. Slide Guides:
   a. Retain
   b. Install new Slide guide inserts
   c. Adjust accordingly and remove all movement slop between guides and rails.

5. Toe Guard:
   a. Retain existing. Paint front with one coat of black enamel.

6. Hangers, Rollers, Up thrust and Tracks:
   a. New

7. Header:
   a. New

8. Car Door Electrical Contact:
   a. New

9. Car Door Clutch:
   a. New

10. Door Operator:
   a. Provide new heavy-duty, closed-loop door operator. Car door operator shall mechanically drive the car doors.

   1) Open doors automatically when car arrives at a floor to permit egress of passengers.
   2) Close doors automatically after a timed interval.

11. Door Control Device:
a. Car Door Protective Device: Provide new proximity-type car door protective device. The detection zone moves with the car door so that if a person or object enters the zone after the doors have started to close, the doors shall stop, and then reverse to re-open. The doors shall re-close after a scheduled time.

b. Nudging Action:
   1) If the safety device is obstructed for a predetermined adjustable time (10-30 seconds), sound buzzer and attempt to close doors with a not more than 3.5 J (2.5 ft-lbf) kinetic energy.
   2) Stop and hold doors during closing if detector zone is entered.
   3) Allow door to close after obstruction is removed.

12. Elevator Car Station:
   a. Provide new, Vandal Resistant, one elevator control station with faceplate, consisting of a metal box containing the operating fixtures, mounted behind the car enclosure fixed front return panel.
   b. Provide car position indicator as part of the upper area of the car station. Provide 50 mm (2.0 in.) high digital-type indications representing the floor served. Provide a floor passing audible signal. Signal shall be no less than 20 decibels with a frequency no higher than 1500 Hz.
   c. Suitably identify floor buttons, alarm button, door open and door close buttons and emergency stop switch by engraved and painted letters or symbols per Local Handicapped Standards and ADA requirements. Engrave in ¼" letters "DOOR OPEN" and "DOOR CLOSE" below each of the assigned buttons. Provide flush inset, back fastened handicapped markings. Locate vertical height from car floor to operating controls as per ADA requirements.
   d. Provide hands free emergency communication fixture that complies with The Americans with Disabilities Act (ADA).
      1) The communication device shall be an integral part of the car operating panel. Operating fixture call button and other features, including engraved instructions shall be part of and built into the car operating station cover plate.
      2) Provide all necessary wiring between the elevator car and elevator machine room.
      3) Program phone to comply with all Code and ADA requirements.
      4) Provide in-car Emergency Lighting device at upper area and an interregnal part of the car operating station.
         a) An emergency power unit shall be provided to illuminate the elevator car and provide current to the alarm bell in the event of power failure. Provide Vandal Resistant plastic clear lens over device.
b) Device shall provide a minimum illumination of 2 lx (0.2 fc) at a distance of 1200 mm (48-in.) above the car floor and 300 mm (12-in.) in front of the car operating station.

c) The emergency lighting shall maintain the light intensity for a minimum of four (4) hours.

5) Provide 1/8" raised floor pushbuttons, which illuminate to indicate LED call registration. Provide floor designation to the left of each button.

6) Provide illuminated alarm button at bottom of station to ring bell located on elevator, and sound distress signal. Engrave in ⅛" letters "ALARM" below button.

7) Provide keyed stop switch in panel faceplate with engraved in ⅛" letters to indicate the "Run" and "Stop" positions.

8) Provide door open button to stop and reopen closing doors. Make button operable while car is stopped at landing, regardless of special operational features, except Firefighters’ Service. Provide a key operated switch for an extended Door Open feature. Engrave below switch in ¼" letters - Door Hold Switch. Engrave above switch in ¼" letters - Off-On. On is to the right. Key shall be removable in the OFF position only.

9) Provide Phase II Firefighters' Emergency Operation panel.

a) The panel shall contain the visual signal (fire hat symbol), door open and close buttons, call cancel button, emergency stop switch and a Firefighters’ In-car Operation keyed switch.

10) Provide lockable service panel in car station with recessed, flush cover plate matching return panel. Include the following controls, with purpose and operating positions identified by engraved letters painted black:

a) Car light switch and emergency light test switch. Emergency light test switch will disconnect the electrical power supply to the car lighting electrical circuit.

b) Three position fan switch-off-low speed-high speed.

c) Independent-service switch to permit selection of independent or automatic operation.

d) Provide a GFCI duplex 120 VAC electrical convenience outlet.

11) Provide black paint filled engraving in ½" letters:

a) Elevator number on car station.

b) Elevator capacity in pounds on car station.
12) Faceplate Material and Finish: #4 Brushed Stainless Steel. Provide vandal resistant fastening screws.

13) Provide any other features as required by the Washington State Elevator Inspection Department.

13. Car Top Control Station:
   a. Operating fixture shall be provided containing continuous pressure Up, Down and Safe buttons, emergency stop switch, inspection/run switch, and 110 VAC duplex outlet with GFCI protection.
   b. Toggle switches shall not be provided for the Stop, Run and Inspection switches unless the switches are guarded against accidental activation. Fasten car top station to car crosshead.

14. Car Top Illumination:
   a. Work light shall be encased in a total glass enclosure including a wire guard cover.
      1) Rating of light to be sufficient to maintain the illumination required by ASME A17.1/CSA B44.
      2) The lamp(s) shall be guarded to prevent incidental contact.
      3) Provide an additional light fixture on a 2400 mm (96-in.) flexible cord. Cord to be hard wired into car top fixed work light.
         a) Provide fixed metal bracket to store cord when not in use. Locate bracket to avoid stepping on cord when attached to bracket.
         b) The lamp(s) shall be guarded to prevent incidental contact.
      4) ON-OFF car top light switch shall control both fixtures.

15. Car Top Emergency Exit:
   a. Provide car top emergency escape hatch to comply with ASME A17.1/CSA B44.

16. Communication Systems:
   a. Provide intercom system between "Recall" floor hall station and elevator car and between the machine room and elevator car. On-Off activation is required only at the "Recall" floor station and elevator machine room. Lobby intercom including the On, OFF switch shall be part of the main "Recall" floor hall push button station. In-car to-lobby and machine room communication is voice activated.
   b. Provide all necessary wiring between the elevator car, hall station, and elevator machine room to facilitate communication devices.
2.08 CAR ENCLOSURES

A. Car Enclosure:

1. Retain existing

2. Car interior Finishes:
   a. Provide a Standard interior finish selection for Owner to review and select during submittal period. Base Bid shall include all labor to install the Owner selected cab interior.
   b. Ceiling shall be Stainless #4 panels with recessed LED lights.

3. Car Doors:
   a. New Stainless Steel with 5WL finishes.
   b. Bottom of doors shall be provided with removable phenol guides, which run in the sill slots with minimum clearance.
   c. Provide steel safety retainer plates that will be installed between each of the two (2) standard gibs. The steel plate gib shall span minimum 4” and centered between each of the standard gibs.
   d. Provide zone restrictors, designed to prevent car doors from being opened when the car is outside a landing zone.

4. Door Edge Protective Device:
   a. Provide car door with infrared type reopening device extending the full height of the car door.

5. Lighting:
   a. Flush mount LED Lighting
   b. Car lighting shall be sufficient to produce the minimum illumination required at floor level in the elevator car.

6. Car Sill:
   a. Retain existing

7. Car Handrails:
   a. New 1.5” diameter round. Standoffs through bolted through cab wall.

8. Pad and Pad Hooks:
   a. Provide stainless steel pad buttons on all walls. Pad buttons shall be through bolted to cab walls. Pad buttons and mounting stud shall be one piece. Provide three-section fire retardant pad with metal grommet holes for the pad hooks fastening. Mark on backside of pad the left, right or
back wall side. Ok to reuse existing as long as new pads are constructed to fit current button locations. One set of Cab pads.

9. Exhaust Fan:
   a. Provide a two-speed exhaust fan, to be mounted on the car top. Provide flat ¼" thick, Stainless Steel round cover plate with adequate number of ¼" holes for air movement. Fasten cover plate to ceiling with six (6) (1/8") Stainless Steel pop rivets. Retain existing ok

10. Escape Hatch:
   a. Provide electrical contact and latch per code.

2.09 LANDING CONTROL STATIONS

A. Pushbuttons:
   1. Provide "Surface Mounted" vandal resistant fixtures at each landing. Include pushbuttons for direction of travel, which illuminate LEDs to indicate call registration. Engrave safety message, "In Case of Fire..." (Ref. ASME A17.1-2010/CSA B44-10, 2.27.9) in pushbutton faceplate and fill black. Center of buttons to be 42" from finish floor.
   2. Provide UP or DOWN markings to the left of each button together with Braille markings. Marking plates shall be built into the cover plates.
   3. Provide 1" digital type in height Surface mount hall position indicator, including directional arrows in upper area of each hall station. Provide ¼" thick vandal resistant plastic cover over position indicator. Fixture must be measured, and field verified by elevator contractor to cover existing cutout for old fixture.
   4. Provide in-car intercom speaker and switch as part of "Recall" floor hall station.
   5. Provide Firefighters' Emergency Operation Phase I key switch with engraved instructions at main Recall floor hall station.
   6. Provide visual and audible signals for communication device to comply with ASME A17.1/CSA B44, 2.27.1.1.6.
   7. Faceplate Material and Finish:
      a. Hall Pushbutton Station: Surface mount #4 Brushed Stainless Steel. Provide vandal resistant Stainless Steel fastening devices. Must be field measured and verified by elevator contractor so new fixture covers existing cutouts and buttons are placed at code height.
   8. Hall Position Indicators:
      a. Provide new surface mount digital Position indicators 2" readout at all existing locations.

2.10 SIGNALS

A. Car Traveling Lanterns:
1. Provide Vandal Resistant type in both sides of car entrance columns. Provide #4 Brushed Stainless Steel cover plate with vandal resistant Stainless Steel fastenings. Illuminate appropriate direction light and sound electronic tone as hall call is answered to indicate intended car travel. Tone shall sound once for UP direction, twice for DOWN direction.

2. Car Position Indicator:
   a. Include as part of car station. Provide 2" high digital-type indications representing the floor served. Provide a floor passing audible signal. Signal shall be no less than 20 decibels with a frequency no higher than 1500 Hz.

PART 3 - EXECUTION

3.01 SITE CONDITION INSPECTION
   A. Prior to beginning the Elevator Modernization, Elevator Contractor shall survey the machine room, hoistway and pit. Elevator Contractor shall verify, in writing, that no conditions exist which adversely could affect their Work. The Elevator Contractor shall verify all existing dimensions relevant to the scope of work.
   B. Do not proceed with Elevator Modernization until possible concerns/problems conforms to project requirements.

3.02 INSTALLATION
   A. No Rattle/Impact guns shall be allowed on-site unless approved by Pike Place Market.
   B. Install all elevator equipment in accordance with Manufacturer's direction, referenced Codes, and Specifications.
   C. Install all elevator equipment so they may be easily removed for maintenance and repair.
   D. Install all elevator equipment so that access for maintenance is safe and readily available.

3.03 FIELD QUALITY CONTROL
   A. Work at the jobsite will be checked during the time of Elevator Modernization. Accomplish corrective Work required, by Elevator Consulting Services Inc., prior to performing further installation.

3.04 ADJUSTMENTS
   A. Adjust all elevator equipment to achieve required performance levels.

3.05 PAINTING AND FINISHES
   A. All natural metals shall be of the best grade and shall have the grain of belting in the direction of the longest dimension with a fine, brushed finish. All surfaces shall be perfectly smooth and without waves.

3.06 RIDE QUALITY
A. Horizontal vibration, side to side and front to back with car during normal operation shall not exceed 30 mg in the 1-10 Hz range.

B. Vertical vibration not more than 25 mg. Provide smooth and constant acceleration and deceleration of not more than 2.8 feet/second/second with an initial ramp between 0.5 and 0.75 second.

C. Provide smooth and constant acceleration and deceleration of not more than 2.8 feet/second/second with an initial ramp between 0.5 and 0.75 second.

D. Provide no more than 12 ft/sec3 of maximum jerk.

3.07 PERFORMANCE

A. Speed: +/- 10% of contract speed under any loading condition or direction of travel.

B. Stopping Accuracy: +/- 1/8" under any loading condition or direction of travel.

C. Door Opening Time: Seconds from start of opening to fully open:
   1. 2.5 seconds

2. Door Closing Time: Seconds from start of car door closing until car doors are in the fully closed position and the elevator can start.
   a. As per ASME A17.1 requirements

3. Floor-to-Floor Performance Time: Seconds from start of car doors closing until car doors are 3/4 open and car level and stopped at next successive floor under any loading condition or travel direction.
   a. 10.5 seconds (based on 12' travel)
   b. Provide a smooth start, acceleration, high speed operation, deceleration and final stop in both directions.

3.08 ACCEPTANCE INSPECTION AND TESTS

A. Furnish labor, materials and equipment necessary for all tests. Notify Elevator Consulting Services Inc., seven (7) days in advance when ready for final inspection. Final acceptance of Elevator Modernization shall be considered only after all field-quality control reviews have been completed, identified deficiencies have been corrected, all submittals and certificates have been received and the following items have been completed to the satisfaction Elevator Consulting Services Inc.

1. Quality of Work and equipment comply with specification.

2. Performance of following are satisfactory:
   a. Door operation and closing force.
   b. Signal fixtures.
   c. Firefighters Service Emergency Operation.
d. Performance times.

e. Car speed.

f. Seismic testing.

g. Conduct the following tests: one-hour running test stopping at each floor in up and down directions. The doors are to complete a full open and close cycle with the standard door dwell time operating.

1) Rated (full) capacity.

2) Balanced car.

3) Empty car.

3. Performance Guarantee: Should tests reveal defects, poor quality of Work, variance or noncompliance with requirements of specified Codes and/or ordinances, or variance or noncompliance with the requirements of specifications, complete corrective Work to satisfaction of Elevator Consulting Services Inc., at no additional cost to Tacoma Library.

a. Replace equipment that does not meet Code or Specification requirements.

b. Perform Elevator Modernization including all labor, materials and equipment necessary to meet specified operation and performance.

c. Perform and assume cost, including expenses, for re-testing and re-inspections required by Washington State Elevator Inspector and Elevator Consulting Services Inc., to verify specified operation, performance and requirements of all contract documents have been completed to the total satisfaction of, Washington State Elevator Inspector and Elevator Consulting Services Inc.

3.09 WARRANTY

A. In addition to any other warranties in this contract, Elevator Contractor warrants that the Elevator Modernization performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or quality of Work performed by Elevator Contractor or and Subcontract or supplier.

B. This warranty preventive maintenance period shall continue for a period of one (1) year from the date of elevator final acceptance by Tacoma Library, Washington State Elevator Inspector and Elevator Consulting Services Inc.

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 and Division 01 Specification Sections, apply to this Section.

1.02 WORK INCLUDED
A. Operation and Maintenance Manual for HVAC.

PART 2 - PRODUCTS

2.01 GENERAL
A. General Contents: A maintenance manual shall be compiled containing maintenance and operating information and maintenance schedules for the HVAC systems. See Division 01 for basic requirements; provide additional information as specified herein.

2.02 GENERAL
A. General Contents: A maintenance manual shall be compiled containing maintenance and operating information and maintenance schedules for all mechanical equipment installed in this project.

2.03 MANUAL ORGANIZATION
A. Identification: Covers shall be labeled "Operation and Maintenance Manual," with name of the Project, Owner, Engineer, General and Mechanical Contractors and year of completion. Coordinate labeling with Division 01 requirements to label Division 23 information in same style, and as appropriate volume numbers of the entire Operation and Maintenance set.

B. Format: 8-1/2" x 11" size pages; neat, clean copies; larger pages and drawings accordion folded. All writing in the manuals shall be typewritten and divider sheets with typed identification tabs between sections.

C. Notebooks: Copies shall be punched and placed in a three-ring notebook, with clear plastic pocketed covers and spine. Notebook shall have inside pockets at front and rear. Where multiple notebooks are required, notebooks shall be of same size and type. Provide sufficiently sized notebooks to allow easy removal of material and future addition of Owner's added maintenance data. Coordinate notebook style with Division 01 to provide same notebook style as provided for other specification Divisions.

D. Organization: Manual shall be organized into the following sections:

1. Table of Contents
2. Directory
3. Maintenance Schedules
4. Submittal Data and Technical Operation and Maintenance Data (Provide sections corresponding to each Division 23 specification section or other logical
2.04 MANUAL CONTENTS - GENERAL

A. Table of Contents: Provide detailed list of contents of entire manual.

B. Directory:
   1. Provide directory listing names, addresses, and telephone numbers of Architect, Engineer, Contractor, all Subcontractors and all Equipment/Material Suppliers and their local representative or service agent.
   2. Provide names, addresses and phone numbers for at least one service agency for each equipment requiring maintenance.

2.05 MANUAL CONTENTS - SUBMITTAL DATA AND TECHNICAL OPERATION AND MAINTENANCE DATA

A. General: This portion consists of the bulk of the Operation and Maintenance Manual and consists of multiple sections providing submittal data and technical Operation And Maintenance data for all equipment and materials.

B. Organization: Shall be broken into sections following the project specification sections or (where approved by Architect/Engineer) into building systems or similar logical groupings. Each of these sections shall be further broken down into subsections which cover each piece of equipment making up the specification section (or system).

2.06 SUBMITTAL DATA AND TECHNICAL O&M DATA

A. Submittal Data: Provide manufacturer's technical product data, with manufacturer's model number, description of the equipment noting equipment capacities, options, special features and accessories. Label equipment data with same designation as used on contract documents. This information may consist of the same information as the submittal data (clearly identified and marked to suit each item). This information shall be provided for all items requiring maintenance and for items that may require replacement over a 30 year period or be revised due to an Owner building improvement (includes valves, equipment, air outlets/inlets, dampers, etc.).

B. Technical O&M Data: Provide for each equipment or item requiring maintenance. Data to include:
   1. Manufacturer’s operating and maintenance manuals and instructions.
   2. Itemized list of maintenance activities and their scheduled frequency.
   3. Maintenance instructions for each maintenance activity.
   4. Manufacturers’ parts list.
   5. Manufacturers recommended lubricants.

C. Sources: Provide names, addresses, and phone numbers for local manufacturer’s representative, service companies, and parts sources for HVAC system components including: filters, belts, and equipment.

PART 3 - EXECUTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 and Division 01 Specification Sections, apply to this Section.

1.02 WORK INCLUDED
   A. General Mechanical HVAC Requirements.
   B. Mechanical HVAC Submittals.
   C. Equipment Identification.

1.03 GENERAL REQUIREMENTS
   A. Scope: Furnish all labor, materials, tools, equipment, and services for all mechanical work as specified in Division 23 and as shown on the drawings. This section applies to all Division 23 specifications and to all project mechanical work. All mechanical equipment and devices furnished or installed under other Divisions of this specification (or by the Owner) which require connection to any mechanical systems (i.e. hydronic systems, duct systems, etc.) shall be connected under this division of the Specifications.
   B. General: All work shall conform with the General Conditions, Supplementary Conditions, and all other provisions of the Contract Documents.
   C. Complete Systems: Furnish and install all materials, appurtenances, devices, and miscellaneous items not specifically mentioned herein or noted on the drawings, but which are necessary to make a complete working installation of all mechanical systems. Not all accessories or devices are shown or specified that are necessary to form complete and functional systems.
   D. Review and Coordination: To eliminate all possible errors and interferences, thoroughly examine all the Drawings and Specifications before work is started, and consult and coordinate with each of the various trades regarding the work. Such coordination shall begin prior to any work starting, and continue throughout the project.
   E. Conflicts: Where conflicts occur, the most expensive and stringent requirement (as judged by the Architect/Engineer) shall prevail. Notify the Architect/Engineer of any discrepancies or conflicts before proceeding with any work or the purchasing of any materials for the area(s) of conflict until requesting and obtaining written instructions from the Architect/Engineer on how to proceed. Any work done after discovery of such discrepancies or conflicts and prior to obtaining the Architect/Engineer's instructions on how to proceed, shall be done at the Contractor's expense, including any necessary work to comply with the resolution determined by the Architect/Engineer.
   F. Field Conditions:
      1. Check field conditions and verify all measurements and relationships indicated on the drawings before proceeding with any work.
      2. In verifying existing conditions, the Contractor shall verify by direct physical inspection, complete tracing out of systems, by applying test pressures, by excavation and inspection, use of pipeline cameras, and other suitable absolute...
certain methods to confirm the actual physical conditions that exist.

G. Drawings and Specifications: Drawings and specifications are complementary and what
is called for in either is binding as if called for in both.

H. Offsets/Fittings: The drawings are diagrammatic and show the general arrangement of
the construction and therefore do not show all offsets, fittings and accessories which are
required to form a complete and operating installation. Piping systems: Include in bid all
necessary fittings and offset to completely connect up all systems, maintain clear access
paths to equipment, and comply with all project requirements. Contractor is responsible
to determine the quantity of offsets and fittings required, and the labor involved. No
added payment or “extras” will be granted for the Contractor’s failure to correctly estimate
the number of offsets and fittings and labor required. Contractor is advised that
equipment connections may require more than 20 elbows per coil per pipe line.

I. Locations: Unless dimensioned locations for mechanical items are shown, select the
precise location of the item in accordance with the Contract Documents and subject to
the Architect/Engineer's review. No allowances will be granted for failure to obtain the
Architect/Engineer's review.

J. Design: The level of design presented in the documents represents the extent of the
design being furnished to the Contractor; any additional design needed shall be provided
by the Contractor. All design by the Contractor shall be performed by individuals skilled
and experienced in such work, and where required by local code (or elsewhere in the
documents) shall be performed by engineers licensed in the State where the project is
located. The Contractor shall include in his bid the costs of all such added design
including engineering, drafting, coordination, and all related activities and work. Such
designs services are required for many building systems; including but not limited to fire
sprinkler systems, control systems, hanger/support systems, temporary duct/piping
systems, system offset/adjustments to suit structure, and for methods/means of
accomplishing the work.

K. Experience: All work shall be performed by individuals experienced and knowledgeable in
the work they are performing, and experienced with the same type of systems and
building type as this project. By virtue of submitting a bid, the Contractor is
acknowledging that workers to be utilized on this project have such experience and
knowledge. Upon request of the Engineer, the Contractor shall submit resumes showing
the work history, training, and types of projects worked on, for all individuals assigned to
this project.

L. Standards and References: Shall be latest edition unless a specific edition, year, or
version is cited.

M. Permits and Fees:

1. The Contractor shall obtain and pay for all permits, licenses, fees and inspections
as required by the Code and as specified herein (unless noted otherwise in the
Contract Documents).

2. Fees which this Contractor shall pay include all charges made by any utility
company or municipality for material, labor or services incident to the connection
of service (unless noted otherwise in the Contract Documents).

N. Definitions and Abbreviations: See Division 01 and the drawings.
1.04 QUALITY ASSURANCE:

A. Code: All work shall be done in accordance with all applicable codes and ordinances. Throughout the Project Documents, items are shown or specified in excess of code requirements; in all such cases, the work shall be done so that code requirements are exceeded as indicated.

B. Code Knowledge: Contractor and workers assigned to this project shall be familiar and knowledgeable of all applicable codes and ordinances. By submitting a bid, the Contractor is acknowledging he and the workers to be utilized on this project have such knowledge.

C. Proof of Code Compliance: On completion of the work, satisfactory evidence shall be furnished to show that all work has been installed in accordance with all codes and that all inspections required have been successfully passed. Satisfactory evidence includes signed inspections by the local code authority, test lab results, qualified and witnessed field tests, and related acceptance certificates by local code authorities, and field notes by the Contractor as to when all inspections and tests occurred.

D. Electrical: All electrical devices and wiring and equipment shall comply with standards of NEC and Division 26 specifications. All electrical devices shall be UL (or other approved agency) listed and so identified.

E. Quality Assurance Checks: Prior to ordering items or materials, confirm the following for each:

1. General: Item is suitable for the intended purpose and complies with the Contract Documents.

2. Manufacturer: Item’s manufacturer is listed as an acceptable manufacturer in the Contract Document’s or a substitution request (where allowed) has been submitted and the manufacturer has been listed as acceptable.

3. Electrical (for items requiring electrical power):
   a. Item is for use with the voltage/phase as indicated on the electrical plans (or for the electrical circuit the item will be connected to).
   b. Item’s ampacity requirements (MCA) do not exceed that indicated on the electrical plans (or for the electrical circuit the item will be connected to).

4. Weight: Item’s weight is no greater than that indicated on the plans.

5. Adequate Space: Item will fit in the space available, and along the path available to install the item.

6. Installation: A suitable method for installing the items has been selected which meets the project schedule and other requirements.

7. Lead Time: The item’s fabrication, shipping, and delivery period meets the project schedule requirements.

1.05 SUBMITTALS

A. General:
1. Submittals shall comply with the Division 01 Specification Section entitled "Submittals."

2. Variations: Only variations that are specifically noted on submittals will be considered. Variations shall be noted by being submitted on 8-1/2" x 11" paper, with 1/4" high lettering clearly describing what the proposed variation is, who is proposing it, why it is being proposed, any cost changes associated with the variation, the date, and related data to clearly identify the project and to which item(s) the variation pertains. Failure to submit information on the variation in this way will result in the review being conducted without considering the variation.

3. By submitting an item for review, the Contractor is claiming that all “Quality Assurance Checks” have been performed and satisfactorily passed.

B. Product Information Submittals:

1. Information Required: The following information is required for each item and is defined as making up the product submittal for that item. Failure to submit the required information may result in the rejection of the submittals and submitted item.

   a. Manufacturer's catalog information, containing product description, model number, and illustrations. Mark clearly to identify pertinent information and exact model and configuration being submitted.

   b. List of accessories and options provided with product.

   c. Product dimensions and clearances required.

   d. Product weight.

   e. Product name and symbol as shown on the drawings or written in the specifications.

   f. Performance Data: Provide performance capacity and characteristics showing compliance with the capacity listed in the equipment schedules and specified.

   g. Manufacturer's and nearest sales representatives names, addresses, and phone numbers.

   h. For equipment requiring piping or plumbing connections:

      1) Type of connections required.

      2) Size and locations of connections.

   i. For electrically operated equipment:

      1) Number and locations of electrical service connections required.

      2) Voltage required.

      3) Fuse or circuit breaker protection requirements.
4) Motor starter requirements; if motor starter is furnished with the equipment, submit product information on motor starter.

j. Manufacturer's installation instructions and recommendations. Installation of the item will not be allowed to proceed until this information is received. Failure to furnish this information is cause for rejection of the material.

2. See each specification section for other submittal requirements.

C. Shop Drawing Submittals:

1. "Shop Drawings" are defined as illustrative plans, to scale, showing installation details and dimensions for a given system. Shop drawings are custom design drawings, specifically prepared for and applicable to this project.

2. Within thirty (30) days (unless specified sooner elsewhere) of the notice-to-proceed, submit multiple copies of the shop drawings to the Architect/Engineer.

3. All shop drawings relating to the same system shall be submitted at the same time.

4. Minimum drawing size shall be 24" x 36", minimum scale shall be 1/8" = 1'-0".

5. Drawings shall be neat, clean and legible; and shall clearly illustrate the fabrication, layout, operation, and installation (as applicable) of the product or system submitted.

6. Drawings shall have a title block containing the name of the job, name of Contractor who made the drawing, date of drawing, and drawing title. A legend shall be included.

7. Shop drawings shall be provided for the following systems:

a. For any parts of any system which are to be installed differently than as shown on the drawings.

b. Other areas/work as noted in documents.

8. For those systems requiring shop drawings, reference that system's specification section for any specific requirements of the shop drawings.

1.06 SCHEDULE OF VALUES

A. General: See Division 01.

1.07 RECORD DATA

A. General: See Division 01.

1.08 SPECIAL TOOLS

A. At completion of project this Contractor shall furnish to the Engineer one complete set of any and all special tools such as odd size wrenches, keys, etc. (allen wrenches are considered odd), which are necessary to gain access to, service, or adjust any piece of
equipment installed under this contract. Each tool shall be marked or tagged to identify its use.

1.09 PROJECT CLOSEOUT

A. Closeout Submittals: The following items must be presented to the Architect/Engineer prior to final acceptance of the building. Final payment of the Contract will be contingent upon receiving these documents. See Division 01 requirements also.

1. As-Built Data.
2. Operation & Maintenance Manuals.
3. Guarantees (including one-year)
4. Proof of compliance with governing codes (copy of signed off permits or letter).
5. Equipment Start-up Reports (see equipment specification sections).

B. Completion Reviews and Punchlists: The Architect/Engineer responsible for review of the Division 23 work will provide one substantial completion review to determine whether the work (or designated portion thereof) is substantially complete, and develop a list (punchlist) of those items that are not done. After completing these punchlist items, the Contractor shall submit to the Architect/Engineer a copy of the punchlist, with each item initialed by the General Contractor and by the Foreman (or Superintendent) of the trade responsible for the work. Every item shall be addressed as corrected, or as being otherwise resolved with the Architect/Engineer. After receipt and agreement with this initialed list, the Architect/Engineer will make one final completion review to determine if the work (or designated portion thereof) is fully complete.

1.10 PRODUCT HANDLING AND PROTECTION

A. Protection:

1. Protect all material, equipment and apparatus provided under this section from damage, water, corrosion, freezing and dust, both in storage and when installed, until final project acceptance.
2. Protect premises and work of other divisions from damage arising out of installation of work of this division.
3. Completely cover motors, control panels, equipment, machinery and similar items to protect from dirt and water during construction.

B. Provide temporary heated and sheltered storage facilities for material and equipment.

C. Condensation: Provide adequate venting arrangements for all protected items to avoid condensation damage.

D. Openings: Cap all openings in pipe and ductwork to protect against entry of foreign matter until all work that has dust or fumes associated with it is complete. Caps shall be of sufficient strength and seal integrity to prevent entry of water if sprayed direct with a hose, and to prevent entry of general fumes.

E. Improper Storage/Protection: Material, equipment, or apparatus damaged because of
improper storage or protection will be rejected.

F. Paint Finishes: Painting finishes that are damaged by handling, storage, etc. shall be corrected by the Contractor, at no additional cost to the owner. Painting shall comply with Division 09 and manufacturer’s requirements.

1.11 JOB CONDITIONS

A. Special Requirements:

1. Maintain emergency and service entrance usable to pedestrian and vehicle traffic at all times. Where trenches are cut, provide adequate bridging for traffic.

2. Coordinate startup and shutdown of heating systems, and other utilities with all other trades and the Owner’s representative.

3. The Contractor shall coordinate all construction activities with the Owner’s Representative and cooperate fully so as to minimize conflicts and to facilitate Owner usage of the premises during construction.

4. Provide temporary utility services to occupied areas to accommodate Owner’s use during construction. All temporary work shall comply with same specifications as for new work and be of same quality.

B. Downtime Restrictions:

1. Contractor shall notify the Owner at least 72 hours in advance of any intended shut-down of electric power, or heating services.

2. Electrical power to the building shall not be interrupted at any one time for more than 15 minutes.

C. Schedule of Work: Arrange work to comply with schedule of construction, and so as not to violate the downtime restrictions, and to accommodate the Owner’s schedule use of the premises during construction.

PART 2 - PRODUCTS

2.01 PRODUCTS--GENERAL

A. Standard Products: Materials and equipment shall be standard products of a manufacturer regularly engaged in the manufacture of such products which are of a similar material, design and workmanship. The standard products shall have been in satisfactory commercial or industrial use for two years prior to bid opening. The two year use shall include applications of equipment and materials under similar circumstances and of similar size. The two year’s experience must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturers' catalogs, or brochures. Except that equipment changes made solely to satisfy code requirements or to improve unit efficiency are not required to have two year prior operation.

B. Service Support: Qualified permanent service organizations for support of the equipment shall be located reasonably convenient to the equipment installation and able to render satisfactory service to the equipment on a regular and emergency basis during the
warranty period of the contract.

C. Manufacturer's Nameplate: For each item of equipment, provide a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place. The nameplate of the distributing agent will not be acceptable. Nameplates for fuel-burning appliances, electric heating appliances, heat pump appliances, and other items listed in IMC shall provide added information as required by the IMC.

D. Compatibility: All components and materials used shall be compatible to the conditions and materials the items will be exposed to. All items exposed to the weather shall be galvanized, or be of stainless steel or similar corrosion resistant material.

E. Nameplates/Labels/Legends: Where nameplates or labels are required, these shall have minimum of 1/8-inch high (unless indicated otherwise) lettering, engraved on laminated plastic. Laminated plastic shall have black surface layer and white (unless other color indicated) sub-layer, with engraving through to expose white sub-layer. Prior to making a list and applying labels, the Contractor shall submit a list of all proposed labels.

F. Non-Specified Items: Materials shown on the drawings but not specified shall be provided as shown and as required to suit the application illustrated and intended and shall be of commercial quality, consistent with the quality of similar type items provided on the project. Not all items shown on the drawings necessarily have a corresponding specification; such items shall be provided per this paragraph and so as to provide complete, finished, fully functioning mechanical systems.

G. Warranty: Equipment shall be warranted by the manufacturer to be free from all manufacturing defects and capable of providing satisfactory operation for a period of one year (or longer, where indicated so) after the date of project acceptance. The Contractor shall include in his bid all costs associated with this warranty to insure that the warranty extends to one year after the date of project acceptance. Possible project delays and failure by others to complete their work may cause the date of project acceptance to be substantially delayed. The Contractor shall be responsible for increasing the warranty dates by corresponding amounts to still provide one year warranties.

H. Weights: Unit weights shall not exceed the weights shown unless the Contractor provides added structural supports as required by the Engineer. The Contractor shall bear all costs for all redesign and added supports to accommodate heavier equipment. The Contractor shall reimburse the Engineer for all time associated with all review and analyses regarding the use of equipment heavier than that indicated.

I. Asbestos Free: All products used shall be asbestos free.

J. Temperature/Pressure Rating: All materials and components furnished shall be suitable for the temperature and pressures they will be exposed to. Contractor shall consider possible operating modes to insure proper material ratings. Consideration shall include such factors as high temperatures caused by heat transfer from piping, coils, etc. when fans are shut down (e.g., motors, control devices, etc. installed within air handling units or mechanical rooms shall be rated for high temperatures due to such heat gain).

K. Standardization: All like products shall be by the same manufacturer and have the same characteristics and features to allow for Owner's standardization.

L. Model Numbers: Any reference to a manufacturer's "model number" is a reference to a manufacturer's series number or type of product, and it not a complete "model number".
and does not indicate all features, accessories, and options that are required. These series numbers are only meant to convey a type of product that may meet the project requirements. Where conflicts of discrepancies occur regarding current manufacturer’s series numbers versus series numbers specified in these documents, the features/accessories/options as shown in current catalogs in the Engineers office corresponding to the specified series number shall prevail. Such catalogs are available for review. Where conflicts or discrepancies occur regarding a listed manufacturer’s series or “model” and a specified capacity or feature, the more stringent and expensive shall prevail.

M. Fault Current Rating: All equipment requiring the use of electrical power shall have a fault current rating of 65,000 AIC; except where a lower fault current value is indicated on the drawings, or Code allows uses of a lower number. Where the Contractor wishes to utilize equipment having fault current limitations lower than 25,000 AIC (or as shown on plans, whichever is less), the Contractor shall be responsible to provide suitable fusing, additional devices, and/or other changes to the building electrical system as necessary to accommodate the proposed equipment.

N. Special Products: Numerous products specified for this project are custom products, or require special and unique construction, and special and unique features. Such special items may include: Finishes, controls, UL (or other independent testing lab) listing specialized for the custom one of a kind equipment specified, construction, configuration, capacities, accessories, spare parts, warranty, testing, flow rates, application, installation, delivery date, cleaning, etc. Include in bid all costs to provide items meeting all project requirements. Products may reference a manufacturer’s series number, but are still special and custom, with the series number identifying only a reference point for the unit manufacturer. The series number is not to be construed as limiting the features or capabilities of the item. Contractor shall review all requirements and all vendor quotes to ensure all requirements are being met and to include all costs in bid. No added cost will be paid for failure to include in bid all costs necessary to provide the special, unique, and custom items required.

2.02 SUBSTITUTIONS

A. Where not disallowed in Division 01, the Contractor may choose to propose substitutions after contract award for which approval is not obtained prior to bid opening. Such proposals shall be done at his own risk and such substitutions shall be submitted as specified in paragraph entitled “Submittals”, within 30 days after award of contract including information required above.

B. Proposed substitutions shall be equal to or superior to the specified item in function, appearance, and quality, and shall fulfill all requirements of the plans and specifications. The Architect/Engineer shall be the final judge as whether an item meets these requirements or not.

C. The approval of a substitution applies to the manufacturer only, and does not relieve the Contractor from the responsibility of meeting all applicable requirements of the plans and specifications.

D. The Contractor shall be responsible for all costs to the other trades and all revisions required to accommodate any substitutions.

2.03 ELECTRICAL

A. All electrical work, conduit, boxes and devices in connection with control wiring as
required to install the control equipment as specified herein or shown on the drawings shall be furnished and installed complete by the Division 23 Contractor.

B. All electrical work performed under this section of the Specifications shall conform to all applicable portions of the Division 26 specifications and shall conform to all governing codes.

C. All starting switches and disconnect switches provided by this Contractor shall be labeled to identify the equipment served and usage. Such labeling shall match that specified in Division 26.

D. All equipment shall be factory wired to a junction box for connection of electrical service.

2.04 PRODUCT LISTINGS

A. General: Any piece of equipment used in this project and hereinafter specified which requires electrical hook-up, such as fans, pumps, hot water tanks, boosters, air handling equipment, etc. shall be provided with an approved label from an agency acceptable to the authority having jurisdiction. Such listing is not required where the authority having jurisdiction does not require it.

B. Complete Assembly: Approval of agency shall be for the complete assembly (approval of individual components not acceptable) and all labels must be located outside of equipment and shall be visible to inspector.

C. Responsibility: It shall be the responsibility of the mechanical contractor or the equipment supplier to meet the requirements of this Section. All agency costs to provide appropriate label for a piece of equipment shall be included in the bid.

2.05 EQUIPMENT AND PIPING IDENTIFICATION

A. General: All mechanical equipment shall be identified.

B. All mechanical equipment which was scheduled on the Contract Drawings shall be marked with the name of the item; i.e., Heat Pump No. 1, etc. The identification shall be the same as shown on the Contract Drawings. The marking shall be located on a side of the equipment so as to be easily read, with the marking visible to a person standing at floor level near the unit. Lettering shall be a minimum 2" high, with color contrasting sharply with the color of unit. Marking shall be with phenolic engraved labels, white lettering on a black background, drilled for fastening with two screws.

PART 3 - EXECUTION

3.01 GENERAL

A. Workmanship: This Contractor shall furnish and install all equipment included in the Contract to provide complete and functioning systems with a neat and finished appearance. If, in the judgment of the Architect/Engineer, any portion of the work has not been installed in accordance with the specifications and in a neat workmanlike manner, or has been left in a rough, unfinished manner, the Contractor shall be required to revise the work so that it complies with the specifications and is acceptable to the Architect/Engineer, at no increase in cost to the Owner.
A. Space Verification: Prior to ordering materials verify that adequate space exists to accept the items to be installed, and along the path used to install the item. Such verification shall be by direct field measurement of the actual space available and use of manufacturer’s final submittal dimensions. Where the project involves new construction and long lead equipment items and a time schedule not allowing for such direct field measurements, confirm in writing with all trades associated with building the space that adequate room is available. No submittals shall be made until such space verification work has been performed, and confirmed that adequate space is available.

B. Replacement and Maintenance: Install mechanical equipment to permit easy access for normal maintenance, and so that parts requiring periodic replacement or maintenance (e.g., coils, heat exchanger bundles, sheaves, filters, meters, bearings, etc.) can be removed. Relocate items which interfere with access or revise item installation location, orientation, or means of access.

C. Manually Operated Components: Valves and other devices which are manually adjusted or operated shall be located so as to be easily accessible by a person standing on the floor. Any such items which are not in the open shall be made accessible through access doors in the building construction.

D. Accessible Installation: If circumstances at a particular location make the accessible installation of an item difficult or inconvenient, the situation shall be discussed with the Architect/Engineer before installing the item in a location that will result in poor access.

E. Equipment Access: Access to equipment is of utmost importance. Contractor shall apply extra attention to the laying out of pipe and duct routings and in coordinating all work so that equipment access and a clear maintenance pathway to equipment is maintained. Poor maintenance access will not be accepted. Contractor shall note that in essentially all areas piping and ducts routed in attic areas need to run with slopes parallel to the roof, necessitating elbows/fittings/transitions at crosses of ducts/pipes and at all connections to mains and branches; and requiring added fittings to maintain a clear walking height over attic walkways.

F. Manufacturers Instructions: Installation shall comply with manufacturer’s written installation instructions and recommendations. Submit such instructions for Engineers review prior to beginning installation.

3.03 FINAL INSPECTION AND INSTRUCTION

A. Instruction:

1. The O&M Manuals shall be submitted and approved by the Engineer and Owner prior to conducting the instruction periods.

2. Instruction shall include a minimum of 2 hour on site time, discussion on the system’s operation and presentation of information from maintenance manuals with appropriate references to drawings, followed by tours of equipment spaces explaining maintenance requirements, access methods, servicing, and maintenance schedules, procedures, temperature settings and available system and equipment adjustments.

3. Field instructions and demonstrations of maintenance procedures for all items covered in the O&M manual (reference Section 23 02 00) shall be provided. Such field instruction and demonstration shall be for a minimum of 2 hours.
4. The Contractor's Representatives who conduct these instructions and demonstrations shall be qualified foremen or superintendents acquainted with this project and the trades involved. Manufacturer's authorized service representative or direct employee shall provide instruction for all major equipment and systems and where specified.

5. Notice of the contractor's readiness to conduct the instruction and demonstrations shall be given to Owner and Architect/Engineer at least two weeks prior to proposed instruction periods and mutually agreed upon times arranged.

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 and Division 01 Specification Sections, apply to this Section.

1.02 WORK INCLUDED
A. Mechanical Demolition
B. Field Investigation and Review of Existing Conditions
C. Review of Record Documents
D. Deactivation and Cap-off of Systems
E. Protection of Items from Damage

1.03 DEFINITIONS
A. “Existing to Remain”: Existing items to be protected during construction against damage and soiling, and not to be demolished. Where necessary to prevent damage or necessary to accomplish other work, items shall be removed to a suitable protective storage location during the project and then cleaned and reinstalled to their original location.
B. “Remove”: Remove and legally dispose of item, except where indicated to be reinstalled, salvaged, or some other required work indicated.

1.04 QUALITY ASSURANCE
A. Demolition Firm and Staff Qualifications: Shall be experienced in demolition work similar in nature to that required for this project.
B. Code Requirements: Comply with Governing Codes requiring pre-notification of demolition activity, hauling, disposal, and all work.

1.05 GENERAL REQUIREMENTS
A. Protect all existing items from damage during demolition operations.
B. Maintain existing utilities in service (unless indicated otherwise) and protect from damage during demolition operations.
C. Storage or sale of removed items or materials is not permitted.

PART 2 - PRODUCTS

2.01 GENERAL
A. Materials: All materials used for capping, temporary piping, repairs and related work shall be as specified for new systems.
PART 3 - EXECUTION

3.01 DEMOLITION

A. General:

1. It is the Contractor’s responsibility to review site conditions and to identify all demolition work, and include in his bid all costs for demolition and disposal. Not all HVAC items to be demolished are shown.

2. All existing items associated with demolished items shall be removed. This includes such items as hangers, thermostats, dampers, curbs, supports, control wiring/conduit, piping, ducts, and similar accessories.

3. Abandoned items, anchors, inserts, and other projections not being concealed by new construction shall be removed to 1" below the adjacent finished surface, and the disturbed area patched.

4. Routing and locations shown of existing items is approximate, Contractor shall field verify locations, contents, and flow direction of all piping and ducts. Labeling shown on plans has not been verified.

B. Demo all items indicated and as required to accomplish the work.

C. Owner has first right of all items shown to be removed. Contractor shall send list of all major items to be removed. All items not wanted by Owner shall be removed from job site and be disposed or recycled.

3.02 FIELD INVESTIGATION

A. Provide field investigation of all systems to confirm extent of demolition, connections and routing of existing systems, areas where cutting and patching is required, and all other aspects of the existing building and systems related to the work of this project.

B. Provide special field investigation as noted on plans, and field investigation specified in Section 23 05 00.

C. Verify existing ceiling, wall, floor, roof and structural system types and all materials of construction.

D. Field investigation shall occur prior to bidding and again prior to commencing any work.

3.03 EXISTING RECORD DRAWINGS

A. Not all existing items are shown for clarity. Contractor may review existing record drawings located at the Engineers office.

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 and Division 01 Specification Sections, apply to this Section.

1.02 WORK INCLUDED
   A. Pipe Hangers and Supports.
   B. Mechanical Equipment Anchors and Supports.

1.03 QUALITY ASSURANCE
   A. Pipe Hanger Standards: Manufacturers Standardization Society Standards SP-58, SP-89, SP-69, and SP-90.
   B. All methods, materials and workmanship shall conform to the International Building Code (IBC), International Mechanical Code (IMC), Uniform Plumbing Code (UPC), ASME standards, and Governing Codes.

1.04 SUBMITTALS
   A. General: Submittals shall comply with Section 23 05 00.
   B. Product Data: Submit product data for all hangers, supports, and anchors. Data to include finish, load rating, dimensions, and applicable agency listings. Indicate application for all items by system type, size, and other criteria as appropriate to project.
   C. Shop Drawings: Shop drawings are required for all fabricated supports or assemblies. Shop drawings are required for any attachment methods and any support arrangements to be used that are not shown on the plans.

1.05 GENERAL REQUIREMENTS
   A. Seismic: Provide adequate hangers, supports, anchors, and bracing to serve as seismic restraints. Seismic anchoring and bracing methods shall comply with SMACNA SRM, Mason SRG, and code. Seismic restraints system shall be able to withstand seismic forces as required by code; provide seismic restraint calculations as required by the AHJ.
   B. Design and Manufacture: All pipe hangers and supports shall be designed and manufactured in accordance with MSS-SP 58.

1.06 REFERENCES
   B. ASME B31.9: Building Services Piping.

F. ASTM A153: Standard specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

G. ASTM A653: Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvannealed) by the Hot Dip Process.


K. IMC: International Mechanical Code.


N. MSS SP-69: Pipe and Hangers and Supports - Selection and Application.

O. MSS SP-89: Pipe Hangers and Supports - Fabrication and Installation Practices.

P. MSS SP-90: Guidelines on Terminology for Pipe Hangers and Supports.


PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Products shall comply with Section 23 05 00, Paragraph 2.1, Acceptable Manufacturers.

B. Hangers and Supports: Grinnell, B-Line Systems, Unistrut, Erico, PHD, Basic Engineering, Pate, Caddy.


2.02 GENERAL

A. Finish:

1. Indoor Applications: Electro-plated zinc in accordance with ASTM B 633, or hot-dip galvanized after fabrication in accordance with ASTM A 123; except that hanger straps may be formed from pre-galvanized steel.
2. Outdoor Applications: Hot-dip galvanized after fabrication in accordance with ASTM A 123, ASTM A 153, or ASTM A 653 (as applicable to item). Any field cut pieces shall be hot-dip galvanized after cutting; or be solvent and wire brushed clean and receive cold galvanizing treatment. Cold galvanizing treatment shall consist of a premixed ready to apply liquid organic zinc compound, with 95% metallic zinc content by weight in dry film; ZRC worldwide “ZRC Cold Galvanizing Compound”.

B. Identification: Steel pipe hangers and supports shall be stamped with the manufacturer’s name, part number, and size.

C. Hanger Rods: Threaded hot rolled steel. Hanger rods shall be sized so that the total load imposed (including pipe or duct, insulation, hangers, and fluid) does not exceed the following:

<table>
<thead>
<tr>
<th>Nominal Rod Diameter</th>
<th>Maximum Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4 Inch</td>
<td>240 Pounds</td>
</tr>
<tr>
<td>5/16 Inch</td>
<td>440 Pounds</td>
</tr>
<tr>
<td>3/8 Inch</td>
<td>610 Pounds</td>
</tr>
<tr>
<td>1/2 Inch</td>
<td>1130 Pounds</td>
</tr>
<tr>
<td>5/8 Inch</td>
<td>1810 Pounds</td>
</tr>
<tr>
<td>3/4 Inch</td>
<td>2710 Pounds</td>
</tr>
<tr>
<td>7/8 Inch</td>
<td>3770 Pounds</td>
</tr>
<tr>
<td>1 Inch</td>
<td>4960 Pounds</td>
</tr>
</tbody>
</table>

D. Hanger Straps: Galvanized steel, minimum 1” x 22 gauge (except where required by Code to be heavier or noted otherwise), of lock-forming grade conforming to ASTM A924, G90 (minimum) galvanized coating conforming to ASTM A 653. Minimum yield strength of 30,000 psi. Straps shall be sized so that the total load imposed does not exceed the following:

<table>
<thead>
<tr>
<th>Strap Size</th>
<th>Maximum Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>1” x 22 Gauge</td>
<td>230 Pounds</td>
</tr>
<tr>
<td>1” x 20 Gauge</td>
<td>290 Pounds</td>
</tr>
<tr>
<td>1” x 18 Gauge</td>
<td>380 Pounds</td>
</tr>
<tr>
<td>1” x 16 Gauge</td>
<td>630 Pounds</td>
</tr>
<tr>
<td>1-1/2” x 16 Gauge</td>
<td>990 Pounds</td>
</tr>
</tbody>
</table>

E. Beam Attachments: Constructed of malleable iron or steel, MSS standard types designed for clamping to building structural support beam. “C” clamp type shall have cup point set screws with locknuts and retaining straps. Center loaded type beam clamps shall have horizontally adjustable clamping bolt (or rod with nuts).

F. Concrete Anchors: Wedge type expansion anchors, with hex nut and washer, and stainless steel split expansion rings. Tested to ASTM E 488 criteria, UL listed, with exposed anchor head stamped with code to identify anchor length.


H. Manufactured “Strut” Systems:

1. Channels: Minimum 12 gauge, 1-5/8 x 1-5/8" (unless noted otherwise), with slots/holes to suit application.
2. Accessories: Channel nuts press formed, machined and hardened with gripping slot, fabricated from steel conforming to ASTM A 108 or ASTM A 36. Fittings fabricated from steel in accordance with ASTM A 907.

I. Steel: Structural steel per ASTM A 36.

J. Cold Galvanizing: Cold galvanizing treatment shall consist of a premixed ready to apply liquid organic zinc compound, with 95% metallic zinc content by weight in dry film; 2RC worldwide “ZRC Cold Galvanizing Compound”.

2.03 PIPE HANGERS AND SUPPORTS

A. Copper Pipe: All hangers used directly on copper pipe shall be copper plated or have a factory applied 1/16-inch thick (minimum) plastic coating on all contact surfaces.

B. Type: Shall be MSS type selected in accordance with MSS-69; except that MSS type 24, 26, and 34 shall not be used.

C. Trapeze Hangers: Shall be constructed of carbon steel angles, channels or other structural shapes with flat surface for point of support. Trapeze hangers shall be supported with hanger rods suspended from concrete inserts, beam clamps, or other approved method. Provide a steel washer where hanger rod nuts bear on trapeze hanger.

D. Insulated Pipe Supports:

1. Insulation material at pipe support shall consist of expanded perlite, calcium silicate or high density phenolic insert. Insert shall have a flame resistant jacket of nylon reinforced kraft paper bonded to aluminum foil cover on insulation, with sheet metal shield. Insulation material shall have no more than 5% deformation at 100 psi and a thermal conductivity no more than 0.32 Btu/hr-sf-deg F-inch. Insulation shall be suitable for temperatures and conditions it will be exposed to without degradation over a 30 year life.

2. All insulation and materials shall have a fire hazard rating not to exceed 25 for flame spread and 50 for smoke development, as tested by ASTM E84.

3. Insert shall be same thickness as adjoining pipe insulation, sized to match pipe used on.

4. Minimum insulation and shield lengths, and shield gauge:

<table>
<thead>
<tr>
<th>Nominal Pipe Diameter In Inches</th>
<th>Insulation Length In Inches</th>
<th>Shield Length In Inches</th>
<th>Minimum Shield Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 to 1</td>
<td>*</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>1-1/4 to 3-1/2</td>
<td>6</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>4 to 5</td>
<td>9</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>6 to 10</td>
<td>9</td>
<td>6</td>
<td>16</td>
</tr>
</tbody>
</table>

* Insert not required; shield at insulation is acceptable.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL
A. General: Provide all necessary bolts, nuts, washers, turnbuckles, hanger rods, rod connectors, stanchions, wall/roof/floor backing and attachments, bridging between structural members, and any other miscellaneous accessories required for the support and anchoring of all pipes, ducts, and mechanical equipment. All supports, whether from floor, walls, or hung from structure, are Contractor's responsibility. Anchors and supports shall be adequate to accommodate forces equipment will be exposed to. Any field cut pieces shall be hot-dip galvanized after cutting; or be solvent and wire brushed clean and receive cold galvanizing treatment.

B. Installation: Install all inserts, anchors, and supports in accordance with manufacturer's instructions, code requirements, and best professional practices. The most restrictive criteria governs.

C. Welded Assembly Finish: All welded steel support assemblies shall have a power wire brush and primer paint finish.

D. Attachments: Attach to building structure (or concrete pads) as shown on drawings. Where not detailed on the drawings, the Contractor shall design and submit shop drawings of proposed attachment methods to the Engineer for review.

E. Seismic: Provide hangers, supports, anchors and bracing as required by code and as necessary to accommodate forces in a seismic event. Seismic bracing is not required for piping sized 2-inch and less, or for horizontal piping where the distance from the top of the pipe to the support attachment point to the building structure is less than 12-inches (unless noted otherwise). Seismic bracing is not required for ductwork less than 28-inch in diameter or having across sectional area less than 6 square feet, or for horizontal ductwork where the distance from the top of the duct to the support attachment point to the building structure is less than 12-inches (unless noted otherwise). All equipment shall be seismically anchored.

3.02 INSTALLATION OF PIPE HANGERS AND SUPPORTS

A. General: Aboveground pipe shall be anchored to the structure to prevent sagging, to keep pipe in alignment, and to resist the forces the pipe will be exposed to; piping shall be supported independent of equipment so that no loads bear on the equipment. Underground pipe shall be evenly supported in trenches with proper bedding materials; see Section 23 05 90.

B. Adjustment: All pipe supports shall be provided with a means of adjustment for the aligning and leveling of the pipe after installation.

C. Applications: Selection, sizing, and installation of pipe supports and accessories shall be in accordance with the manufacturers recommendations, standards MSS SP-89 and MSS SP-69, UPC, and IMC.

D. Support Spacing: Provided piping support spacing according to the most restrictive of the following: UPC, IMC, ASME B31.1, B31.9, local codes, manufacturers recommendations or Contract Documents specific requirements. Provide supports at each change in direction of piping and at each side of concentrated loads (such as in-line pumps, valves greater than size 5", and similar items).

E. Trapeze Hangers: Four or more pipes running parallel may be supported on trapeze hangers provided the slopes of such pipes allow use of common trapeze. Where trapeze width exceeds 28 inches, provide three (3) hanger rod supports.
F. Vertical Piping Supports: Support piping at each floor line with pipe clamps and at intermediate points as required so that hanger spacing does not exceed allowable spacing and as required to prevent excessive pipe movement and so as to comply with the maximum spacings cited above.

3.03 INSTALLATION OF MECHANICAL EQUIPMENT ANCHORS AND SUPPORTS

A. General: Provideanchoring and supports for all mechanical equipment. All equipment shall be anchored to (or supported from) the building structure.

B. Vibration Isolation: Equipment shall be supported and anchored in such a way so that no equipment vibration is transmitted to the building structure.

C. Seismic: Provide anchors and bracing to resist seismic forces.

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary
      Conditions and Division 00 and Division 01 Specification Sections, apply to this Section.

1.02 WORK INCLUDED
   A. Pipe Insulation.

1.03 DEFINITIONS
   A. R: Thermal resistance of insulation, in units of hr-sf-deg F/Btu.
   B. Subject to Damage: Items installed exposed less than 8 feet above the walking surface
      (i.e. floor, platform, roof, grade, etc.) adjacent to the item.

1.04 QUALITY ASSURANCE
   A. All insulation and materials shall have a fire hazard rating not to exceed 25 for flame
      spread and 50 for smoke development, as tested by ASTM E 84, NFPA 255, and UL 723.

1.05 SUBMITTALS
   A. All submittals shall comply with Section 23 05 00.
   B. Provide product data on all insulation materials to be used. Indicate thicknesses to be
      used.

1.06 GENERAL REQUIREMENTS
   A. Code Compliance: Contractor shall insulate all systems with the materials and
      thicknesses as required by code, but in no case shall the insulation be less than that
      specified herein. In some cases the specified insulation exceeds code, and shall be
      provided as specified. Not all systems requiring insulation by code are specified, but
      shall be provided with insulation where required by code.
   B. Insulation at Hangers: Insulation shall be continuous through hangers on all insulated
      systems (except ductwork). Inserts at hangers are specified in Section 23 05 29 and are
      considered as part of the hanger and support system. Inserts are required to be installed
      at the time of pipe installation and are intended to be installed by the Contractor installing
      the pipe hangers/supports. See Section 23 05 29.
   C. All adhesives, sealants, mastics and similar materials shall be low-VOC type.

1.07 REFERENCES
   A. ASTM A 653: Standard Specification For Steel Sheet, Zinc-Coated (Galvanized) or Zinc-
      Iron Alloy-Coated (Galvannealed) by the Hot Dip Process.


I. UL 723: Tests For Surface Burning of Building Materials.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Products shall comply with Section 23 05 00, Paragraph Part 2.01, Acceptable Manufacturers.

B. Insulation: Johns Manville, Armacell, Owens-Corning, Knauf, Rubatex, Pittsburgh Corning, GLT, Halstead, Gilsulate.

C. Accessories: Johns Manville, Armacell, Owens-Corning, Knauf, Rubatex, Pittsburgh Corning, GLT, Halstead, Duro Dyne, Gustin Bacon, Childers, RPR, Tee Cee, JPS, Buckaroos.

2.02 PIPE INSULATION

A. Elastomeric Insulation:
   1. Type: Flexible cellular elastomeric insulation, factory formed to match pipe sizes applied to, complying with ASTM C 534, Type 1. Armacell “AP/Armaflex SS” (or approved).
   2. Thermal Conductivity: Shall not exceed 0.27 Btu-in/ hr-sq ft-deg F at 75 degrees F.
   3. Water Vapor Transmission: Water vapor permeance shall not exceed 0.08 perms.
   4. Operating Temperature Limits: -20 degrees F to 180 degrees F.
   5. Weather Protection: Where installed outdoors provide with manufacturer’s weather proof coating to protect from UV and weather exposure.

B. Pipe Fittings: Shall be covered using any one of the following methods of the Contractor’s choice:
   1. Prefabricated segments of pipe insulation of same materials and thickness as the...
adjoining pipe insulation, formed to match pipe fitting.

2. Pre-cut fiberglass insulation and premolded high impact, gloss white, UV resistant, minimum 20 mil thick, PVC covers suitable for the pipe size and insulation thickness application, PVC cover shall be Johns Manville "Zeston 2000 PVC" (or approved).

3. Insulating plastic cement brought up the full height of the adjacent covering.

4. Except, where colored PVC jacketing is applied to piping, fittings shall use PVC covers of the same thickness and color as the PVC jacketing specified for the piping.

C. Metal Jacket: Aluminum roll jacketing, factory formed to match pipe size and insulation application, with smooth surface, manufactured from 3003 or 5005 aluminum alloy, H-14 temper, conforming to ASTM B 209. Shall be minimum 0.020 inches thick, with an integrally bonded interior 1 mil thick heat bonded polyethylene moisture barrier over the entire surface in contact with the insulation. Fitting covers shall be fabricated of same material as pipe runs, factory formed to match fitting.

D. Pipe Insulation Types, Refrigerant: Elastomeric.

E. Pipe Insulation Thickness:

1. Provide minimum piping insulation thickness indicated, in inches.

<table>
<thead>
<tr>
<th>INSULATION THICKNESS (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe Diameter (Inches)</td>
</tr>
<tr>
<td>Fluid Design</td>
</tr>
<tr>
<td>Operating</td>
</tr>
<tr>
<td>Range, deg F</td>
</tr>
<tr>
<td>&lt;1</td>
</tr>
<tr>
<td>1&lt; to 1-1/2</td>
</tr>
<tr>
<td>&gt;1-1/2 to &lt;4</td>
</tr>
<tr>
<td>4 to &gt;8</td>
</tr>
<tr>
<td>Above 350</td>
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<tr>
<td>3.0</td>
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<td>3.5</td>
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<td>3.5</td>
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<td>4.5</td>
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<td>4.5</td>
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<td>251 - 350</td>
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<td>201 - 250</td>
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<td>2.0</td>
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<td>2.0</td>
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<td>3.5</td>
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<tr>
<td>141 - 200</td>
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<tr>
<td>105 - 140</td>
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<tr>
<td>1.0</td>
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<td>56 - 104</td>
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<td>40 - 55</td>
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<td>2.0</td>
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<tr>
<td>4.5</td>
</tr>
<tr>
<td>3.5</td>
</tr>
<tr>
<td>2.0</td>
</tr>
</tbody>
</table>

2. Where a system operates over temperature ranges calling for different insulation thicknesses, the thicker insulation requirements shall be met.

3. Refrigerant Piping: Refrigerant Gas piping is assumed to operate at 40 degrees. Refrigerant Liquid piping located indoors does not require insulation.

4. Outdoor Piping: Piping exposed to outside air or, located outside the building/thermal envelope, shall have insulation thickness increased by 0.5 inch from that indicated above.

2.03 ACCESSORIES

A. Adhesive, Caulks, Mastics, and Coatings: As recommended by insulation material
manufacturer and suited for the application.

B. Bands: 1/2-inch wide, of stainless steel, galvanized steel, or aluminum construction, to match with materials used with.

PART 3 - EXECUTION

3.01 GENERAL

A. Pre-Insulation Review: No covering materials shall be applied until systems to be covered have had all tests satisfactorily completed, have had all required inspections, and have been satisfactorily reviewed by the Architect-Engineer. All systems shall be examined by the Contractor to confirm cleanliness and other conditions are appropriate to allow for insulation installation.

B. Insulation Work Review: No insulated items shall be concealed in the building structure or buried until the insulation work has been satisfactorily reviewed by the Architect-Engineer, and has had all required inspections.

C. Standards: Materials shall be installed in accordance with manufacturers written instructions, NCIS, and shall comply with materials and methods specified herein. The more stringent requirements govern.

D. Joints/Seams: Joints shall be staggered on multi layer insulation. Locate seams and joints in least visible location.

E. Insulation Protection: Insulation shall be kept clean and dry and shall be protected from dirt, damage, and moisture. Insulation that becomes dirty, damaged, or wet and cannot be restored to like new condition will be rejected, and shall immediately be removed from the jobsite.

F. Insulation Interruptions: Insulation shall be neatly finished at all supports, protrusions and interruptions. Provide adhesive and tape seal to maintain vapor barrier integrity.

G. Equipment and Floor Protection: Cover existing equipment and finished floors to protect such items from insulation fiber and dust. Keep all such existing areas in a "broom clean" condition at the end of each day. Take precautions in these areas to prevent glass fiber and insulation dust from entering ventilation systems or areas adjacent to the work.

H. Items To Be Insulated: Provide insulation on all ductwork, all piping, all items installed in these duct and piping systems, all air and liquid energy conveying systems and components, all air and liquid energy storage, all equipment, and all energy consuming devices specified as part of Division 15, except where such insulation has been specifically excluded.

I. Items Excluded From Being Insulated: Split system AC Units.

3.02 PIPE INSULATION INSTALLATION

A. Types and Thickness: Insulate all piping with insulation type and thickness as specified in “Part 2 - Products”. All piping shall be insulated except where specifically excluded.

B. General: All ends shall be firmly butted together and secured with joint sealing tape. All jacket laps and joint sealing tape shall be secured with outward clinch staples at 4 inch
spacing, or by use of a suitable adhesive. Seal all jacket penetrations with vapor barrier mastic.

C. Pipe Hangers: Provide insulation tight up to pre-insulated pipe supports at pipe hangers, seal all joints with joint sealing tape. Pre-insulated pipe supports are specified in Section 23 05 29.

D. Outdoor piping shall have weather-proof metal jacketing, with seams located on bottom side of horizontal piping. Seal all jacket seams water tight.

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 and Division 01 Specification Sections, apply to this Section.

1.02 WORK INCLUDED

A. Commissioning of HVAC Systems.

B. Documentation.

1.03 SUBMITTALS

A. Comply with Section 23 05 00.

B. Submit qualifications of the firm proposed to perform the commissioning work and for the individuals that will be assigned.

C. Commissioning test plan.

D. Commissioning preliminary report.

E. Final commissioning report.

1.04 GENERAL REQUIREMENTS

A. The firm providing the commissioning work, i.e. Commissioning Agent (CA), shall be independent and separate from the company installing the systems to be commissioned.

B. CA shall be experienced in commissioning HVAC control systems, and have commissioned at least five similar projects in the last three years.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 GENERAL

A. Provide commissioning of new HVAC unit as required by Code and as specified herein.

B. Building or portions thereof, required by Code to be commissioned, shall not be considered complete (and able to be occupied) until such time that the building official determines that the preliminary commissioning report required by this Section has been completed. Reference WSEC.

3.02 HVAC SYSTEMS

A. HVAC control systems shall be tested to ensure that control devices, components,
equipment and systems are calibrated, adjusted and operate in accordance with plans and specifications.

B. Sequences of operation shall be functionally tested to ensure they operate in accordance with approved plans and specifications.

3.03 DOCUMENTATION

A. Test Plan: Prepare a commissioning test plan and submit for approval prior to beginning commissioning work. Test plan to include:

1. Equipment and systems to be tested, including the extent of sampling tests.
2. Functions to be tested (for example, calibration, economizer control, etc.),
3. Conditions under which the test shall be performed (for example, winter design conditions, full outside air, etc.).

B. Preliminary Commissioning Report: A preliminary commissioning report of test procedures and results shall be prepared and submitted. Report shall include field notes of commissioning activities. Field notes of commissioning shall indicate sequence (or performance, mode of operation, etc.) to be checked, what was done to test this sequence, and the results. The preliminary report shall identify:

1. Deficiencies found during testing required by this Section, which have not been corrected at the time of report preparation and the anticipated date of correction.
2. Deferred tests which cannot be performed at the time of report preparation due to climatic (or other) conditions.
3. Climate (or other) conditions required for performance of the deferred tests, and the anticipated date of each deferred test.

C. Final Commissioning Report: A complete report of test procedures and results shall be prepared and filed with the Owner. Final report shall include all previously cited information. Report shall be in 8-1/2 x 11 format, in 3 ring notebook, clean legible, and logically organized with divider tabs.

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 and Division 01 Specification Sections, apply to this Section.
   B. Requirements of Section 20 05 00 apply to this Section.

1.02 WORK INCLUDED
   A. Cooling Coil Condensate Drains.
   B. Testing and Inspection.

1.03 SUBMITTALS
   A. Submittals shall comply with Section 20 05 00.
   B. Submit product information on all items to be used.

1.04 REFERENCES
   A. ASME B 16.15: Cast Bronze Threaded Fitting Classes 125 and 250.
   B. ASME B 16.18: Cast Copper Alloy Solder Joint Pressure Fittings.
   D. ASME B 16.23: Cast Copper Alloy Solder Drainage Fittings.
   E. ASME B 16.29: Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings (DWV).
   F. ASTM B 32: Solder Metal.
   G. ASTM B 88: Seamless Copper Water Tube.
   H. ASTM B 306: Copper Drainage Tube (DWV).
   I. ASTM D 1785: Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS
A. Products shall comply with Section 20 05 00, 2.01, Acceptable Manufacturers.


2.02 PIPE AND FITTINGS - MATERIALS

A. Copper DWV Pipe and Fittings: Copper drainage tube per ASTM B 306. Wrought copper and wrought copper alloy solder joint fittings per ASME B 16.29; or cast copper alloy solder joint fittings per ASME B 16.23.

B. Copper Pipe and Fittings: Seamless copper water tube, tube L or M, per ASTM B 88. Solder joint wrought copper and bronze fittings per ASME B 16.22 cast copper alloy fittings per ASME B 16.18, and cast bronze threaded fittings per ASME B 16.15 with 95/5 tin-antimony solder per ASTM B 32.

C. PVC DWV Pipe and Fittings: Polyvinyl chloride drain waste and vent pipe and fittings per ASTM D 2665, with solvent cement joints. Solvent cement shall comply with ASTM D 2564.


2.03 PIPE AND FITTINGS - APPLICATION

A. Cooling Condensate Drains: Copper DWV, copper, PVC DWV, or PVC.

PART 3 - EXECUTION

3.01 GENERAL

A. Installation of all items shall comply with code, best professional practices, and manufacturers written installation instructions.

B. Provide all piping as indicated and as required for all drip pans, unit condensate drains, unit p-traps, and miscellaneous drains and vent connections to all items requiring such drains (i.e. AC units, etc.).

C. Coordinate installation of items with all trades that are affected by the work to avoid conflicts.

D. Consult manufacturers data and drawings for information on equipment before beginning drain rough-in.

E. Verify points of connection, elevations, and grade requirements before beginning installation or ordering materials.

F. Trap all equipment items as required by code; provide proper venting for each trap as indicated and as required by code.

G. Run piping to nearest point of drainage, or as shown on drawings. Where routing is not shown, route to nearest point of proper drainage.
3.02 PIPE AND FITTINGS

A. All piping in finished areas shall be installed concealed unless specifically noted otherwise.

B. Install piping so as not to obstruct access to any items requiring routine service, maintenance, or inspection. Offset or reroute piping as required to clear any interferences which may occur. Prior to running any exposed piping, confirm with Architect/Engineer (unless is clearly noted to be ran exposed). Install exposed piping so as not to obstruct any portion of windows, doors, doorways, passageways, or items requiring service or access.

C. Consult all drawings for location or pipe spaces, ducts, electrical equipment, structural elements, ceiling heights, door items requiring access, openings, window openings, and other details and report discrepancies or possible conflicts to Architect/Engineer before installing pipe.

D. Install all drain lines with a slope of 1/4-inch per foot unless noted otherwise. Coordinate with AHJ if written approval is required for exceptions to 1/4-inch per foot slope.

E. Provide escutcheons where exposed pipe passes through walls, floors, or ceilings.

F. Install all piping parallel to equipment and nearby walls and in a neat, workmanlike manner. Horizontal straight runs of piping shall not deviate from straight by more than 1/4-inch in ten feet. Vertical piping shall not deviate from plumb by more than 1/8-inch in ten feet.

G. Do not run any piping above electrical panels (and similar electrical equipment). Provide offsets around such panels as necessary. Such offsets are typically not shown on the plans, but are required per this paragraph.

H. Prior to the joining of any section of pipe to a pipe run, the section shall be thoroughly cleaned inside and out, the ends shall be reamed to remove any cutting burrs and piping prepared as recommended by piping and fitting manufacturer.

I. Threaded Connections: Cut piping carefully, ream, thread and work into place without springing. Use TFE tape or lead and graphite lubricant (on male threads only).

J. Soldered Connections: Polish contact surfaces of fittings and pipes with emery cloth before fluxing male and female surfaces of joints. Steel wool and sandpaper not permitted for polishing.

K. PVC Pipe:

1. Solvent Joints: The outside of the PVC pipe shall be chamfered to a minimum of 1/16 inch at approximately 22 degrees. Chemicals used must penetrate the surface of both pipe and fitting which will result in complete fusion at the joint. Use solvent and cement only as recommended by the pipe manufacturer.

2. Plastic to Metal Connections: Work the metal connection first. Use a non-hardening compound on threaded connections. Use only light wrench pressure. Connections between metal and plastic are to be threaded utilizing female threaded adapters only, not male adapters.

3.03 TESTING AND INSPECTION
A. All piping shall be inspected and approved prior to being concealed or covered.

B. Provide testing as required by code. Testing shall be by water and shall comply with governing code. Testing shall be witnessed by the plumbing inspector and the Engineer's representative (at his option).

C. All leaks shall be eliminated and the system re-tested before proceeding with additional work or concealing pipe.

D. All repairs to piping shall be with new pipe and fitting material's; no caulking of screwed joints or holes is allowed.

END OF SECTION
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 and Division 01 Specification Sections, apply to this Section.

B. Requirements of Section 20 05 00 apply to this Section.

1.02 WORK INCLUDED

A. Air Conditioning Units.

B. Refrigeration Piping and Accessories.

C. System Leak Testing and Charging.

D. Start-Up.

1.03 SUBMITTALS

A. General: Shall comply with Section 20 05 00.

B. Product Data: Provide complete product information on all units; include cooling performance capacities as a function of indoor and outdoor coil db/wb temperatures and indoor coil air flow rates, fan performance (cfm vs. esp), unit efficiencies, dimensions and information on all filters and accessories. Provide information showing dimensions and location of refrigerant, power, and control connections.

C. Installation: Submit manufacturer’s installation instructions.

D. Submit air conditioning unit inspection and start-up report.

1.04 QUALITY ASSURANCE

A. Listing: Units shall be listed by an approved testing laboratory for the use and application intended.

B. Rating and Certification: Cooling performances shall be tested and rated in accordance with AHRI 210/240.

C. Applications: Units shall be intended for commercial use and shall include all manufacturers recommended accessories for proper operation for the application intended.

D. Code Compliance: Units shall be rated in accordance with recognized standards and meet code requirements for energy efficiencies. Units shall be constructed and designed to conform to applicable codes and standards.

E. Standardization: In interests of Owner’s standardization, all equipment of the same type shall be the product of the same manufacturer.

F. Operating Conditions: Unless more extreme temperatures are noted elsewhere, or required by local conditions or the specific application, unit shall comply with the following:
1. Unit and all components exposed to ambient conditions shall be able to withstand ambient temperatures from -10 deg F to 125 deg F, plus direct exposure to sun and weather elements without adverse affects.

2. Unit shall be able to operate and produce cooled air between ambient temperatures of 0 deg F and 125 deg F.

G. Alternate Manufacturers: The project has been designed around units by the manufacturer scheduled on the drawings. Alternate manufacturers may be used (see Acceptable Manufacturers, Paragraph 2.01 and Section 20 05 00); however, any redesign (from what is shown on the drawing) to mechanical, electrical, structural or general construction to accommodate such an alternate manufacturer shall be provided by the Contractor. Furthermore, such redesign shall meet the requirements and have the approval of the Architect/Engineer prior to fabrication. Contractor shall submit complete shop drawings showing all alternate unit installation plans and details; shop drawings shall comply with Section 23 05 00. The redesign shall be equal or superior in all respects to the Architect/Engineer’s design, including such aspects as equipment access, ease of maintenance, duct connection locations, unit electrical requirements, noise considerations, unit performance, and similar concerns. Cost of redesign and all additional costs incurred to accommodate alternate manufacturers shall be borne by the Contractor.

H. Commissioning: See Division 01 and Section 23 08 00 for commissioning efforts required.

1.05 WARRANTY

A. General: Entire unit shall be warranted to be free of all manufacturing defects and meeting all Contract Document requirements for a period of one year after Owner project acceptance.

B. Compressors: Unit compressors shall be warranted by the manufacturer for five years after Owner project acceptance. All labor and materials associated with compressor replacement and repair shall be warranted.

1.06 REFERENCES


C. ASME B16.26: Standard for Cast Copper Alloy Fittings for Flared Copper Tubes.


PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. All products shall comply with Section 20 05 00, Paragraph 2.01; Acceptable Manufacturers.
B. Air Conditioning Units: Mitsubishi.

C. Refrigerant Pipe and Fittings: Domestic manufacturers only.

2.02 AIR CONDITIONING UNIT

A. Type: Split system ductless air conditioner.

B. Indoor Unit: Wall (or ceiling) suspended unit (configuration as indicated on plans), with fan, adjustable discharge outlet, air filter, evaporator coil, refrigerant metering device, heavy gauge steel chassis, white plastic enclosure, controls, condensate pan and drain connection, and related accessories to operate properly with outdoor unit.

C. Outdoor Unit: Outdoor condenser and compressor unit, with high efficiency rotary compressor, condenser coil, condenser fan, accumulator, refrigerant piping, wind baffle accessory, heavy gauge steel chassis, baked enamel finish steel cabinet, controls, coil guard, mounting legs, and related accessories to provide capacity indicated.

D. Capacity: As scheduled on drawings at the conditions indicated. Unit shall provide cooling down to 0 deg F ambient. Unit shall be able to operate with refrigerant runs up to 164 feet long. Shall be rated in accordance with AHRI standards.

E. Refrigerant: Units shall be for use with refrigerant R-410A or R-407C.

F. Electrical and Controls: Indoor and outdoor units shall be provided with all contactors, relays, wiring terminals, safety controls, microprocessor devices, and accessories to allow for complete unit operation requiring only connection of room controller, power, and interconnection between indoor and outdoor units. Room controller shall be the electronic type, with liquid crystal display, room temperature sensor, on/off/auto functions, temperature setpoint, fan speed indicator, and self diagnostic display.

G. Condensate Pump: Provide unit with condensate pump (Gobi or similar). Where not available internal to unit, provide external type, with holding tank, controls, and gpm capacity at least 4 times unit condensate rate, at 10 feet of head. Provide mounting assembly and accessories for completely connected and functioning unit.

H. EMCS Interface: Not required.

2.03 REFRIGERANT PIPING AND ACCESSORIES

A. Piping: Hard drawn ACR copper tubing per ASTM B280, Type L, with silver brazed joints and wrought copper fittings per ASME B16.22. Use only long radius elbows. Flared fittings (at equipment connections only) shall comply with ASME B16.26. Soft copper tubing may only be used on runs less than 50-feet or where necessary (i.e. when routing through sleeves, or similar poor access areas).

B. Sight Glass: Sight glass shall allow visual inspection of refrigerant flow and indicate refrigerant moisture content. Shall be double port type, solder end connections, for use with type of refrigerant of system being installed in, same size as tubing installed in. Henry type 3103 or equal.

C. Isolation Valves: Brass ball valve, full port, rated for 700 psig and -40 deg F to 300 deg F. Compatible with refrigerant used with, UL listed, with rupture proof encapsulated stem, extended copper connections for ease in brazing. Provide in configuration (i.e. angle, straight, with access port) as required to suit application.
PART 3 - EXECUTION

3.01 INSTALLATION

A. General: Install in strict accordance with manufacturer's written instructions and code.

B. Location and Arrangement: Install all equipment at locations and as shown on the drawings. Install so as to allow maximum access to unit. Prior to selecting unit final location, confirm that: proper unit clearances and access will be provided; no adverse airflow conditions are present; confirm location and installation details with other trades. Units shall be level and aligned with building walls. Set outdoor unit on concrete pad (or roof sleepers); anchor to pad (or sleepers).

C. Complete Connections: Connect and install all items shipped loose with units; provide and connect all utilities and accessories as required for proper unit operation. See Section 23 21 28 for cooling coil condensate drain piping.

D. Refrigerant Piping: Shall be silver brazed. Bleed dry nitrogen through piping during brazing to minimize oxidation. Keep all open ends of piping capped when not being worked. Soft copper shall have long radius bends; install without kinks or excess bends. Piping shall be routed concealed, except where routed outdoors and where noted. Piping shall be ran plumb and square to building walls, and in a neat professional manner. Provide sight glass in refrigerant liquid piping at outdoor unit.

E. Refrigerant Valves: Provide isolation valves on refrigerant piping connections at the outdoor unit (unless unit has integral service valves). Provide valve with access port on larger volume systems to aid in system vacuum testing (or as required for other purposes).

F. Refrigerant Charge: Units shall be checked for proper refrigerant charge and oil level and charged to proper levels after all leak testing and evacuation work has been completed. Refrigerant to be added to the system shall be delivered to the site in factory charged containers and charged into the system through a filter/drier.

G. Cleaning: Units shall be thoroughly cleaned of all debris prior to operation. Units shall be clean and in new condition prior to Owner acceptance.

H. Operation: Units shall not be operated until all construction activities that generate dust, dirt, fumes, or odors are complete; system checkout has occurred; and the Engineer has reviewed the system and granted approval.

3.02 LEAK TESTING AND EVACUATION

A. Disconnect and isolate from the system any controls, relief valves, or other components that may be damaged by the test pressure.

B. Connect oil-pumped, dry nitrogen to the system through a pressure reducing gauge manifold. Charge enough nitrogen into the system to raise the pressure to 140 psig (or as required by the local Code authority).

C. Test all joints for leaks with a glycerin soap solution. Check the manifold gauge for any drop in pressure. Tap all solder/brazed connections with a rubber or rawhide mallet sufficiently hard to start any leak that might subsequently open from thermal expansion/contraction or vibration.
D. Repair any leaks found by completely disassembling the connection, cleaning the fitting and remaking the connection. Re-test the system after repairs are made.

E. When the above tests are successfully completed, allow the system to remain under test pressure (140 psig or as required by the local code authority) for 24 hours. Note the initial pressure and temperature. If the system pressure has not changed (when corrected to account for any change in temperature) the system may be considered free of leaks.

F. When all testing is completed the system shall be completely evacuated of all air and moisture. Connect a vacuum pump to the system and evacuate the system to 500 microns, and let stand for a minimum of 12 hours. If the vacuum reading remains unchanged, the system may be charged with refrigerant.

3.03 START-UP

A. Initial Checks: Prior to unit operation, the system shall be inspected to ensure all equipment and controls are properly connected and ready to operate. As a minimum, the following items shall be checked.

   1. Adequate refrigerant charge.
   2. Gauges installed to read suction and discharge pressure.
   3. Proper voltage at outdoor unit.
   4. Proper voltage at indoor unit.
   5. Unit safeties properly set and connected.
   6. Fan motors lubricated and ready to operate.
   7. Temperature controls connected.
   8. Pipe leak testing completed.
   9. Condensate drain installed.
  10. System service valves in proper position.
  11. Controls properly connected and powered.

B. Initial Operation: After start-up, check unit for proper unit operation including: proper fan rotation, no excessive vibration, no unusual noises, proper unit cycling in response to room temperature, no excessive room temperature swings, no safeties or electrical devices tripping out.

C. Written Report: Submit written report detailing all inspection procedures and findings leak test results, amount refrigerant charge installed, and final start-up/operation results.

3.04 COMMISSIONING

A. The Products referenced in this section are to be commissioned per Division 01 Section 23 08 00. The Contractor has specific responsibilities for scheduling, coordination, startup, test, development, testing and documentation. At a minimum, the Contractor
shall provide a documented and signed record to verify that all equipment and systems installed under this contract have been inspected and functionally tested to verify full compliance with the contract specifications. In many cases, this shall require the Contractor to create or otherwise provide procedures and checklists for approval by the Commissioning Consultant prior to the start of functional testing. Reference Division 01 Section 23 08 00 and coordinate all commissioning activities with the Commissioning Consultant.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Electrical equipment and raceway grounding.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Mechanical Connectors at Accessible Ground Rods: Tin-plated, heavy duty, high strength, corrosion resistant copper alloy, hex head bolt and clamp.

B. Mechanical Connectors at Ground Connections: Heavy duty, solderless, bolted pressure or compression type connectors or clamps labeled as being suitable for the purpose. Manufacturer's standard grounding lug when furnished as part of panelboards and other equipment.

C. Exothermically Welded Connections: Copper Thermit weld process conforming to manufacturer's instructions; use molds, weld material, tools, and accessories supplied by the manufacturer. ERICO CADWELD or equal.

D. Ground & Bonding Conductors: Bare, soft drawn copper; stranded for 8 AWG and larger, unless otherwise indicated or specified.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Equipment Grounding Conductor: Provide separate insulated green equipment grounding conductor in feeders and in branch circuits. Provide equipment grounding conductor in non-metallic conduits and flexible conduit. Size equipment grounding conductors per NEC 250.122 unless larger size is shown or specified.

B. Ground exposed non-current carrying metal parts of equipment fastened in place or connected by permanent wiring and likely to become energized per Code.
TACOMA PUBLIC LIBRARY
MAIN LIBRARY
PASSENGER ELEVATOR MODERNIZATION
TPL #180509

OWNER:
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tomu@hultzbhu.com
PHONE: (253) 492-9272
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SEATTLE, WA 98144
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FAX: (206) 491-5014

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CONTACTS:
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ELECTRICAL:
TOM URQUHART  P.E.
scottm@hultzbhu.com
tomu@hultzbhu.com
PHONE: (253) 492-9272
FAX: (253) 492-9292

GENERAL NOTES
1. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO REVIEW AND
   VERIFY EXISTING CONDITIONS AND CONSTRUCTION MATERIALS, INCLUDING,
   BUT NOT LIMITED TO, ALL WALLS, FLOORS, CEILINGS, AND OTHER AREAS THAT
   MAY BE DISTURBED DURING CONSTRUCTION IN ORDER TO ACCOMPLISH THE
   WORK. THE CONTRACTOR SHALL ALSO VISIT THE SITE AGAIN PRIOR TO
   BEGINNING WORK.
2. BUILDING FEATURES SHOWN ON PLANS ARE APPROXIMATE & ARE BASED ON
   AS-BUILT DATA PROVIDED BY THE OWNER, A COMPLETE REVIEW IS REQUIRED
   TO BE MADE BY THE CONTRACTOR. VERIFY SIZES & LOCATIONS PRIOR TO
   BEGINNING WORK.
3. CONTRACTOR SHALL CAREFULLY COORDINATE WORK WITH ALL OTHER TRADES.
4. ALL ITEMS ARE NEW UNLESS SPECIFICALLY NOTED AS EXISTING.
5. WORK HOURS: NORMAL WORK HOURS ARE MONDAY THRU FRIDAY 7:00 AM TO
   4:00PM. CONTRACTORS’ WORK HOURS SHALL BE WITHIN THOSE HOURS
   EXCEPT WHERE AFTER HOURS WORK IS REQUIRED AS NOTED.
6. THE BUILDING WILL REMAIN OCCUPIED THROUGHOUT CONSTRUCTION.
   PROVIDE BARRICADES & SIMILAR PROTECTION TO KEEP NON-CONSTRUCTION
   PERSONNEL CLEAR OF CONSTRUCTION AREAS. SEE SHEET M4.1 FOR ADA
   RAMP THAT IS NEEDED WHILE ELEVATOR IS OUT OF SERVICE.

GENERAL DEMOLITION NOTES
1. DEMOLITION DRAWINGS ARE INTENDED TO ONLY BE A GENERAL
   REPRESENTATION OF THE WORK INVOLVED, AND DO NOT
   CONSTITUTE A FULL LISTING OF ALL ITEMS REQUIRING REMOVAL.
2. IT IS THE CONTRACTOR’S RESPONSIBILITY TO VISIT THE SITE PRIOR TO BID
   TO REVIEW SITE CONDITIONS AND TO IDENTIFY ALL DEMOLITION WORK,
   AND INCLUDE IN HIS BID ALL COSTS FOR DEMOLITION & DISPOSAL.
3. ALL EXISTING ITEMS ASSOCIATED WITH DEMOLITION ITEMS SHALL BE REMOVED.
   THIS INCLUDES CURBS, SUPPORTS, CONTROL WIRING/CONDUIT, UNIONS, VALVES, PIPING,
   AND SIMILAR ACCESSORIES.

DESCRIPTION OF WORK

BASE 
MODERNIZE EXISTING DOVER PASSENGER ELEVATOR (ELEVATOR #2) IN UNITS TO MEET SAFETY CODES (ASME A17.1-2015), INCLUSIVE OF ANY ALTERATIONS REQUIRED TO MEET MECHANICAL CODES, ELECTRICAL SUPPORT WORK AS SHOWN ON THE DRAWINGS.

ALTERNATE BID NO 1
PROVIDE OIL COOLER FOR ELEVATOR #2.

ALTERNATE BID NO 2
PROVIDE BATTERY LOWERING DEVICE FOR ELEVATOR #2.

LIST OF DRAWINGS

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<td>MECHANICAL LEGEND, SCHEDULE, &amp; NOTES</td>
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<tr>
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NOTE: THE ABOVE IS A SUMMARY DESCRIPTION ONLY. SEE CONTRACT DOCUMENTS FOR COMPLETE PROJECT REQUIREMENTS.

PROJECT CONTACTS

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FAX: (206) 491-5014

GENERAL NOTES
1. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO REVIEW AND
   VERIFY EXISTING CONDITIONS AND CONSTRUCTION MATERIALS, INCLUDING,
   BUT NOT LIMITED TO, ALL WALLS, FLOORS, CEILINGS, AND OTHER AREAS THAT
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   RAMP THAT IS NEEDED WHILE ELEVATOR IS OUT OF SERVICE.

GENERAL DEMOLITION NOTES
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   TO REVIEW SITE CONDITIONS AND TO IDENTIFY ALL DEMOLITION WORK,
   AND INCLUDE IN HIS BID ALL COSTS FOR DEMOLITION & DISPOSAL.
3. ALL EXISTING ITEMS ASSOCIATED WITH DEMO'D ITEMS SHALL BE REMOVED.
   THIS INCLUDES CURBS, SUPPORTS, CONTROL WIRING/CONDUIT, UNIONS, VALVES, PIPING,
   AND SIMILAR ACCESSORIES.
GENERAL NOTES:

1. STYLE OF脫ALL WALL PENETRATIONS LẠVE THROUGH CONCRETE/MASONRY 1-HR FIRE RATED WALLS.

2. SEE SECTION 14 24 00 - HYDRAULIC ELEVATORS FOR ELEVATOR CONTRACTOR SCOPE.

KEYED NOTES:

1. CORE DRILL (E) CONCRETE WALL TO ROUTE NEW PIPING.

2. CONDENSATE DROP TO SERVICE SINK SHALL BE 3/4-INCH COPPER.

3. ROUTE THROUGH BLANKED OFF LOUVER. PROVIDE ESCUTCHEON AT PENETRATION.

4. T-BAR CEILING PIPING/CONDUIT SHALL BE CONCEALED.

5. REMOVE EXISTING TILES AND REINSTALL AFTER MECH AND ELEC WORK IS DONE.

6. HARD LID CEILING. PIPING/CONDUITS MAY BE EXPOSED.
5'x5' CLEAR
LANDING
TOP OF STAIR @ 4'-6" ABOVE FLOOR
RAMP AT MAX 1:12 SLOPE
HANDRAILS AT 36" ABOVE RAMP SURFACE (TYP)
27'-0"
EXTEND HANDRAILS 12" PAST END OF RAMPS (TYP)
36" CLEAR
27'-0"

PROVIDE FIRE CAULKING AT EXISTING WALL PENETRATIONS OF ELEVATOR #2 SHAFT WALLS. FOR BIDDING PURPOSES, ASSUME 2 EA 2-INCH PENETRATIONS AND 6 EA 1-INCH PENETRATIONS.

REVISIONS:
DATE: 05.09.18
DRAWN: KM
CHECKED: MT
PROJECT NO. 18-049
SHEET TITLE: FIRST FLOOR PLAN - MECHANICAL

GENERAL NOTES:
1. SEE SECTION 14 24 00 - HYDRAULIC ELEVATORS FOR ELEVATOR CONTRACTOR SCOPE.

KEYED NOTES:
1. DOCUMENT SHALL BE READ AND PROBED PRIOR TO BIDDING OR BEING GUT OF SERVICE. SPOKE MATERIALITY OF WORK, SMALL MENON OF PLACE, AND SAFETY IS BONB IN SCOPE FOR THE PUBLIC.

FIRST FLOOR PLAN - MECHANICAL
ADHESIVES AT EXISTING WALL PENETRATIONS

PROVIDE FIRE CAULKING AT EXISTING WALL PENETRATIONS FOR BIDDING PURPOSES, ASSUME 3 EA 2-INCH PENETRATIONS AND 10 EA 1-INCH PENETRATIONS.

1. RAMP SHALL COMPLY WITH ALL COMMERCIAL ADA REQUIREMENTS.
2. RAMP SHALL BE MODULAR SKID-RESISTANT ALUMINUM CONSTRUCTION.
3. STAIRS MAY BE RENTED, ONE CONTACT IS BRAVEHEART CONSTRUCTION 253-394-1145, AND ANOTHER IS RAMP ARTS 206-440-9999.
4. TAKE CARE TO AVOID DAMAGE TO CARPET AND OTHER FINISHES.

NOTES:

1. PROVIDE FIRE CAULKING AT EXISTING WALL PENETRATIONS OF ROOM B14A. FOR BIDDING PURPOSES, ASSUME 3 EA 2-INCH PENETRATIONS AND 10 EA 1-INCH PENETRATIONS.

GENERAL NOTES:

1. PROVIDE FIRE CAULKING AT EXISTING WALL PENETRATIONS OF ROOM B14A. FOR BIDDING PURPOSES, ASSUME 3 EA 2-INCH PENETRATIONS AND 10 EA 1-INCH PENETRATIONS.
PLAN KEY NOTES:

- Disconnect and remove existing elevator shunt-trip switch and associated wire/conduit.
- Disconnect and remove existing elevator shunt-trip relay. Reuse existing circuit for new heat detectors.
- Disconnect existing duplex receptacle and light from existing circuit.
- Disconnect duplex receptacle from existing circuit. Receptacle to be replaced with GFCI receptacle as shown on sheet E2.0. Refeed downstream receptacle.
- Disconnect and remove elevator machine room lighting fixtures from existing circuit. Replace and refeed as shown on sheet E2.0.
- Remove existing heat detectors.
PROVIDE NEW ELEVATOR SWITCH WITH SHUNT-TRIP AT NEW LOCATION SHOWN. SEE ONE-LINE DIAGRAM. LOCATE HANDLE WITHIN 24" TO DOOR STRIKE.

PROVIDE NEW FEED TO ELEVATOR CONTROLLER.

PROVIDE WIRE/CONDUIT TO ELEVATOR SWITCH WITH SHUNT-TRIP. SEE ONE-LINE DIAGRAM.

NEW LOCATION OF SHUNT-TRIP RELAY. RE-ESTABLISH CONNECTIONS TO EXISTING HEAT DETECTORS AND MODULE TRIP.

REPLACE 200 AMP FUSES WITH 100 AMP FUSES IN CURRENTLY SPARE FUSED DISCONNECT FOR NEW PANEL LC.

PROVIDE 100 AMP, 120/208V, 1Ø, 3W ELEVATOR MACHINE ROOM PANEL LC.

REPLACE EXISTING STANDARD DUPLEX RECEPTACLE WITH GFCI DUPLEX RECEPTACLE.

PROVIDE NEW HOMERUN WIRE/CONDUIT TO NEW PANEL LC.

PROVIDE 3/4" C, (2)#12 & (1)#12 GND FROM AC-B14A (INDOOR UNIT) TO AC-B14B (OUTDOOR UNIT).

REPLACE EXISTING DUPLEX RECEPTACLE WITH GFCI RECEPTACLE. PROVIDE NEW HOMERUN TO PANEL LC AS SHOWN.

REPLACE EXISTING 2-LAMP FLUORESCENT STRIP FIXTURES WITH LITHONIA CAT# C ZL1N L48 SMR 3000LM FST 120 35K OR EQUAL AND RECIRCUIT AS SHOWN.

RELOCATE EXISTING PIT LIGHT SWITCH NEXT TO PIT LADDER AS REQUIRED.

PROVIDE HEAT DETECTORS. USE CIRCUIT FROM PREVIOUS SHUNT TRIP RELAY. CONNECT TO ELEVATOR SHUNT-TRIP SWITCHES.
ELEVATOR POWER RISER DIAGRAM

ELEVATOR SHUNT TRIP DIAGRAM

FEEDER SCHEDULE

Partial One-Line Diagram

1. Elevator Power Riser Diagram
2. Elevator Shunt Trip Diagram
3. Feeder Schedule