



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

STANDARD LOW BID PROJECT INVITATIONAL

September 11, 2007

ELEVATOR UPGRADES AND MODERNIZATION HEBER M. WELLS BUILDING

**DIVISION OF FACILITIES CONSTRUCTION AND
MANAGEMENT
SALT LAKE CITY, UTAH**

DFCM Project Number 07054310

Lerch, Bates and Associates
8089 South Lincoln, Suite 300
Littleton, Colorado 80122

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Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at <http://dfcm.utah.gov> or are available upon request from DFCM.

DFCM General Conditions dated May 25, 2005.

DFCM Application and Certification for Payment dated May 25, 2005.

Technical Specifications : Lerch, Bates and Associates
Drawings:

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at <http://dfcm.utah.gov>

INVITATION TO BID

Only firms that have been invited to submit bids on this project are allowed to bid on this project

Sealed bids will be received by the Division of Facilities Construction and Management (DFCM) for:

ELEVATOR UPGRADES AND MODERNIZATION - HEBER M. WELLS BUILDING
DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
SALT LAKE CITY, UTAH
DFCM PROJECT NO: 07054310

<u>Company</u>	<u>Contact</u>	<u>Fax</u>
KONE, Inc	Scott Collins	977-1155
Otis Elevator	Alan Samson	466-1217
Schindler Elevator Corporation	Diane Rawson	487-0308
ThyssenKrupp Elevator	Gregg Fowler	908-7437

Bids will be in accordance with the Contract Documents that will be available at 9:00 AM on Tuesday, September 11, 2007, and distributed in electronic format only on CDs from DFCM, 4110 State Office Building, Salt Lake City, Utah and on the DFCM web page at <http://dfcm.utah.gov>. For questions regarding this project, please contact Robert Franson, DFCM, at 801-538-3281 or 801-652-2099. No others are to be contacted regarding this bidding process. The construction budget for this project is \$1,150,000.

A **mandatory** pre-bid meeting will be held at 9:00 AM on Wednesday, September 12, 2007 at the Heber M. Wells Building, 160 East 300 South, Salt Lake City Utah. Meet in the Main Floor Lobby. All bidders wishing to bid on this project are required to attend this meeting.

Bids will be received until the hour of 3:00 PM on Tuesday, September 25, 2007 at DFCM, 4110 State Office Building, Salt Lake City, Utah 84114. Bids will be opened and read aloud in the DFCM Conference Room, 4110 State Office Building, Salt Lake City, Utah. NOTE: Bids must be received at 4110 State Office Building by the specified time.

A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond form, shall accompany the bid.

The Division of Facilities Construction and Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of DFCM.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
Marla Workman, Contract Coordinator
4110 State Office Building, Salt Lake City, Utah 84114

PROJECT DESCRIPTION

Modernize five traction elevators (four passenger and one service)

Provide all labor, engineering, tools, transportation, services, supervision, materials, equipment and related building work necessary for and incidental to satisfactory completion of required work as indicated in contract documents.

Provide all required staging, hoisting and movement of new equipment, reused equipment, or removal of existing equipment.

**PROJECT SCHEDULE**

**PROJECT NAME: ELEVATOR UPGRADES AND MODERNIZATION
 HEBER M. WELLS BUILDING
 DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
 SALT LAKE CITY, UTAH**

DFCM PROJECT #: 07054310

Event	Day	Date	Time	Place
Bidding Documents Available	Tuesday	September 11, 2007	9:00 AM	DFCM 4110 State Office Bldg SLC, UT and the DFCM web site *
Mandatory Pre-bid Site Meeting	Wednesday	September 12, 2007	9:00 AM	Main Floor Lobby Heber M. Wells Building 160 East 300 South Salt Lake City, UT
Last Day to Submit Questions	Monday	September 17, 2007	4:00 PM	Robert Franson – DFCM E-mail robertfranson@utah.gov Fax 801-538-3267
Addendum Deadline (exception for bid delays)	Wednesday	September 19, 2007	2:00 PM	DFCM web site *
Prime Contractors Turn In Bid and Bid Bond	Tuesday	September 25, 2007	3:00 PM	DFCM 4110 State Office Bldg SLC, UT
Sub-contractor List Due	Wednesday	September 26, 2007	3:00 PM	DFCM 4110 State Office Bldg SLC, UT Fax 801-538-3677
Substantial Completion Date	Wednesday	December 31, 2008	4:00 PM	

* **NOTE: DFCM's web site address is <http://dfcm.utah.gov>**



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Notice to Contractors" and in accordance with the "Instructions to Bidders", in compliance with your invitation for bids for the **ELEVATOR UPGRADES AND MODERNIZATION - HEBER M. WELLS BUILDING – DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT – SALT LAKE CITY, UTAH – PROJECT NO. 07054310** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS (\$ _____)
(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by **December 31, 2008**, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$500.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in the Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract.

The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable 100% Performance and Payment bonds are not delivered within the time set forth.

Type of Organization:

(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

Respectfully submitted,

Name of Bidder

ADDRESS:

Authorized Signature

INSTRUCTIONS TO BIDDERS

1. Drawings and Specifications, Other Contract Documents

Drawings and Specifications, as well as other available Contract Documents, may be obtained as stated in the Invitation to Bid.

2. Bids

Before submitting a bid, each contractor shall carefully examine the Contract Documents, shall visit the site of the Work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the Contract Documents. If the bidder observes that portions of the Contract Documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Representative and the necessary changes shall be accomplished by Addendum.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Invitation to Bid prior to the deadline for submission of bids.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. **THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.**

If the bid bond security is submitted on a bid bond form other than DFCM's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. **NOTE: A cashier's check cannot be used as a substitute for a bid bond.**

3. Contract and Bond

The Contractor's Agreement will be in the form found in the specifications. The Contract Time will be as indicated in the bid. The successful bidder, simultaneously with the execution of the Contract Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents. The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the contract sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for subcontractors will be specified in the Supplementary General Conditions.

4. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the “Instructions and Subcontractor’s List Form”, which are included as part of these Contract Documents. The Subcontractors List shall be delivered to DFCM or faxed to DFCM at (801)538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the Contract Documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements is subject to a debarment hearing and may be debarred from consideration for award of contracts for a period of up to three years.

5. Interpretation of Drawings and Specifications

If any person or entity contemplating submitting a bid is in doubt as to the meaning of any part of the drawings, specifications or other Contract Documents, such person shall submit to the DFCM Project Manager a request for an interpretation thereof. The person or entity submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addenda posted on DFCM’s web site at <http://dfcm.utah.gov>. Neither the DFCM nor A/E will be responsible for any other explanations or interpretations of the proposed documents. A/E shall be deemed to refer to the architect or engineer hired by DFCM as the A/E or Consultant for the Project.

6. Addenda

Addenda will be posted on DFCM’s web site at <http://dfcm.utah.gov>. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda may result in disqualification from bidding.

7. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of the State of Utah to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc.

8. DFCM Contractor Performance Rating

As a contractor completes each DFCM project, DFCM, the architect/engineer and the using agency will evaluate project performance based on the enclosed “DFCM Contractor Performance Rating” form. The ratings issued on this project will not affect this project but may affect the award on future projects.

9. Licensure

The Contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

10. Permits

In concurrence with the requirements for permitting in the General Conditions, it is the responsibility of the Contractor to obtain the fugitive dust plan requirements from the Utah Division of Air Quality and the SWPPP requirements from the Utah Department of Environmental Quality and submit the completed forms and pay any permit fee that may be required for this specific project. Failure to obtain the required permit may result in work stoppage and/or fines from the regulating authority that will be the sole responsibility of the Contractor. Any delay to the project as a result of any such failure to obtain the permit or noncompliance with the permit shall not be eligible for any extension in the Contract Time.

11. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

12. Time is of the Essence

Time is of the essence in regard to all the requirements of the Contract Documents.

13. Withdrawal of Bids

Bids may be withdrawn on written request received from bidder prior to the time fixed for opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

14. Product Approvals

Where reference is made to one or more proprietary products in the Contract Documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the Contract Documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of

the design, subject to the written approval of the A/E. Such written approval must occur prior to the deadline established for the last scheduled addenda to be issued. The A/E's written approval will be in an issued addendum. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the A/E.

15. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the contractor, subcontractor or sub-subcontractor.

16. Debarment

By submitting a bid, the Contractor certifies that neither it nor its principals, including project and site managers, have been, or are under consideration for, debarment or suspension, or any action that would exclude such from participation in a construction contract by any governmental department or agency. If the Contractor cannot certify this statement, attach to the bid a detailed written explanation which must be reviewed and approved by DFCM as part of the requirements for award of the Project.

BID BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of \$ _____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____.

Principal's name and address (if other than a corporation):

By: _____

Title: _____

Principal's name and address (if a corporation):

By: _____

Title: _____
(Affix Corporate Seal)

Surety's name and address:

By: _____
Attorney-in-Fact (Affix Corporate Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this ___ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.
My Commission Expires: _____
Resides at: _____

Agency: _____
Agent: _____
Address: _____
Phone: _____

NOTARY PUBLIC

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General



INSTRUCTIONS AND SUBCONTRACTORS LIST FORM

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, on the following basis:

PROJECTS UNDER \$500,000 - ALL SUBS \$20,000 OR OVER MUST BE LISTED
PROJECTS \$500,000 OR MORE - ALL SUBS \$35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- Bidder must list "Self" if performing work itself.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

BIDDER LISTING 'SELF' AS PERFORMING THE WORK:

Any bidder that is properly licensed for the particular work and intends to perform that work itself in lieu of a subcontractor that would otherwise be required to be on the subcontractor list, must insert the term 'Self' for that category on the subcontractor list form. Any listing of 'Self' on the sublist form shall also include the amount allocated for that work.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A. Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

INSTRUCTIONS AND SUBCONTRACTORS LIST FORM
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GROUND FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

- (1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
- (2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
- (3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
- (4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
- (5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
- (6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #
ELECTRICAL	ABCD Electric Inc.	\$350,000.00	123456789000
LANDSCAPING	"Self"	300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: 350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.



SUBCONTRACTORS LIST
FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

Table with 4 columns: TYPE OF WORK, SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION", SUBCONTRACTOR BID AMOUNT, CONT. LICENSE #. The table contains 15 empty rows for data entry.

We certify that:

- 1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____

SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR DFCMS REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY DFCM. ATTACH A SECOND PAGE IF NECESSARY.

CONTRACTOR'S AGREEMENT

FOR:

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____."

The DFCM General Conditions ("General Conditions") dated May 25, 2005 on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ DOLLARS AND NO CENTS (\$_____.00), which is the base bid, and which sum also includes the cost of a 100% Performance Bond and a 100%

CONTRACTOR'S AGREEMENT
PAGE NO. 2

Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete by _____. Contractor agrees to pay liquidated damages in the amount of \$_____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Invitation to Bid, Instructions to Bidders/ Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the Contractor requests payment and agrees to

safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

PERFORMANCE BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee," in the amount of _____ DOLLARS (\$) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ Dollars (\$ _____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____ authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars (\$ _____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ Dollars (\$ _____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, 1953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____ (Seal)

Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____ Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General



CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT _____ PROJECT NO: _____
AGENCY/INSTITUTION _____

AREA ACCEPTED _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM - (Owner) accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

The Owner acknowledges receipt of the following closeout and transition materials:

- As-built Drawings O & M Manuals Warranty Documents Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of _____(Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ calendar days from the above date of issuance of this Certificate. The amount withheld pending completion of the list of items noted and agreed to shall be: \$_____. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

by: _____ (Signature) DATE
CONTRACTOR (include name of firm)
by: _____ (Signature) DATE
A/E (include name of firm)
by: _____ (Signature) DATE
USING INSTITUTION OR AGENCY
by: _____ (Signature) DATE
DFCM (Owner)

**General Contractor Performance Rating Form**

Project Name:		DFCM Project#	
Contractor: (ABC Construction, John Doe, 111-111-1111)	A/E: (ABC Architects, Jane Doe, 222-222-2222)	Original Contract Amount:	Final Contract Amount:
DFCM Project Manager:		Contract Date:	
Completion Date:		Date of Rating:	

Rating Guideline	QUALITY OF PRODUCT OR SERVICES	COST CONTROL	TIMELINESS OF PERFORMANCE	BUSINESS RELATIONS
5-Exceptional	Contractor has demonstrated an exceptional performance level in any of the above four categories that justifies adding a point to the score. Contractor performance clearly exceeds the performance levels described as "Very Good"			
4-Very Good	Contractor is in compliance with contract requirements and/or delivers quality product/service.	Contractor is effective in managing costs and submits current, accurate, and complete billings	Contractor is effective in meeting milestones and delivery schedule	Response to inquiries, technical/service/administrative issues is effective
3-Satisfactory	Minor inefficiencies/errors have been identified	Contractor is usually effective in managing cost	Contractor is usually effective in meeting milestones and delivery schedules	Response to inquires technical/service/administrative issues is somewhat effective
2-Marginal	Major problems have been encountered	Contractor is having major difficulty managing cost effectively	Contractor is having major difficulty meeting milestones and delivery schedule	Response to inquiries, technical/service/administrative issues is marginally effective
1-Unsatisfactory	Contractor is not in compliance and is jeopardizing achievement of contract objectives	Contractor is unable to manage costs effectively	Contractor delays are jeopardizing performance of contract objectives	Response to inquiries, technical/service/administrative issues is not effective

1. Rate Contractors quality of workmanship, management of sub contractor performance, project cleanliness, organization and safety requirement.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

2. Rate Contractor administration of project costs, change orders and financial management of the project budget.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

3. Rate Contractor's performance and adherence to Project Schedule, delay procedures and requirements of substantial completion, inspection and punch-list performance.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

4. Evaluate performance of contractor management team including project manager, engineer and superintendent also include in the rating team's ability to work well with owner, user agency and consultants.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

5. Rate success of Contractor's management plan, completion of the plans mitigation of project risks and performance of value engineering concepts.	Score
<u>Agency Comments:</u>	
<u>A & E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

Signed by:	Date:	Mean Score
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Additional Comments:



LERCH BATES

Building Insight

**ELEVATOR MODERNIZATION
DRAFT BID SPECIFICATION**

**HEBER M. WELLS BUILDING
SALT LAKE CITY, UTAH**

JULY 24, 2007

Prepared For:

**MR. BOB ANDERSON
STATE OF UTAH DFCM HAZ-MAT MANAGER
155 NORTH 1000 WEST
SALT LAKE CITY, UT 84116
801.652.6754, FAX 801. 538.8487**

Prepared By:

**V. QUENTIN BATES, JR., P.E., PRINCIPAL
LERCH, BATES & ASSOCIATES INC.
8089 S. LINCOLN, SUITE 300
LITTLETON, CO 80122
303 795-7956, FAX 303 797-7109**

LBA Project No. 0100000455-01



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SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. Modernize four traction elevators, three passenger, one service.
- B. Provide all labor, engineering, tools, transportation, services, supervision, materials, equipment and related building work necessary for and incidental to satisfactory completion of required work as indicated in Contract Documents.
- C. Provide all required staging, hoisting and movement of new equipment, reused equipment, or removal of existing equipment.
- D. Applicable conditions of Owner's Invitation and Instruction to Bidders.
- E. Scope of Contract includes, but is not limited to, the following:
 - 1. Contracting, coordinating, scheduling and management of work of component suppliers and subcontractors.
 - 2. Refurbish or provide new equipment as specified, utilizing existing hoistways and machine room.
 - 3. Completing items of related building work covered in Section 01900.

1.02 CONTRACTOR'S DUTIES

- A. Contractor's duties include the following:
 - 1. Provide and pay for labor, materials and equipment, tools, construction equipment and machinery and other facilities and services necessary for proper execution and completion of required work of Division 14 work and related building work, Section 01900.
 - 2. Pay for legally required sales, consumer and state remodel taxes.
 - 3. Secure and pay for required permits, fees and licenses necessary for proper execution and completion of required work, as applicable at time of quotation due date.
 - 4. Give required notices.
 - 5. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of required work.
 - 6. Promptly submit written notice to Consultant of observed variance of Contract Documents from legal requirements.
 - 7. Enforce strict discipline and good order among employees. Do not employ persons unskilled in assigned task.

1.03 WORK SEQUENCE

Modernize one elevator at a time, keeping four elevators in building service at all times.

1.04 CONTRACTOR USE OF PREMISES

- A. Confine operations at site to areas permitted by law, ordinances, permits, Contract Documents, and Owner's specific instructions.
- B. Do not unreasonably encumber site with materials or equipment. Staging area will be located as approved by Owner.
- C. Do not load structure with weight that will endanger structure. Coordinate with Owner.
- D. Assume full responsibility for protection and safekeeping of tools and products stored on or off premises.
- E. Move stored products which interfere with operations of building or the operations of other trades.
- F. Obtain and pay for use of additional storage or work areas needed for operations.

1.05 CONCURRENT MODERNIZATION WORK AND BUILDING OPERATION

- A. This project is a major elevator modernization in an existing building which is open for public business and will continue to operate throughout all phases of required work. It is essential that Contractor give special attention and priority to all matters concerning project safety, protection from dust and loose materials, reduction of noise level, protection from water and air infiltration into building, and maintenance of neat, sightly conditions in and around work areas inside and outside of building. Packaging, scrap materials and demolition debris shall be promptly removed from building and site on a daily basis.
- B. At all times, Contractor shall provide clearly visible warning and directions signs and barricades throughout public area, if required.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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SECTION 01040

PROJECT PROCEDURES

PART 1 GENERAL

1.01 APPLICABLE CODES

- A. Compliance with Regulatory Agencies: Comply with most stringent applicable provisions of following Codes, laws, and/or Authorities, including revisions and changes in effect;
1. Safety Code for Elevators and Escalators, ASME A17.1
 2. Guide for Inspection of Elevators, Escalators, and Moving Walks, ASME A17.2
 3. Elevator and Escalator Electrical Equipment, ASME A17.5
 4. National Electrical Code, NFPA 70
 5. Americans with Disabilities Act, ADA
 6. Local Fire Authority
 7. Requirements of IBC and all other enforced Codes, Ordinances and Laws applicable within the governing jurisdiction
 8. Life Safety Code, NFPA 101.

1.02 STAGING AREA

An equipment staging area will be available for use by Contractor. Contractor shall restrict usage to area designated and shall notify Owner/Property Management prior to storing of any large equipment which will impose heavy concentrated loading on floor area. Do not store such equipment until approval is received.

1.03 NOT USED

1.04 OCCUPANCY AND WORK BY OTHERS

- A. Contractor expressly affirms Owner's rights to let other contracts and employ other Contractors in connection with required work. Contractor will afford other Contractors and their workmen reasonable opportunity for introduction and storage of materials and equipment, for execution of their work and will properly connect and coordinate his work with theirs. Contractor will also incorporate comparable provisions in all its subcontracts.
- B. Contractor declares that other Contractors employed by Owner on basis of separate contracts may proceed at such times as necessary to install items of work required by Owner.
- C. Contractor declares that it will cooperate with other Contractors employed by Owner and, in addition to other coordination and expediting efforts, will coordinate their work by written notices regarding necessity of such work to be done on or before certain dates.
- D. Contractor declares that it is responsible for review, stamped and signed approval of all shop drawings for required work.
- E. Contractor hereby declares that content of foregoing paragraphs, and influence they may have on project:

1. Shall not cause a change in stipulated Contract Sum
2. Shall not cause a change in Construction Time Schedule

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Within 45 calendar days after award of contract and before beginning equipment fabrication, submit shop drawings and required material samples for review. Allow 10 days for response to initial submittal.
 - 1. Scaled or Fully Dimensioned Layout: Plan of machine room indicating equipment arrangement (Submit as a closeout document).
 - 2. Design Information: Submit equipment lists, and design information for review.
 - 3. Power Confirmation Information: Survey and design for existing conditions.
 - 4. Fixtures: Cuts, samples, or shop drawings.
 - 5. Design Information: Provide calculations verifying the following;
 - a. Adequacy of existing electrical provisions.
 - b. Adequacy of retained equipment relative to Code requirements if car weight increased by more than 5%.
- B. Submittal review shall not be construed as an indication that submittal is correct or suitable, or that the work represented by submittal complies with the Contract Documents. Compliance with Contract Documents, Code requirements, dimensions, fit, and interface with other work is Contractor's responsibility.
- C. Acknowledge and/or respond to review comments within 14 calendar days of return. Promptly incorporate required changes due to inaccurate data or incomplete definition so that delivery and installation schedules are not affected. Identify and cloud drawing revisions, including Contractor elective revisions on each re-submittal. Contractor's revision response time is not justification for equipment delivery or installation delay.

1.02 FINAL CONTRACT DOCUMENTS

See Section 01700, Project Closeout.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

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SECTION 01600

MATERIAL AND HANDLING

PART 1 GENERAL

1.01 SITE CONDITION INSPECTION

- A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify that no irregularities exist which affect execution of work specified.
- B. Do not proceed with installation until work in place conforms to project requirements.

1.02 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in Contractor's original, unopened protective packaging.
- B. Store material in original protective packaging. Prevent soiling, physical damage, or moisture damage.
- C. Protect equipment and exposed finishes from damage and stains during transportation, erection, and construction.
- D. Allocate available site storage areas and coordinate their use with Owner and other Contractors.
- E. Provide suitable temporary weather-tight storage facilities as may be required for materials that will be stored in the open.

1.03 INSTALLATION REQUIREMENTS

- A. Install all equipment in accordance with Contractor's instructions, referenced Codes, specification and approved submittals.
- B. Install machine room equipment with clearances in accordance with referenced Codes and specification.
- C. Install all equipment so it may be easily removed for maintenance and repair.
- D. Install all equipment for ease of maintenance.
- E. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
- F. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
 - 1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
 - 2. Machine room equipment, hoistway equipment including guide rails, guide rail brackets, and pit equipment.

3. Neatly touch up damaged factory-painted surfaces with original paint color. Protect machine-finish surfaces against corrosion.

1.04 MANUFACTURER'S NAMEPLATES

- A. Each major component of mechanical and electrical equipment shall have identification plate with the Manufacturer's name, address, model number rating and any other information required by Governing Codes.

1.05 COLORS OF FACTORY-FINISHED EQUIPMENT

- A. All colors will be Manufacturer's standard.

1.06 MATERIALS AND FINISHES

- A. Steel:
 1. Sheet Steel (Furniture Steel for Exposed Work): Stretcher-leveled, cold-rolled, commercial quality carbon steel, complying with ASTM A366, matte finish.
 2. Sheet Steel (for Unexposed Work): Hot-rolled, commercial quality carbon steel, pickled and oiled, complying with ASTM A568/A568M-03.
 3. Structural Steel Shapes and Plates: ASTM A36.
- B. Stainless Steel: Type 302 or 304 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength and durability. Apply mechanical finish on fabricated work in the locations shown or specified, (Federal Standard and NAAMM nomenclature), with texture and reflectivity required to match Architect's sample. Protect with adhesive paper covering.
 1. Satin: Directional polish finish (US 32D). Graining directions as shown or, if not shown, in longest dimension.
- C. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.
- D. Plastic Laminate: ASTM E84 Class A and NEMA LD3.1, Fire-Rated Grade (GP-50), Type 7, 0.050" ±.005" thick, color and texture as follows;
 1. Exposed Surfaces: Color and texture selected by Architect.
 2. Concealed Surfaces: Contractor's standard color and finish.
- E. Fire-Retardant Treated Particle Board Panels: Minimum 3/4" thick backup for natural finished wood and plastic laminate veneered panels, edged and faced as shown, provided with suitable anti-warp backing; meet ASTM E84 Class "I" rating with a flame-spread rating of 25 or less, registered with Local Authorities for elevator finish materials.
- F. Paint: Clean exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard rust-resistant primer. After erection, provide one finish coat of industrial enamel paint. Galvanized metal need not be painted.
- G. Prime Finish: Clean all metal surfaces receiving a baked enamel paint finish of oil, grease, and scale. Apply one coat of rust-resistant primer followed by a filler coat over uneven surfaces. Sand smooth and apply final coat of primer.

- H. Baked Enamel Finish: Prime finish per above. Unless specified “prime finish” only, apply and bake three (3) additional coats of enamel in the selected solid color.
- I. Refinishing of natural metals: Remove existing protective finish. Buff as necessary to remove scratches. Regrain or finish as specified and protect as indicated for particular metal type.
- J. Entrance Support Equipment within Hoistway: Include strut angles, headers, sill support angles, fascia, hanger covers, etc. Clean, check for and remove corrosive activity. Replace components that exhibit severe deterioration. Tighten all fastenings. Spot paint exposed surfaces as required.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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SECTION 01700

FINAL CONTRACT COMPLIANCE REVIEW

PART 1 GENERAL

1.01 FINAL CLEANING

- A. As a minimum, clean as follows:
 - 1. Elevator hoistways and all equipment therein shall be cleaned and left free of rust, filings, welding slag, rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt and dust. Include walls, fascias, building beams, sill ledges, and hoistway divider beams.
 - 2. Care shall be taken by workpersons not to mark, soil, or otherwise deface existing or new surfaces. Clean and restore such surfaces to their original condition.
 - 3. Clean down surfaces and areas which require final painting and finishing work. Cleaning includes removal of rubbish, broom cleaning of floors, removal of any loose plaster or mortar, dust and other extraneous materials from finish surfaces, and surfaces that will remain visible after the work is complete.

1.02 CONSULTANT'S FINAL OBSERVATION AND REVIEW REQUIREMENTS

- A. Review procedure shall apply for individual elevators, portions of groups of elevators and completed groups of elevators accepted on an interim basis or elevators and groups of elevators completed, accepted, placed in operation.
- B. Contractor shall perform review and evaluation of all aspects of its work prior to requesting Consultant's final review. Work shall be considered ready for Consultant's final contract compliance review when copies of Contractor's test and review sheets are available for Consultant's review and all elements of work or a designated portion thereof are in place and elevator or group of elevators are deemed ready for service as intended.
- C. Furnish labor, materials, and equipment necessary for Consultant's review. Notify Consultant five (5) working days in advance when ready for final review of elevator or group of elevators.
- D. Consultant's written list of observed deficiencies of materials, equipment and operating systems will be submitted to Contractor for corrective action. Consultant's review shall include as a minimum:
 - 1. Workmanship and equipment compliance with Contract Documents.
 - 2. Contract speed, capacity, floor-to-floor, and door performance comply with Contract Documents.
 - 3. Performance of following is satisfactory:
 - a. Starting, accelerating, running
 - b. Decelerating, stopping accuracy
 - c. Door operation and closing force
 - d. Equipment noise levels
 - e. Signal fixture utility
 - f. Overall ride quality

- g. Performance of door control devices
 - h. Operations of special security features and floor lock-off provisions
 - 4. Test Results:
 - a. In all test conditions, obtain specified contract speed, performance times, stopping accuracy without re-leveling, and ride quality to satisfaction of Owner and Consultant. Tests shall be conducted under both no load and full load condition.
 - b. Temperature rise in motor windings limited to 50° Celsius above ambient. A full-capacity, one (1) hour running test, stopping at each floor for ten (10) seconds in up and down directions, may be required.
- E. Performance Guarantee: Should Consultant's review identify defects, poor workmanship, variance or noncompliance with requirements of specified Codes and/or ordinances, or variance or noncompliance with the requirements of Contract Documents, Contractor shall complete corrective work in an expedient manner to satisfaction of Owner and Consultant at no cost as follows:
 - 1. Replace equipment that does not meet Code or Contract Document requirements.
 - 2. Perform work and furnish labor, materials and equipment necessary to meet specified operation and performance.
 - 3. Perform retesting required by Governing Code Authority, Owner and Consultant.
- F. A follow-up final contract compliance review shall be performed by Consultant after notification by Contractor that all deficiencies have been corrected. Provide Consultant with copies of the initial deficiency report marked to indicate items which Contractor considers complete.

1.03 OWNER'S INFORMATION

- A. Provide three sets of neatly bound written information necessary for proper maintenance and adjustment of equipment within 30 days following final acceptance. Final retention will be withheld until data is received by Owner and reviewed by Consultant. Include the following as minimums:
 - 1. Straight-line wiring diagrams of "as-installed" elevator circuits, with index of location and function of components. Provide one set reproducible master. Mount one set wiring diagrams on panels, racked, or similarly protected, in elevator machine room. Provide remaining set rolled and in a protective drawing tube. Maintain all drawing sets with addition of all subsequent changes. These diagrams are Owner's property.
 - 2. Lubrication instructions, including recommended grade of lubricants.
 - 3. Parts catalogs for all replaceable parts including ordering forms and instructions.
 - 4. Four sets of keys for all switches and control features properly tagged and marked.
 - 5. Neatly bound instructions explaining all operating features including all apparatus in the car and lobby control panels.
 - 6. Neatly bound maintenance and adjustment instructions explaining areas to be addressed, methods and procedures to be used, and specified tolerances to be maintained for all equipment.
 - 7. Diagnostic equipment complete with access codes, adjusters manuals and set-up manuals for adjustment, diagnosis and troubleshooting of elevator system and performance of routine safety tests.

8. The elevator installation shall be a design that can be maintained by any licensed elevator maintenance company employing journeymen mechanics, without the need to purchase or lease additional diagnostic devices, special tools, or instructions from the original equipment Contractor.
 - a. Provide on site capability to diagnose faults to the level of individual circuit boards and individual discreet components for the solid state elevator controller.
 - b. Provide a separate, detachable device, as required to the Owner as part of this installation if the equipment for fault diagnosis is not completely self-contained within the controller with a minimum 12” screen. Such device shall be in possession of and become property of the Owner.
 - c. Installed equipment not meeting this requirement shall be removed and replaced with conforming equipment at no cost to the Owner.
 9. Provide upgrades and/or revisions of software during the progress of the work, warranty period and the term of the ongoing maintenance agreement between the Owner and Contractor.
- B. Preventive Maintenance: Provide interim and warranty maintenance based on requirements outlined in Section 01800 and Section 14325.
- C. Acceptance of such records by Owner/Consultant shall not be a waiver of any Contractor deviation from Contract Documents or shop drawings or in any way relieve Contractor from his responsibility to perform work in accordance with Contract Documents.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01800

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SECTION 01800

MAINTENANCE

PART 1 GENERAL

1.01 MAINTENANCE GENERAL

- A. Provide all maintenance in accordance with requirements included in Section 14325.
- B. Base cost of maintenance based on terms and conditions of the Owner's Preventive Maintenance Agreement included with these specifications.

1.02 INTERIM MAINTENANCE

- A. Provide preventive maintenance and regular time call backs commencing as agreed upon with the Owner as soon after notification of award as practical. Include cost in modernization cost quotation.
- B. Use competent personnel acceptable to the Owner, employed and supervised by Elevator Contractor.

1.03 WARRANTY PREVENTIVE MAINTENANCE

- A. Quote monthly cost for twelve (12) month warranty maintenance commencing upon final acceptance of all modernized elevators.
- B. Use competent personnel, acceptable to the Owner, employed and supervised by Contractor.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 01900

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SECTION 01900

RELATED WORK BY ELEVATOR CONTRACTOR

PART 1 GENERAL

1.01 RELATED WORK.

- A. Hoistway and Pit:
 - 1. Cutting and patching hoistway walls as required.

- B. Machine Room and Machinery Spaces:
 - 1. Paint floor.
 - 2. Machine room heating and air-conditioning to meet Elevator Contractor's equipment requirements.

- C. Electrical Service, Conductors and Devices:
 - 1. Improve lighting (Use "T-8" type fluorescent fixtures). Add GFCI convenience outlets in machine room and pits and on car.
 - 2. Three-phase mainline copper power feeder to terminals of each elevator controller from new main line disconnecting means with lockable feature with power disconnecting means with shunt trip capability.
 - 3. Single-phase disconnecting means with lockable feature with copper power feeders to each elevator controller for car lighting and exhaust blower located in machine room.
 - 4. Shunt trip initiating devices (heat detector) in machine room to disconnect elevator power prior to sprinkler water flow.
 - 5. Provide alarm initiating sensor signal wiring from devices to machine room connection point and elevator controller terminals. Device in machine room and at top of hoistway provide signal for general alarm and discrete signal for Phase II firefighters' operation.
 - 6. Connect and test sensor connection to building life safety panel(s).
 - 7. Provision for existing elevator security system using existing card readers on each car. Test system operation.
 - 8. Replace existing pit light fixtures with new protected single tube, T-8 type fluorescent fixtures.
 - 9. Hoistway smoke detectors and connection to life safety panel and elevator controllers as required.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 14220

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SECTION 14220

ELECTRIC TRACTION ELEVATOR MODERNIZATION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Modernize five traction passenger elevators as follows:
- B. All engineering, equipment, labor, related building work or permits required to satisfactorily complete elevator modernization required by Contract Documents.
- C. Applicable conditions of General, Special, and Supplemental Conditions, Division 1, and all Sections listed in Contract Documents "Table of Contents."
- D. Preventive maintenance as described in Section 01800 and Section 14325.
- E. Additional equipment furnished by Owner, installed and connected under this section:
 - 1. Building announcement speaker in each car.
 - 2. Retained card readers in each elevator car, and associated control in elevator machine room.
- F. Cartage and Hoisting: All required staging, hoisting and movement to, on and from the site including new equipment, reused equipment, or dismantling and removal of existing equipment. Any building work required to accomplish this requirement.
- G. Unless specifically identified as "Reuse," "Retain," or "Refurbish", provide new equipment.
- H. Hoistway, pit and machine room barricades as required.
- I. Bevel cants on hoistway ledges or recesses as required.

1.02 RELATED WORK

See Section 01900, Related Work. Complete all related work as part of this Section.

1.03 DEFINITIONS

- A. Terms used are defined in the latest edition of the Safety Code for Elevators and Escalators, ASME A17.1.
- B. Reference to a device or a part of the equipment applies to the number of devices or parts required to complete the installation.
- C. Provisions of this specification are applicable to all elevators unless identified otherwise.

1.04 QUALITY ASSURANCE

- A. Approved Elevator Contractors: Alternate Elevator Contractors must receive approval of Owner, Architect and Consultant at least 14 calendar days prior to bid date.
 - 1. Traction Elevators: KONE, Schindler, ThyssenKrupp
- B. Compliance with Regulatory Agencies: See Section 01040, Project Procedures.
- C. Warranty:
 - 1. Material and workmanship of installation shall comply in every respect with Contract Documents. Correct defective material or workmanship which develops within one year from date of final acceptance of all work to satisfaction of Owner, Architect and Consultant at no additional cost, unless due to ordinary wear and tear, or improper use or care by Owner. Perform maintenance in accordance with terms and conditions indicated in the Preventive Maintenance Agreement.
 - 2. Defective is defined to include, but not limited to; operation or control system failures, car performance below required minimum, excessive wear, unusual deterioration or aging of materials or finishes, unsafe conditions, the need for excessive maintenance, abnormal noise or vibration, and similar unsatisfactory conditions.
 - 3. Retained Equipment: All retained components, parts, and materials shall be cleaned, checked, modified, repaired or replaced, so each component and its parts are in like new operating condition. Retained equipment must be compatible for integration with new systems. All retained equipment shall be covered under the warranty provisions, of Article 1.04, D., 1. & 2. above. No prorations of equipment or parts shall be allowed under preventive maintenance provision, Section 14325.
 - 4. Make modifications, requirements, adjustments and improvements to meet performance requirements of Sections 01700 and 14220.

1.05 DOCUMENT AND SITE VERIFICATION

In order to discover and resolve conflicts or lack of definition which might create problems, Elevator Contractor must review Contract Documents and site conditions for compatibility with its product prior to submittal of quotation. Review existing structure, electrical and mechanical provisions for compatibility with Elevator Contractor's products. Owner will not pay for change to structural, mechanical, electrical, or other systems required to accommodate Elevator Contractor's equipment.

1.06 SUBMITTALS

See Section 01300, Submittals, and Section 01700, Final Contract Compliance Review, Article 1.03.

1.07 PERMIT, TEST AND INSPECTION

- A. Obtain and pay for permit, license, and inspection fee necessary to complete installation.
- B. Perform test required by Governing Authority in accordance with procedure described in ASME A17.2 Guide for Inspection of Elevators, Escalators, and Moving Walks in the presence of Authorized Representative.

- C. Supply personnel and equipment for test and final review by Consultant, as required in Section 01700.

1.08 MAINTENANCE

- A. Interim: See Section 01800, Maintenance, Article 1.02, A.
- B. Warranty Maintenance: See Section 01800, Maintenance, Article 1.03, A.

PART 2 PRODUCTS

2.01 SUMMARY

- A. Four Traction Elevators; three passenger Nos. 1, 2, 3, and one service, No. 4.
- B. Unless specifically identified as “retain existing,” provide new equipment.

	EXISTING EQUIPMENT	DISPOSITION
NUMBER:	FIVE	RETAIN EXISTING
CAPACITY:	1 – 4: 3500# 5: 4500#	RETAIN EXISTING
CLASS LOADING:	CLASS A	RETAIN EXISTING
CONTRACT SPEED:	1 – 4: 350 FPM 5: 200 FPM	RETAIN EXISTING
ROPING:	1:1	RETAIN EXISTING
MACHINE:	GEARED TRACTION (OTIS CT22)	REFURBISH EXISTING, NEW A.C. MOTOR
MACHINE LOCATION:	OVERHEAD	RETAIN EXISTING
SUPERVISORY CONTROL:	1 – 4: GROUP AUTOMATIC (OTIS VIP 260) 5: SELECTIVE COLLECTIVE	1, 2 & 3: GROUP AUTOMATIC – SOLID STATE, MICROPROCESSOR TYPE 4: SELECTIVE COLLECTIVE, SOLID STATE, MICROPROCESSOR TYPE
MOTOR CONTROL:	DC VARIABLE VOLTAGE MOTOR GENERATOR SETS	AC VARIABLE VOLTAGE VARIABLE FREQUENCY MICROPROCESSOR BASED WITH DIGITAL CLOSED-LOOP FEEDBACK

	EXISTING EQUIPMENT	DISPOSITION
POWER CHARACTERISTICS:	480 VOLTS, 3 PHASE, 60 HERTZ FIELD VERIFY	RETAIN EXISTING
STOPS:	8 FRONT 0 REAR	RETAIN EXISTING
OPENINGS:	8 FRONT 0 REAR	RETAIN EXISTING
FLOORS SERVED:	P1, P2, 1 – 6	RETAIN EXISTING
TRAVEL:	FIELD VERIFY	RETAIN EXISTING
PLATFORM SIZE:	FIELD VERIFY	RETAIN EXISTING
MINIMUM CLEAR INSIDE CAR:	FIELD VERIFY	RETAIN EXISTING
ENTRANCE SIZE:	1 – 4: 3’-6” WIDE X 7’-0” HIGH 5: 4’-0” WIDE X 7’-0” HIGH FIELD VERIFY	RETAIN EXISTING
ENTRANCE TYPE:	1 – 4: SINGLE SPEED, CENTER OPENING 5: TWO SPEED, SIDE OPENING	RETAIN EXISTING
DOOR OPERATION:	MEDIUM SPEED, MEDIUM-DUTY OTIS 7770	HIGH SPEED, HEAVY-DUTY, DOOR OPERATOR, MINIMUM OPENING SPEED 2-1/2 F.P.S., WITH CLOSED LOOP CONTROL
DOOR PROTECTION:	OTIS LAMBDA SCREEN TYPE DETECTOR	INFRARED, FULL SCREEN DEVICE WITH DIFFERENTIAL TIMING, NUDGING AND INTERRUPTED BEAM TIME
CAR SAFETY:	FLEXIBLE GUIDE CLAMP – TYPE B	RETAIN EXISTING
GOVERNOR:	CENTRIFICAL TYPE	RETAIN EXISTING, BIDDER’S OPTION
GUIDE RAILS:	PLANED STEEL TEES	RETAIN EXISTING REINFORCE TO MEET SEISMIC REQUIREMENTS IF REQUIRED
BUFFERS:	1 – 4: OIL 5: SPRING	RETAIN EXISTING

	EXISTING EQUIPMENT	DISPOSITION
CAR ENCLOSURE:	STEEL SHELL WITH VERTICAL PANELS AND DOWN LIGHTS IN DROP CEILING	RETAIN EXISTING WITH NEW TUBULAR HANDRAILS
SIGNAL FIXTURES:	OTIS	PROVIDE NEW. USE LONG LIFE ILLUMINATION MEANS ON NEW
HALL PUSHBUTTON STATIONS:	SINGLE RISER TYPICAL DUAL ON 1 – 4 LOBBY	NEW AT EXISTING LOCATIONS 3 RD RISER BETWEEN CAR NOS. 3 AND 4 USED FOR ELEVATOR NO. 4 OPERATION
CAR OPERATING STATION	DUAL STATIONS, CAR NOS. 1 – 4, SINGLE STATION, CAR NO. 5	NEW WITH INTEGRAL POSITION INDICATORS AND TELEPHONE REPLACE SINGLE FRONT RETURN PANELS AS APPROPRIATE
CAR POSITION INDICATORS:	MULTILIGHT ABOVE CAR ENTRANCE	DIGITAL IN CAR STATION
HALL LANTERNS:	AT TYPICAL FLOORS	NEW WITH ARROW LENSES
HALL POSITION/HALL LANTERN COMBINATION FIXTURE:	NONE	NEW DIGITAL FIXTURE AT 1 ST FLOOR ONLY
COMMUNICATION SYSTEM:	ADA TYPE TELEPHONE IN CABINET	NEW IN CAR STATION (NO CABINET) SELF-DIALING, VANDAL RESISTANT, PUSH TO CALL, TWO-WAY COMMUNICATION SYSTEM WITH RECALL, TRACKING AND VOICELESS COMMUNICATION
FIXTURE SUBMITTAL:		SUBMIT BROCHURE DEPICTING ELEVATOR CONTRACTOR'S PROPOSED DESIGNS WITH BID
ADDITIONAL FEATURES –		CAR AND COUNTERWEIGHT ROLLER GUIDE SHOES (REUSE EXISTING)

ALTERNATES –
SEE SECTION 01030

2.02 MATERIALS

A. See Section 01600, Materials.

2.03 CAR AND GROUP PERFORMANCE

- A. Car Speed: $\pm 3\%$ of contract speed under any loading condition.
- B. Car Capacity: Safely lower, stop and hold up to 125% of rated load.
- C. Car Stopping Zone: $\pm 1/4$ " under any loading condition.
- D. Door Opening Time:
 - 1. 1 – 4: 2.0 seconds maximum from start of opening to fully open.
 - 2. 4: 2.5 – 3.0 seconds maximum from start of opening to fully open.
- E. Door Closing Time:
 - 1. 1 – 4: 2.5 seconds minimum from start of closing to fully closed.
 - 2. 5: 4.4 seconds minimum from start of closing to fully closed.
- F. Car Floor-to-Floor Performance Time: Seconds from start of doors closing until doors are $3/4$ open ($1/2$ open for side opening doors) and car level and stopped at next successive floor under any loading condition or travel direction ($12' \pm$ typical floor height).
 - 1. 1, 2 & 3: 10.0 – 11.0.
 - 2. 4: 12.5 – 13.5.
- G. Car Ride Quality:
 - 1. Horizontal acceleration within car during all riding and door operating conditions. Not more than 20 mg peak to peak (adjacent peaks) in the 1 - 10 Hz range.
 - 2. Acceleration and Deceleration: Smooth constant and not more than 3 feet/second² with an initial ramp between 0.5 and 0.75 second.
 - 3. Sustained Jerk: About 6 feet/second³.
- H. Airborne Noise: Measured noise level of elevator equipment during operation shall not exceed 50 dBA in elevator lobbies and 60 dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed.

2.04 OPERATION

- A. Group Automatic (Elevator Nos. 1, 2, 3 and 4):
 - 1. Approved microprocessor-based, group dispatch, car and motion control systems as follows:
 - a. KONE Resolve
 - b. Schindler Miconic TXR5
 - c. ThyssenKrupp TAC 50
 - 2. Include as a minimum, the following features:
 - a. Operate cars as a group, capable of balancing service and providing continuity of group operation with one or more cars removed from the system.
 - b. Register service calls from pushbuttons located at each floor and in each car. Slow cars and stop automatically at floors corresponding to registered calls. Make stops at successive floors for each direction of travel irrespective of order in which calls are registered except when bypassing hall calls to balance and improve overall service; stop only one car in response to a particular hall call. Assign hall calls to specific cars and continually review and modify those

- assignments to improve service. Simultaneous to initiation of slow down of a car for a hall call, cancel that call. Render hall pushbutton ineffective until car doors begin to close after passenger transfer. Cancel car calls in the same manner. Give priority to coincidental car and hall calls in car assignment.
- c. Operate system to meet changing traffic conditions on a service demand basis. Include provisions for handling traffic which may be heavier in either direction, intermittent or very light. As traffic demands change, automatically and continually modify group and individual car assignment to provide the most-effective means to handle current traffic conditions. Provide means to sense long-wait hall calls and preferentially serve them. Give priority to coincidental car and hall calls in hall call assignment. Accomplish car direction reversal without closing and reopening doors.
 - d. Use easily reprogrammable system software. Design basic algorithm to optimize service based on equalizing system response to registered hall calls and equalizing passenger trip time to shortest possible time.
 - e. Serve floors below main floor in a manner which logically minimizes delay in passing or stopping at main floor in both directions of travel. Provide manual means to force a stop at the main floor when passing to or from lower levels.
 - f. Required Features:
 - 1) Dispatch Protection: Backup dispatching shall function in the same manner as the primary dispatching.
 - 2) Delayed Car Removal: Automatically remove delayed car from group operation.
 - 3) Position Sensing: Update car position when passing or stopping at each landing.
 - 4) Hall Pushbutton Failure: Provide multiple power sources and separate fusing for pushbutton risers.
 - 5) Communication link: Provide serial or duplicate communication link for all group and individual car computers.
- B. Other Items:
1. Load Weighing: Provide means for weighing car passenger load. Control system to provide dispatching at main floor in advance of normal intervals when car fills to capacity. Provide hall call by-pass when the car is filled to preset percentage of rated capacity and traveling in down direction. Field adjustment range: 10% to 100%.
 2. Anti-Nuisance Feature: If car loading relative to weight in car is not commensurate with number of registered car calls, cancel car calls. Systems employing either load weighing or door protective device for activation of this feature are acceptable.
 3. Independent Service: Provide controls for operation of each car from its pushbuttons only. Close doors by constant pressure on desired destination floor button or door close button. Open doors automatically upon arrival at selected floor.
 4. Car-to-Lobby Feature: Provide the means for automatic return to the 1st floor. Return car nonstop after answering pre-registered car calls, and park with doors open for an adjustable time period of 60 - 90 seconds. Upon expiration of time period, car shall automatically revert to normal operation and close its doors until assigned as next car or until the car is placed on manual control via in-car attendant or out-of-service switch.
- C. Firefighters' Service: Provide equipment and operation in accordance with Code requirements.

- D. Automatic Car Stopping Zone: Stop car within 1/4" above or below the landing sill. Maintain stopping zone regardless of load in car, direction of travel, distance between landings, hoist rope slippage or stretch.
- E. Remote Monitoring and Diagnostics: Equip each controller and the group dispatch logic controller, with standard ports, interface boards, and drivers to accept maintenance, data logging, fault finding diagnostic, and monitoring computers, keyboards, modems, and programming tools.
- F. Motion Control: Microprocessor based AC, variable-voltage, variable frequency with digitally encoded closed-loop velocity feedback suitable for operation specified and capable of providing smooth, comfortable car acceleration, retardation, and dynamic braking. Limit the difference in car speed between full load and no load to not more than $\pm 3\%$ of the contract speed.
- G. Door Operation: Automatically open doors when car arrives at main floor. At expiration of normal dwell time, close doors. Reopen doors when car is designated for loading. Provide "heavy" door/variable air pressure feature for consistent specified door operation within appropriate speed and inertia limits.
- H. Standby Lighting and Alarm: Car mounted battery unit with solid-state charger to operate alarm bell and car emergency lighting. Battery to be rechargeable with minimum 5-year life expectancy. Include required transformer. Provide constant pressure test button in car operating panel.
- I. Standby Power Operation: Include provisions for future standby power operation as follows. Upon loss of normal power, adequate standby power will be supplied via building electrical feeders to start and run one car at contract car speed and capacity.
 - 1. Automatically return one car at a time, in each group and single car(s), nonstop to designated floor, open doors for approximately 3.0 seconds, close doors and park car. During return operation, car and hall call pushbuttons shall be rendered inoperative. As each car parks, system shall immediately select the next car until all cars in a group have returned to the designated floor. If a car fails to start or return within 30 seconds, system shall automatically select the next car in the group to automatically return.
 - 2. When all cars have returned to the designated floor, one car shall be designated for automatic operation. When a service demand exists for 30 seconds and designated car fails to start, next available car in the group shall be automatically selected for operation.
- J. Card/Proximity Reader Security System: Mount existing reader unit on new car station and connect from car pushbuttons to control module in machine room.

2.05 MACHINE ROOM EQUIPMENT

- A. Arrange equipment in existing machine room spaces .
- B. Geared Traction Hoist Machine: Retain existing.
 - 1. Restore, clean and paint to function and appear in like new condition.
 - 2. Drain, flush and provide new gear lubricant.

3. Replace worn gears and bearings.
 4. Provide supplemental rope and sheave guards as required.
 5. Retrofit new direct drive, digital, closed-loop velocity encoder on hoist machine.
 6. Provide drip pans to collect lubricant seepage.
 7. Clean and true motor commutator. Provide new commutator brushes.
 8. Other work deemed required to provide specified "like new" operation.
 9. Retrofit new AC V³F induction drive motor to existing gear case.
 10. Provide secondary brake per code.
- C. Solid State Power Conversion and Regulation Unit:
1. Provide solid state, alternating current, variable voltage, variable frequency (ACV³F), I.G.B.T. converter/inverter drives.
 2. Design unit to limit current, suppress noise, and prevent transient voltage feedback into building power supply. Provide internal heat sink cooling fans for the power drive portion of the converter panels. Conform to IEEE standards 519-1992 for line harmonics and switching noise.
 3. Isolate unit to minimize noise and vibration transmission. Provide isolation transformers, filter networks, and choke inductors.
 4. Suppress solid-state converter noises, radio frequency interference, and eliminate regenerative transients induced into the mainline feeders or the building standby power generator.
 5. Supplemental direct-current power for the operation of hoist machine brake, door operator, dispatch processor, signal fixtures, etc., from separate static power supply.
 6. ACV³F Drives for machines may be regenerative and utilize IGBT converter/inverter and dynamic braking during overhauling condition.
- D. Encoder: Direct drive, solid-state, digital type. Update car position at each floor and automatically restore after power loss.
- E. Controller: UL/CSA labeled.
1. Compartment: Securely mount all assemblies, power supplies, chassis switches, relays, etc., on a substantial, self-supporting steel frame. Completely enclose equipment with covers. Provide means to prevent overheating.
 2. Relay Design: Magnet operated with contacts of design and material to insure maximum conductivity, long life and reliable operation without overheating or excessive wear. Provide wiping action and means to prevent sticking due to fusion. Contacts carrying high inductive currents shall be provided with arc deflectors or suppressors.
 3. Microprocessor-Related Hardware:
 - a. Provide built-in noise suppression devices which provide a high level of noise immunity on all solid-state hardware and devices.
 - b. Provide power supplies with noise suppression devices.
 - c. Isolate inputs from external devices (such as pushbuttons) with opto-isolation modules.
 - d. Design control circuits with one leg of power supply grounded.
 - e. Safety circuits shall not be affected by accidental grounding of any part of the system.
 - f. System shall automatically restart when power is restored.
 - g. System memory shall be retained in the event of power failure or disturbance.

- h. Equipment shall be provided with Electro Magnetic Interference (EMI) shielding within FCC guidelines.
 - 4. Wiring: CSA labeled copper for factory wiring. Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.
 - 5. Permanently mark components (relays, fuses, PC boards, etc.) with symbols shown on wiring diagrams.
- F. Machine and Equipment Support Beams: Retain existing in place. Provide all required supplemental supports and attachments.
- G. Governor: Centrifugal-type, machine room mounted for car safety. Provide required bracketing and supports for attachment to building structure. Existing may be refurbished and reused, if suitable.
- H. Emergency Brake:
 - 1. Provide means to prevent ascending car over-speed and unintended car movement per Code.
 - 2. Acceptable emergency brake devices:
 - a. BODE Rope Brake
 - b. Hollister-Whitney Rope Gripper
 - 3. Mount the auxiliary brake on suitable structural steel supports. Provide a drawing showing the supports, stamped by Professional Engineer verifying the adequacy of the support provided.
 - 4. Provide control circuits to enable the device to function as required by Code.
 - 5. Other products may be submitted for approval.
- I. Noise/Vibration Isolation: All elevator equipment including their supports and fastenings to building, shall be mechanically and electrically isolated from the building structure and main line power feeders to minimize objectionable noise and vibration transmission to car, building structure, or adjacent occupied areas of building.

2.06 HOISTWAY EQUIPMENT

- A. Guide Rails: Retain main and counterweight guide rails in place.
 - 1. Clean rails and brackets. Remove rust.
 - 2. Check all rail and bracket fastenings and tighten.
 - 3. Realign rails as required to provide smooth car ride.
 - 4. Provide supplemental rail brackets and/or backing as required by Code or to enhance car ride quality.
- B. Buffers: Retain existing.
 - 1. Drain, flush, refill and test oil buffers.
 - 2. Provide switch on buffer to limit car speed if buffer is compressed.
 - 3. Reuse spring buffers.
- C. Sheaves: Retain existing.
 - 1. Regroove or replace if required.
 - 2. Check all fastenings and tighten.
 - 3. Replace worn bearings.

- D. Counterweight: Retain existing. Verify present balance is suitable. Rebalance after new car components installed.
- E. Governor Rope and Tensioning Sheaves: Mount sheaves and support frame on pit floor or guide rail. Provide frame with guides or pivot point to enable free vertical movement and proper tension of rope and tape. Existing may be refurbished and retained, if suitable.
- F. Hoist Ropes: Provide new to suit hoist machine sheave requirements.
- G. Terminal Stopping: Provide new normal and final devices.
- H. Electrical Wiring and Wiring Connections:
 - 1. Conductors and Connections: Copper throughout with individual wires coded and connections on identified studs or terminal blocks. Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes. Provide 10% spare conductors throughout. Run spare wires from car connection points to individual elevator controllers in the machine room. Provide four pairs of spare shielded communication wires in addition to those required to connect specified items. Tag spares in machine room.
 - 2. Conduit: Painted or galvanized steel conduit, EMT or duct. Conduit size, 1/2" minimum. Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protective devices.
 - 3. Traveling Cables: Flame and moisture-resistant outer cover. Prevent traveling cable from rubbing or chafing against hoistway or equipment within hoistway. Provide five (5) pair of shielded wires and two (2) RG-6/U type coaxial cables for card reader.
- I. Entrance Equipment:
 - 1. Door Hangers: Two-point hanger roller with neoprene roller surface and suspension with eccentric upthrust roller adjustment.
 - 2. Door Track: Bar or formed, cold-drawn removable steel tracks with smooth roller contact surface.
 - 3. Door Interlocks: Operable without retiring cam. Paint interlock box flat black.
 - 4. Door Closers: Spring, spirator or jamb/strut mounted counterweight type. Design and adjust to insure smooth, quiet mechanical close of doors.
 - 5. Existing may be refurbished and reused if suitable.
- J. Hoistway Door Unlocking Device: Retain existing.
- K. Floor Numbers: Stencil paint 4" high floor designations in contrasting color on inside face of hoistway doors or hoistway fascia in location visible from within car, if needed.
- L. Pit Stop Switch: Per Code.

2.07 HOISTWAY ENTRANCES

- A. Frames: Retain existing. Verify floor identification numeral height. Remove and replace plates which do not conform with ADA guidelines.
- B. Door Panels: Retain existing. Replace worn door gibs and astragals.

- C. Sight Guards: Retain existing. Replace damaged sight guards.
- D. Sills: Retain existing. Clean and polish. Check and tighten all fastenings.
- E. Sill Supports: Retain existing. Check and tighten all fastenings.
- F. Fascia, Toe Guards and Hanger Covers: Retain existing. Provide as required where damaged or missing. Check and tighten all fastenings. Clean and spot paint..
- G. Struts and Headers: Retain existing. Check and tighten all fastenings. Clean and spot paint.

2.08 CAR EQUIPMENT

- A. Frame: Retain Existing. Check and tighten all fastenings.
- B. Safety Device: Existing may be retained if suitable. Conduct 5 year test if required by governing authority.
- C. Platform: Retain existing. Check and tighten all fastenings. Refurbish existing load weighing system or provide new.
- D. Platform Apron: Provide new extended platform apron to meet Code if pit depth permits. Minimum 14 gauge steel, reinforced and braced to car platform with Elevator Contractor's standard finish.
- E. Guide Shoes: Existing may be reused at Bidder's option. If provided new, meet the following requirements: Roller type with three or more spring dampened, sound-deadening rollers per shoe. Maximum roller rotation speed, 350 r.p.m.
- F. Sills: Retain existing. Clean and polish. Check and tighten all fastenings.
- G. Doors: Provide new with stainless steel facing and dual gibs, one at trailing edge and one at leading edge of each panel.
- H. Door Hangers: Two hanger rollers with neoprene roller surface and suspension with eccentric upthrust roller adjustment. Existing may be refurbished and reused if suitable.
- I. Door Track: Bar or formed, cold-drawn removable steel track with smooth roller contact surface. Existing may be refurbished and reused if suitable.
- J. Door Header: Retain existing (if suitable for new door operator). Check and tighten all fastenings. If provided new, construct of minimum 12 gauge steel, shape to provide stiffening flanges.
- K. Door Electrical Contact: Prohibit car operation unless car door is closed.
- L. Door Clutch: Heavy-duty clutch, linkage arms, drive blocks and pickup rollers or cams to provide positive, smooth, quiet door operation. Design clutch so car doors can be closed, while hoistway doors remain open.

- M. Restricted Opening Device: Restrict opening of car doors outside unlocking zone. Plunger type restrictors not acceptable.
- N. Door Operator: High speed, heavy-duty door operator capable of opening doors at no less than 2-1/2 f.p.s. Accomplish reversal in no more than 2-1/2" of door movement. Provide solid-state door control with closed loop circuitry to constantly monitor and automatically adjust door operation based upon velocity, position, and motor current. Maintain consistent, smooth and quiet door operation at all floors, regardless of door weight or varying air pressure.

Acceptable closed-loop door operators:

1. KONE Renova 2.0
2. Schindler QKS 15
3. ThyssenKrupp HD91 StarTrac

- O. Door Control Device:
1. Infrared Reopening Device: Black, fully enclosed device with full screen infrared matrix or multiple beams extending vertically along leading edge of each door panel to minimum height of 7'-0" above finished floor. Provide extension of housing and lens additional beams full height of door panel(s). Device shall prevent doors from closing and reverse doors at normal opening speed if beams are obstructed while doors are closing, except during nudging operation. In event of device failure, provide for automatic shutdown of car at floor level with doors open
 - a. Acceptable Infrared 3D Reopening Device:
 - 1) Cegard/MAX-154 by CEDES
 - 2) Gatekeeper by Adams
 - 3) Microlite 3D by ThyssenKrupp
 - 4) Pana40 Plus 3D by Janus
 2. Nudging Operation: After beams of door control device are obstructed for a predetermined time interval (minimum 20.0 - 25.0 seconds), warning signal shall sound and doors shall attempt to close with a maximum of 2.5 foot pounds kinetic energy. Activation of the door open button shall override nudging operation and reopen doors.
 3. Interrupted Beam Time: When beams are interrupted during initial door opening, hold door open a minimum of 3.0 seconds. Differential Door Time: Provide separately adjustable timers to vary time that doors remain open after stopping in response to calls.
 - a. Car Call: Hold open time adjustable between 3.0 and 5.0 seconds.
 - b. Hall Call: Hold open time adjustable between 5.0 and 8.0 seconds. Use hall call time when car responds to coincidental calls.

- P. Car Operating Panel:
1. Provide integral, dual operating panels for Car Nos. 1 – 4 without faceplates, and a single integral panel with hinged faceplate for Car No. 5. Mount in stainless steel front return panel.
 2. Suitably identify floor buttons, alarm button, door open button, door close button and emergency push-to-call button with square cast tactile symbols surface recessed flush mounted. Configure plates per local building code accessibility standards including Braille. Locate operating controls no higher than 48" above the car floor; no lower than 35" for emergency push-to-call button and alarm button.
 3. Provide minimum 3/4" diameter raised or flush floor pushbuttons which illuminate to indicate call registration. Include 5/8" high floor designation on face of pushbutton.
 4. Provide alarm button to ring bell located on car, and sound distress signal at control panel. Illuminate button when actuated.
 5. Provide "door open" button to stop and reopen doors or hold doors in open position.
 6. Provide "door close" button to activate door close cycle. Cycle shall not begin until normal door dwell time for a car or hall call has expired, except firefighters' operation.
 7. Provide firefighters' lockable cabinet per Code.
 8. Install firefighters' telephone jack with approved mounting bezel matching adjacent controls if required.
 9. Include the following keyed controls in car station faceplate with function and operating positions identified by permanent signage or engraved legend:
 - a. Inspection switch.
 - b. Light switch.
 - c. Exhaust blower switch.
 - d. Independent service switch.
 - e. Constant pressure test switch for battery pack emergency lighting.
 - f. Stop switch.
 - g. Switch to select either floor voice annunciation or floor passing tone.
 - h. Operating mode selection switch in car No. 4 only.
 10. Provide black paint filled (except as noted), engraved or approved etched signage as follows with approved size and font:
 - a. Car number.
 - b. "No Smoking".
 - c. Car capacity in pounds.
- Q. Car Top Control Station: Mount to provide safe access and utilization while standing in an upright position on car top.
- R. Work Light and Duplex Plug Receptacle: GFCI protected outlet at top and bottom of car. Include on/off switch and lamp guard.
- S. Communication System:
1. "Push to Call," two-way communication instrument in car with automatic dialing, tracking and recall features with shielded wiring to car controller in machine room. Provide dialer with automatic rollover capability with minimum two numbers. Provide consolidator to allow multiple phones connected to one (1) line.
 - a. "Push to Call" button or adjacent light jewel shall illuminate and flash when call is acknowledged. Button shall match car operating panel pushbutton

- design. Provide uppercase "PUSH TO CALL," "HELP ON THE WAY" engraved signage adjacent to button.
- b. Provide "Push to Call" button tactile symbol, engraved signage, and Braille adjacent to button mounted integral with car front return panel.
 2. Install remote speaker(s) provided under Item 1.01, E., 1, in car canopy or behind front return panel with drilled speaker pattern, with shielded wiring to machine room junction box.
 3. Provide two-way communication between car and machine room if required.

T. Car Top Railing: Provide per Code.

2.09 CAR ENCLOSURE

- A. Retain existing with the following modifications:
 1. Front Return Panels and Integral Entrance Columns: Reinforced 14 gauge stainless steel satin finish with cutouts for integrally mounted car operating components and other equipment Provide new panels on Car Nos. 1 – 4). Front Return Panel on No. 5 elevator can be retained with cutout for new station and hinged faceplate.
 2. Handrails: Minimum 1-1/4" diameter stainless steel tubular grab bar across rear and side walls on Car Nos. 1 – 4. Retain existing on Car No. 5.

2.10 HALL CONTROL STATIONS

- A. Pushbuttons: Replace existing hall pushbutton stations with flush mounted faceplates. Existing fixture boxes may be reused. Size fixture faceplate to cover wall openings. Include pushbuttons for each direction of travel which illuminate to indicate call registration. Include approved engraved message and pictorial representation prohibiting use of elevator during fire or other emergency situation as part of faceplate. Pushbutton design shall match car operating panel pushbuttons. Use riser between Car Nos. 1, 2 and 3 for group operation. Use risers between Car Nos. 3 and 4 for selective collection operation of Elevator No. 4. Include illuminating signal or engraved message indicating "Freight Use Only" on faceplate.

2.11 SIGNALS

- A. Hall Lantern: Provide at each level in present locations to indicate travel direction of arriving car. Existing hall lantern boxes may be reused with faceplates sized to cover existing openings. Illuminate up or down LED lights and sound tone once for up and twice for down direction prior to car arrival at floor. Sound level shall be adjustable from 20 – 80 dBA measured at 5'-0" in front of hall control station and 3'-0" of floor. Illuminate light until the car doors start to close. Provide advanced predictive hall lantern notification to comply with ADA hall call notification time. Car direction lenses shall be arrow shaped with faceplates. Lenses shall be minimum 2-1/2" in their smallest dimension.
- B. Car Position Indicator: Alpha-numeric digital indicator containing floor designations and direction arrows a minimum of 1/2" high to indicate floor served and direction of car travel. Provide matching stainless steel wrap on car transom to cover existing position indicator cutout. Locate fixture in car operating panel. When a car leaves or passes a floor, illuminate indication representing position of car in hoistway. Illuminate proper direction arrow to indicate direction of travel.

- C. Hall Position Indicator: Alpha-numeric digital indicator containing floor designations and direction arrows a minimum of 1" high to indicate floor served and direction of car travel. Mount integral with hall lantern at 1st floor. Size cover plate to reuse existing fixture box.
- D. Faceplate Material and Finish: stainless steel with satin finish.
- E. Floor Passing Tone: Provide an audible tone of no less than 20 decibels and frequency of no higher than 1500 Hz, to sound as the car passes or stops at a floor served, with switch to disconnect in car station.
- F. Voice Synthesizer: Provide electronic device with easily reprogrammable message and approved female voice to announce car direction, floor, emergency exiting instructions, etc.

2.12 GROUP CONTROL AND DISPLAY PANEL

- A. Firefighters' Key Box: Existing may be reused if suitable.
- B. Security/Fire Control Room Display Unit: Remove existing. Provide color SVGA monitor displaying or providing the following functions;
 - 1. Car operating in normal/standby power.
 - 2. Car position and direction of travel.
 - 3. Car calls.
 - 4. Hall calls.
 - 5. Operating mode.
 - 6. Door status.
 - 7. Delayed car.
 - 8. Load weighing and by-pass.
 - 9. Car to lobby feature.
 - 10. Car in/out of service.
 - 11. Seismic operation.
 - 12. Secured floor control and code entry.
 - 13. Alarm distress signal.
 - 14. Accumulate system fault data including nature of fault, time, and day. Store and retrieval capabilities for minimum 30 day period.
 - 15. Provide means to interface with elevator microprocessor control to monitor or review stored data. Provide directions and software to accomplish information retrieval.

2.13 SEISMIC OPERATIONS AND EQUIPMENT

Provide design, components and operation per governing authority.

PART 3 EXECUTION

3.01 SITE CONDITION INSPECTION

- A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify that no irregularities exist which affect execution of work specified.
- B. Do not proceed with installation until work in place conforms to project requirements.

3.02 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in Elevator Contractor's original, unopened protective packaging.
- B. Store material in original protective packaging. Prevent soiling, physical damage, or moisture damage.
- C. Protect equipment and exposed finishes from damage and stains during transportation, erection, and construction.

3.03 INSTALLATION

- A. Install all equipment in accordance with Elevator Contractor's instructions, referenced Codes, specification and approved submittals.
- B. Install machine room equipment with clearances in accordance with referenced Codes and specification.
- C. Install all equipment so it may be easily removed for maintenance and repair.
- D. Install all equipment for ease of maintenance.
- E. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
- F. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
 - 1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
 - 2. Machine room equipment, hoistway equipment including guide rails, guide rail brackets, and pit equipment.
 - 3. Neatly touch up damaged factory-painted surfaces with original paint color. Protect machine-finish surfaces against corrosion.

3.04 FIELD QUALITY CONTROL

- A. Work at jobsite will be checked during course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.
- B. Have Code Authority acceptance inspection performed and complete corrective work.

3.05 ADJUSTMENTS

- A. Install rails plumb and align vertically with tolerance of 1/16" in 100'-0". Secure joints without gaps and file any irregularities to a smooth surface.
- B. Static balance car to equalize pressure of guide shoes on guide rails.
- C. Lubricate all equipment in accordance with Elevator Contractor's instructions.

- D. Adjust motors, power conversion units, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

3.06 CLEANUP

- A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials on a daily basis.
- B. Remove all loose materials and filings resulting from work.
- C. Clean machine room equipment and floor.
- D. Clean hoistways, car, car enclosure, entrances, operating and signal fixtures.

3.07 ACCEPTANCE REVIEW AND TESTS

See Section 01700, Article 1.02, Consultant's Final Observation and Review Requirements.

3.08 OWNER'S INFORMATION

See Section 01700, Article 1.03, Final Contract Compliance Review.

END OF SECTION

SECTION 14235

ELEVATOR MAINTENANCE
REQUIREMENTS

PART 1 GENERAL

1.01 BONDS AND INSURANCE REQUIREMENTS

- A. Provide with your Proposal, a copy of your certificate of insurance. The following are the minimum liability limits:

General Liability	\$1,000,000
Occurrence Liability	\$1,000,000
Personal Injury	\$1,000,000
Workers Compensation	\$100,000

- B. A letter from your bonding company confirming that your company will be able to supply a Performance Bond at 100% of the current contract year amount. This will need to be renewed yearly.

PART 2 – PRODUCTS

2.01 DESCRIPTION OF WORK

- A. Company shall supply trained, qualified, and technically skilled journeymen directly employed and supervised by Company. All supervision, installed repair parts, consumable materials, equipment, tools, and each and every item of expense necessary for elevator maintenance, including all preventative maintenance, repairs, or parts and trouble call service.
- B. For specific information on elevator(s) covered under this specification, Refer to SECTION 14236.

PART 3 EXECUTION

3.01 WORK INCLUDED

Regularly and systematically examine, adjust, lubricate, clean and, when conditions warrant, repair or replace the following items and all other mechanical or electrical equipment:

- A. Hydraulic Elevators
- Hydraulic power unit and accessories: pump, motor, valves, operating valves, pulleys, drive belts, flexible hose and fitting assemblies, oil tank, muffler, strainer, sound isolating coupling, plunger, packing gland, scavenger system, piping and other components.
 - Controller, selector, and dispatching equipment: All components including all relays, solid state components, resistors, condensers, transformers, contacts, leads, computer

devices, selector switches, mechanical or electrical driving equipment, coils, magnet frames, contact switch assemblies, springs, solenoids, resistance grids, hoistway vanes, magnets and inductors.

3. Hoistway door interlocks or locks and contacts, hoistway door hangers, tracks, bottom door gibs, cams and rollers.
4. Hoistway limit switches, slowdown switches, leveling switches and associated cams, vanes and electronic components.
5. Guide shoes including rollers.
6. Automatic power operated door operators, door protective devices, car door hangers, tracks and car door contacts.
7. Automatic power operated door operators, door protective devices, car door hangers, tracks and car door contacts.
8. Elevator control wiring in hoistway and machine room.
9. Buffers.
10. Fixture contacts, pushbuttons, key switches, locks, lamps and sockets or button stations (car and hall), hall lanterns, position indicators, direction indicators.
11. The guide rails shall be kept free of rust and dry.
12. Examine all safety devices, and conduct an annual no load test, and every fifth year perform a full load, full speed test of the buffers. The car balance shall be checked. All tests shall be performed in accordance with the provisions of the American National Standard, Safety Code for Elevators and Escalators (ANSI/ASME A17.2), current edition.
13. Furnish lubricants compounded specifically for elevator usage.
14. All preventative maintenance and adjusting shall meet the minimum standards established by the original equipment manufacturer of the elevator equipment.

B. Traction Elevators

1. Machine: Worm, gear, thrust bearings, lateral bearings, shaft bearings, drive sheave, and other machine components.
2. Brake pulley, brake coil, brake pins, brake contacts, linings and other brake components.
3. Motor and motor generator: Motor windings, rotating elements, commutators, brushes, brush holders, bearings field coils, rotators, stator slip rings.
4. Controller and dispatching equipment: All components including all relays solid state components, resistors, condensers, transformers, contacts, leads, computer devices, mechanical or electrical driving equipment, coils magnet frames, contact switch assemblies, springs, solenoids, resistance grids, hoistway vanes, magnets and inductors.
5. Governor: Including governor sheave, shaft assembly gears, bearing contacts, jaws and pit tension assembly.
6. Sheaves: Including deflector sheaves, shafts, bearings, grease retainers, contacts and hold down devices.
7. Hoistway door interlocks or locks and contacts, hoistway door hangers, tracks, bottom door gibs, cams and rollers.
8. Hoistway limit switches, slowdown switches, leveling switches and associated cams, vanes and electronic components.
9. Guide shoes including rollers.
10. Automatic power operated door operators, door protective devices, car door hangers, tracks and car door contacts.
11. Traveling cables.

12. Elevator control wiring in hoistway and machine room.
 13. Hoist cables, governor cables, compensating chains, including adjustment of tension on all cables.
 14. Car safety mechanism and load weighing equipment.
 15. Buffers.
 16. Fixture contacts, pushbuttons, key switches, locks, lamps and sockets or button stations (car and hall), hall lanterns, position indicators, direction indicators.
 17. The guide rails shall be kept free of rust and dry.
 18. Examine all safety devices and governors, and conduct an annual no load test, and every fifth year perform a full load, full speed test of safety mechanism, overhead speed governors, car and counterweight buffers. The car balance shall be checked and governor set. If required, the governor shall be calibrated and sealed for proper tripping speed. All tests shall be performed in accordance with provisions of the American National Standard, Safety Code for Elevators and Escalators (ANSI/ASME A17.2), current edition.
 19. Furnish lubricants compounded specifically for elevator usage.
- C. The Contractor will be financially responsible for the job they do and DFCM will call for damages for extended shutdowns or repeated shutdowns. If there are more than two shutdowns for the same reason within a one month period, there will also be a \$300 charge.

3.02 WORK NOT INCLUDED

- A. The Elevator Contractor shall not be required to install new attachments on the elevator whether or not recommended or directed by insurance companies or by governmental authorities, nor make any replacements with parts of a different design. The Contractor shall not be required to make renewals or repairs necessitated by reason of negligence or misuse of the equipment or by reason of any other cause beyond the Contractor's control except ordinary wear and tear unless the Contractor receives just compensation.
- B. The Elevator Contractor shall not be responsible for the following items of elevator equipment: car enclosure (including removable panels, door panels, hung ceilings, light diffusers, light tubes and bulbs, handrails, and carpets), hoistway enclosure, hoistway doors, frames and sills.
- C. Elevator Contractor shall not be responsible for building items related to the elevator which are not installed by elevator mechanics such as electrical disconnect switches, etc.

3.03 CONDITIONS OF THE WORK

- A. All work is to be performed during regular working hours of regular working days. Emergency calls shall be answered at all hours of the day or night. Should overtime work be required, DFCM will pay only the actual amount of the premium portion of the wage, the Contractor will pay the basic hourly rate.
- B. The Contractor shall check the operation and control and make necessary tests to insure that all circuits and time settings are properly adjusted, and that the system performs as designed and installed.

- C. The Contractor shall keep the elevator maintained to operate at the original contract speed, keeping the original performance times, including acceleration and retardation as designed and installed by the manufacturer. The door operation shall be adjusted as required to maintain the original door opening and door closing times, within legal limits.
- D. DFCM reserves the right to make a thorough inspection and test as and when deemed advisable. If it is found that the elevator and associated equipment are deficient either electrically or mechanically, the Contractor will be notified of these deficiencies in writing, and it shall be his responsibility to make corrections within 30 days, DFCM may terminate the contract and employ a Contractor to make the corrections at the original Contractor's expense.
- E. Approximately six months prior to the end of the contract term, DFCM will make a thorough maintenance inspection of all elevators covered under the contract. At the conclusion of this inspection, DFCM shall give the Contractor written notice of any deficiencies found. The Contractor shall be responsible for correction of these deficiencies within 30 days after receipt of such notice.

3.04 PARTS INVENTORY REQUIREMENTS

Contractor agrees to the following requirements and authorization of parts used.

- A. One complete set of all diagnostic tools and equipment required for the complete maintenance of all aspects of the control and dispatch system and solid-state motor drive units. The diagnostic system shall be an integral part of the controller or a portable device provided to DFCM at transfer of maintenance to another company, and provide user-friendly interaction between the serviceman and the controls. All such systems shall be free from secret codes and decaying circuits that must be periodically reprogrammed by the manufacturer.
- B. All parts need to be readily available within five (5) working days.
- C. Major Components Parts (Electrical): If Company does not have motors, pumps, valves, etc., or should repairs be repaired by a qualified motor shop, Company must cause the repairs to be completed within two (2) working days, or less.
- D. Major Components Parts: If Company does not have machine components, frames, sheaves, cabs, rails, and similar mechanical components in stock, they must provide DFCM within two working days. If this exceeds two working days, the Company will need to supply DFCM with the source for the repair or replacement, as well as, the approximate schedule to complete the repairs.
- E. Special Electrical Parts: Company acknowledges that elevator control systems contain solid state printed circuit modules. Company agrees to maintain in inventory, a sufficient amount of modules and component parts to replace and or repair any of these units should failure occur. SCR Drive Components are to be inventoried in Companies warehouse.
- F. Job Site Elevator Inventory: Company will maintain a supply of contacts, coils, car and hall pushbuttons, lantern gongs, door detectors, safety edges, lubricants, wiping cloths, and

minor parts in each elevator machine room, properly stored in an approved parts cabinet.

- G. Spare Parts Inventory: Company will maintain a supply of genuine Original Equipment Manufacturer's replacement parts in their warehouse inventory. This inventory will include, but not be limited to, door operator motors, controller boards, switch contacts, tapes, door hangers, rollers, hoistway limit switches. Such replacement parts will be kept in warehouse inventory or available from their manufacturing facilities. Regardless of the location of the stored parts, they shall be available on the jobsite within forty-eight (48) hours from the time of need.
- H. Replacement Parts Policy: Company will not alter equipment parts and original design with other manufacturers' parts or design unless the original manufacturer has discontinued the item and the parts are no longer available from the manufacturer or other DFCM approved suppliers. Parts manufactured by companies other the original manufacturer, but supplied to the manufacturer as part of their overall product may be acceptable if said part is of a similar design and character boards, relays, coils, rollers, buttons, proximity edges, and various other parts are duplicated by other national recognized manufacturers and, upon written authorization from DFCM or DFCM's representative, may be used in lieu of the manufacturers parts. Company agrees to maintain a diagnostic tool to remain on the job site, and one set of spare boards, as required, on the job site or in Companies local branch office for the entire length of the Agreement. Any boards used out of stock will be replaced within twenty-four (24) hours.

3.05 MODIFICATION APPROVALS:

Should Contractor request or wish to make any change, modification, or addition to the existing elevator equipment, the Contractor must submit a written "Request to Modify" proposal to DFCM for approval. A "Request to Modify" must state the reason why the Company wishes to change a component. Complete information of the new proposed component and a guarantee of responsibility by Company for said component change is required. DFCM will get back with the Company within 30 days of receiving this request.

3.06 EMERGENCY RESPONSE

In the case of entrapment by an individual inside an elevator, the Company will respond within an hour of receiving the call.

3.07 CODE TESTING REQUIRED

Company shall perform all State, City, Local and ANSI A17.1 required testing. Only those Codes that are in force as of the Commencement Date of this Agreement are applicable. Company will give DFCM at least a one day notice prior to any testing being performed.

- A. ASME A17.1 (Latest edition enforced in the State of Utah): Company shall test Fireman's Return Phase I and II, a minimum of once a year, and notify DFCM prior to conducting such test. Any and all required corrections shall be the responsibility of Company and shall be corrected at no additional charge to DFCM. The results of these tests shall be submitted in writing to DFCM within 30 days after test is completed. Company shall train, provide forms and advise recording requirements for monthly testing, DFCM designated personnel.

- B. Earthquake Device Testing: Company shall test earthquake derailment and seismic safety devices a minimum of once a year only in areas where applicable. Notification shall be given to DFCM prior to such test. Any and all required corrections shall be the responsibility of Company and shall be corrected at no additional charge to DFCM.

3.08 PERFORMANCE REQUIREMENTS

Contractor agrees to maintain the following minimum requirements of each as described per manufacturer's original installation criteria. (Note: Bidder submit proposed standards if they differ from those specified in the elevator modernization section.)

- A. Floor-to Floor Time: (In Seconds)
Floor to floor time shall be measured from the time the elevator starts to the time the elevator stops during a one floor run in either direction and under any load condition.
- B. Door-Open Time: (In Seconds)
Door-opening times are measured by the distance of the door travel less 1" for center-opening doors and 2" for side-opening doors from each end of the door travel.
- C. Door-Close Time: (In Seconds)
Not to exceed 30 pounds of kinetic force.
Door closing times are measured by the distance of the door travel less 1" for center-opening doors and 2" for side-opening doors from each end of the door travel.
- D. Car/Hall Dwell Time: (In Seconds)
Standing door open times are measured from the time the doors are fully open, without demand, until the doors start to close.
- E. Nudging Close Time: (In Seconds)
Nudging close time is measured the same as the door close time.
- F. Stopping Zone
3/8" for hydraulic elevators and open loop traction elevators.
1/4" for closed loop traction elevators.
The accuracy of leveling shall be plus or minus the 3/8" and 1/4" mentioned above under all load conditions. Leveling shall be consistent with OEM installation and Code Requirements.
- G. Variance from the rated contract speed, regardless of load conditions shall not exceed five percent (5%).
- H. Maintain vertical alignment of guide rails to a tolerance of 1/16 in. at 100'.
To accomplishing this, Company shall maintain a comfortable elevator ride with smooth acceleration, retardation and a soft stop. Door operation shall be quiet and positive, with smooth checking at the extremes of travel. Company shall assign a Supervisor to examine all equipment yearly as a minimum requirement. Results of the inspection shall be submitted to DFCM within thirty (30) days from completion of Supervisor's Inspection.

3.09 MINIMUM MAN HOURS AT PREMISES

- A. Company shall furnish a mechanic to provide preventive maintenance services at the premises for a minimum of two and a half (2 ½) hours per calendar month per traction elevator, one (1) hour per calendar month per hydraulic elevator, 2 hours per quarter for residence elevators. **Callbacks and nonscheduled repair labor are not considered service time.** Failure to provide the preventative maintenance services set forth, shall be cause for retention of monthly fees by DFCM equal to the reduction of Company services and shall continue until full, normal service is restored. Company may choose to make up time lost at the conclusion of any period of interruption of service and be reimbursed for same if agreed to in writing by DFCM. Time tickets for routine maintenance shall be presented to the appropriate on site personnel or building representative at the conclusion of each visit and shall only show the time spent for preventative maintenance. Any other work completed, such as repairs or call back service shall be listed and accounted for on a separate time ticket. It is understood that such minimum service hours do not limit labor required to maintain the elevator equipment in top running condition.
- B. All preventative maintenance service, repairs, routine adjusting and service procedures will be performed during regular working hours of regular working days of the elevator trade referring to the hours of 8:00 a.m. to 4:30 p.m., Monday through Friday. If DFCM demands that needed two-man repair work be completed during overtime hours, Company will bill the difference between their straight time billing rate and the appropriate overtime billing rate. Notification to DFCM must be made prior to removal of the elevators from normal service for maintenance, testing and adjustment.

END OF SECTION

**ELEVATOR REVIEW
HEBER M. WELLS
SALT LAKE CITY, UTAH**

JUNE 9, 2005

Prepared For:

**MR. BOB ANDERSON
STATE OF UTAH DFCM HAZ-MAT
MANAGER
STATE OF UTAH OFFICE BUILDING NO. 4110
SALT LAKE CITY, UT 84114**

Prepared By:

**V. QUENTIN BATES, JR.
PRINCIPAL**

LBA Project No. 0020396-01

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EXECUTIVE SUMMARY

A. STUDY PURPOSE AND REVIEW AREAS

An overview of present equipment and its maintenance represents the first step in evaluating needs for upgrading and modernization. This report reviews effectiveness of present maintenance, reviews compliance with applicable safety code and accessibility standards, and considers needs for current and future equipment upgrading/modernization.

This review covers:

1. Evaluation of present maintenance and repair, with a list of corrective items for the maintenance provider's attention.
2. Measurement of individual elevator performance and evaluation of general operation.
3. Overview of compliance with ADA guidelines and Safety Code for Existing Elevators.
4. Needs for equipment upgrading and modernization.
5. Review of present Maintenance Contract and suggestions for modifications.

B. PRESENT MAINTENANCE

Present maintenance is being performed by KONE Elevator Company. Maintenance commenced May 1, 2003 for a period of 5 years. We toured the job with the mechanic, discussing ways to improve the work.

Appendix One includes a list of corrective work which has been sent to KONE for their action. We evaluated maintenance as average to low average using the standards outlined in that Appendix. Major improvement is needed cleaning, lubricating and adjusting door operators and related components on all elevators. Adjustment of individual car performance functions such as doors opening and closing, car speed, and floor to floor performance need to be improved as indicated in Appendix Two.

C. CALLBACKS

We understand that callbacks are frequent and an area of concern. The standard target for unscheduled callback service for equipment of the type in Heber Wells is ½ callback per month per unit. This is an important element of maintenance which should be closely monitored and discussed with the maintaining company representative.

D. INDIVIDUAL ELEVATOR PERFORMANCE

Measured performance, general operation and test information for each elevator along with a description of measured and observed items are included in Appendix Two. The following performance targets are recommended for the type and age of present equipment.

<u>FUNCTION</u>	1 - 4	5
SPEED (FPM)	332 – 368	190 – 210
PERFORMANCE (SECONDS)	9 – 10	12.5 – 13.5
STOPPING ZONE (SECONDS)	±3/8"	±3/8"
DOOR OPEN (SECONDS)	1.5 – 2.0	2.5 – 3.5
DOOR CLOSE (SECONDS)	2.4 min.	4.0 MIN.
HOLD OPEN (SECONDS)	--	--
CAR CALL	3 – 5	3 – 5
HALL CALL	4 – 6	4 – 6
INTERRUPTED RAY	3.0 MIN.	3.0 MIN.
NUDGING	20 – 25	20 – 25
STALL PRESSURE (#FT.)	30 MAX	30 MAX

Performance levels recommended are well within the capability of present equipment, and represent a desire to obtain a balance between reliability and performance.

E. EVALUATION OF EXISTING EQUIPMENT

1. OVERVIEW

Present elevator controls are direct current, variable voltage type using motor generators as a power source. The operational control is an early Otis solid state system, VIP260. Both control and operation systems are obsolete compared with present micro-processor, closed loop, solid state equipment.

The present door operator, the Otis 7770 model, is a medium duty, slow speed application, outmoded by current heavy duty, closed loop operators which utilize microprocessor control to regulate movement of doors.

Satisfactory operation of these major systems requires intensive maintenance and experience which few mechanics possess because of the equipment's age and the limited number of elevators of this type in Salt Lake City.

The elevators have served well for over 20 years. Many components have many years of life remaining if properly maintained. However, in our judgment, replacement of control, operation and door operating systems, as well as upgrades to meet current safety codes and disabled access requirements is appropriate. We recommend this type modernization be initiated with a three year timeframe.

2. AMERICANS WITH DISABILITIES ACT (A.D.A.)

Elevators have a number of items which need to be addressed immediately or in a modernization program. Appendix Five discusses these needs.

3. A17.3 – SAFETY REQUIREMENTS FOR ELECTRIC ELEVATORS

This national model code sets requirements for existing elevator safety. One requirement is a means to prevent elevator car doors from being opened when the car is away from a floor. This feature should be added on all elevators. Another major requirement for these elevators is compliance with firefighters' service operation per 1987 edition of the ASME A17.1 Elevator Code. Appendix Four includes survey information.

F. UPGRADES

Equipment modifications and upgrades are an on-going process between major modernization cycles of 20 to 25 years. ADA and A17.3 requirements already noted are part of such upgrading. We prefer and recommend an overall modernization rather than upgrading individual components.

G. MODERNIZATION PLANNING

Modernization is recommended within a three year planning window. The following schedule and budget cost give an approximation of requirements:

1. Schedule

The following steps are involved in planning and executing the plan outlined in Appendix Six:

- | | |
|--|----------|
| • Finalize Modernization Plan | 2 Weeks |
| • Prepare Bid Documents | 4 Weeks |
| • Receive Bids | 4 Weeks |
| • Award Contract | 4 Weeks |
| • Engineering, Submittal Review, Equipment Fabrication | 16 Weeks |
| • Modernization (One Car at a Time) | 32 Weeks |

- Final Completion and Acceptance 3 Weeks
- TOTAL TIME FOR COMPLETION 67 WEEKS

If the project were authorized today, the completion date would approximate August of 2006.

H. COST ESTIMATE

Assuming bids for modernization were taken this year with completion in 2006, we estimated possible costs as follows:

Elevator Equipment	\$645,000
Building Work Allowance	50,000
Contingency @ 5%	35,000
Engineering / Consulting	<u>40,000</u>
TOTAL ESTIMATED COST	<u>\$770,000</u>

I. MAINTENANCE CONTRACT ISSUES

The present maintenance agreement is a well written State form. Appendix Seven includes a copy of the agreement and suggestions for minor modifications.

J. REPORT REVIEW AND FOLLOW-UP ACTION

A copy of appropriate report sections have been sent to KONE Elevator. A follow-up review to verify completion of corrective work will be scheduled when they indicate listed items are completed.

APPENDIX ONE

PRESENT MAINTENANCE

A. GENERAL

We evaluate maintenance in four general areas: 1) housekeeping/examination, 2) lubrication, 3) renewal or repair of worn equipment or defective components and 4) adjustment. These areas overlap somewhat, but are sufficiently independent to allow evaluation of each area. Designation of "Above Average" applies to outstanding work which exceeds any normal expectation based on contract requirements. This designation applies to no more than 15% of the maintenance projects we review. The majority of maintenance falls in a range designated as "Low to High Average" in which "High Average" represents superior effort, "Average", the standard for most maintenance and "Low Average", simply meeting minimum contract requirements. The final category, "Below Average", applies to work which does not meet even minimal expectations for work under the particular type of contract. No more than 10% of work we review falls into this category.

B. MAINTENANCE EVALUATION

1. Housekeeping and Examination which represents almost 40% of maintenance effort, ranges from Average to Low Average. Carbon dust is accumulating on brush holders and field coils on motors; controllers, hoist machines and machine rooms need to be cleaned, as do car tops and hoistway sills beyond the door opening.
2. Proper lubrication minimizes wear, assures proper operation and lengthens trouble free life of components. About 10% of maintenance time relates to lubrication after cleaning. Hoistway door equipment needs attention including proper lubrication. Overall, we consider lubrication Average.
3. Replacement and Repair of worn or defective components requires about 15% of maintenance time on equipment of this type and age. Detecting and replacing worn components often prevents malfunctions and unscheduled shutdowns. No. 2 elevator has a noisy hoist motor bearing. Elevator Nos. 2, 3 and 4 machines are leaking oil that should be cleaned up and source of leaking sealed. A number of car functions such as nudging feature, nudging buzzer operation and sound level, defective door operation oil check on Car No. 5 and other similar deficiencies were noted. We rated replacement and repair as Low Average.
4. Adjusting components requires about 15% of maintenance, possibly somewhat more for the type and age of these elevators. Proper, timely adjustment keeps the equipment operating smoothly and quietly and assures good performance and maximum life. We noted some 20 functions on individual elevators that require

adjusting attention. For example, all four passenger elevators are more than 10% under contract speed in at least one direction. We consider present adjustment Below Average.

The remaining 15 – 20% of the mechanic's maintenance time is spent correcting emergency calls, doing administrative tasks such as time sheets, and hopefully, coordinating with KONE's maintenance supervisor and the State's facility manager seeking ways to improve the quality of maintenance.

C. CONCLUSION

The level of maintenance on these elevators needs to be improved. Items noted in the Correction List hereafter should receive immediate attention using additional elevator company personnel to assist the normal maintenance mechanic in completing the work outlined.

Listed items should be reviewed by KONE's Service Manager and the mechanic for the property. Together, they should prepare a plan and schedule for accomplishing corrective work. We request that projected completion dates, or final completion date for all work be indicated on the included list and returned to Bob Anderson and Quent Bates so that progress can be monitored and evaluated. If any listed items are questioned, or if unclear, please call Quent Bates to review.

LERCH, BATES & ASSOCIATES INC.
 Consulting Groups

ITEM NO.	ITEMS FOR CORRECTION	DATE AND INITIAL		
		KONE EST. COMP.	KONE COMP.	LBA VERIFIED
<u>A. MACHINE ROOMS</u>				
1	Clean carbon dust from field coil and brush holders on hoist machines and motor generator sets.			
2.	Replace noisy bearing on No. 2 hoist motor.			
3.	Repair gear case leaks on Nos. 2, 3 and 4 machines			
4.	Clean controllers, machines and floor.			
5.	Provide proper storage container for rags. Clean/soiled.			
6.	Eliminate jerky slow down on Elevator No. 4 (Gear lash or thrust bearings?).			
7.	Adjust overall ride, slowdown, acceleration and stop on Elevator No. 4 for better operation (smoother, less bounce).			
<u>B. HOISTWAYS</u>				
1.	Clean car top and door operator equipment.			
2.	Clean and lubricate hoistway door equipment.			
3.	Vacuum hoistway door sills.			
<u>C. CARS</u>				
1.	Make nudging feature operational on Car No. 3.			
2.	Make nudging buzzer operational on Car No. 4.			
3.	Increase volume of nudging buzzers on Car Nos. 1 and 2.			
4.	Repair oil check to eliminate door slamming open upon door reversal on Car No. 5. Adjust doors for smooth, quiet operation.			

LERCH, BATES & ASSOCIATES INC.
 Consulting Groups

ITEM NO.	ITEMS FOR CORRECTION	DATE AND INITIAL		
		KONE EST. COMP.	KONE COMP.	LBA VERIFIED
5.	Eliminate hard start door open on Car No. 2.			
6.	Eliminate hard final door close on Car No. 3.			
7.	Make auxiliary alarm bell button operational.			
8.	Make floor passing tone operational on Car No. 2.			
9.	Eliminate noise from terminal limit switches at bottom landings on Car No. 4.			
10.	Make all position indicators and call register lights operational (all cars).			
11.	Verify proper operation of hall lanterns at all floors on Car No. 3.			
12.	Make alarm button in left hand panel of Elevator No. 4 sound when activated.			

D. PERFORMANCE ADJUSTMENTS

ELEVATOR NO. 1

1.	Adjust car speed in both directions to approximate target range (332 – 368 FPM).			
2.	Adjust floor to floor performance in both directions to approximate target range (9 – 10 seconds).			
3.	Adjust door open time to approximate target range (1.5 – 2.0 seconds).			
4.	Adjust door hold open time responding to car call between 3 and 5 seconds.			
5.	Adjust door hold open time responding to hall call between 4 and 6 seconds.			
6.	Adjust door hold open time when reversal system is broken and re-established to minimum of 3 seconds.			

LERCH, BATES & ASSOCIATES INC.
 Consulting Groups

ITEM NO.	ITEMS FOR CORRECTION	DATE AND INITIAL		
		KONE EST. COMP.	KONE COMP.	LBA VERIFIED
7.	Adjust nudging hold open time to minimum of 20 seconds.			
<u>ELEVATOR NO. 2</u>				
8.	Verify that elevator speed is within target range (332 – 368 FPM).			
9.	Adjust floor to floor performance time in down direction to approximate target range (9 – 10 seconds).			
10.	Adjust door hold open time when reversal system is broken and re-established to minimum of 3 seconds.			
<u>ELEVATOR NO. 3</u>				
11.	Adjust floor to floor performance in both directions to approximate target range (9 – 10 seconds).			
12.	Adjust door hold open time responding to car call between 3 and 5 seconds.			
13.	Adjust door hold open time when reversal system is broken and re-established to minimum of 3 seconds.			
<u>ELEVATOR NO. 4</u>				
1.	Adjust car speed in down direction to approximate target range (332 – 368 FPM).			
2.	Adjust floor to floor performance to approximate in down direction to approximate target range (9 – 10 seconds).			
3.	Adjust door hold open time when reversal system is broken and re-established to minimum of 3 seconds.			
4.	Adjust closing time when nudging to minimum of 4 seconds.			

LERCH, BATES & ASSOCIATES INC.
 Consulting Groups

ITEM NO.	ITEMS FOR CORRECTION	DATE AND INITIAL		
		KONE EST. COMP.	KONE COMP.	LBA VERIFIED
<u>ELEVATOR NO. 5</u>				
1.	Adjust door close time to minimum of 4.4 seconds.			

APPENDIX TWO

INDIVIDUAL ELEVATOR PERFORMANCE

A. BACKGROUND

Elevator performance is a combination of the efficiency of each elevator traveling from floor to floor loading and discharging passengers, the quality of elevator ride and feature operation, and the effectiveness of the operational control regulating the dispatch and spacing of elevators to meet traffic demand. Factors associated with individual elevator performance which were measured or observed are summarized on Performance Check Sheets for each elevator which are included in this Appendix. Some explanation may be helpful interpreting the measured and observed data:

1. Speed

Elevator speed measured by tachometer while the elevator made a full run through the hoistway with no load in the car.

2. Performance

Time measured from the instant the doors began to close until the elevator is stopped at the next successive floor, up or down, with the doors 3/4 open.

3. Stopping Zone

Distance between car and hoistway sill when car stops at a floor.

4. Door Open

Time measured from the instant the car doors began to open until the car doors were fully open.

5. Door Close

Time measured from the instant the car doors began to close until the car doors were fully closed.

6. Door Hold Open – Car Call

Time measured from the instant the car doors are fully open until the car doors begin to close when the car stops in response to a car call.

7. Interrupted Ray

Time measured from the instant the car doors were fully open until the car doors began to close when the car door reversal system was interrupted then re-established as the doors were opening.

8. Door Hold Open – Hall Call

Time measured from the instant the car doors were fully open until the car doors began to close when the car stopped in response to hall call.

9. Nudging Time

Time measured from the instant the car doors reach the fully open position until the car doors began to close, even though the light rays were obstructed. An audible warning should sound before the doors begin to close and continue until doors are closed.

10. Stall Pressure

Force measured with a spring scale as the doors attempt to close. The measured value is the force required to prevent the doors from closing under power from rest with the door between 1/3 to 2/3 closed.

11. Ride quality and door operation observed making floor to floor and multiple floor runs while riding the car.
12. Various car features observed while riding the car.
13. General (maintenance) information is recorded for reference.

B. ELEVATOR PERFORMANCE CHECK SHEETS

On the performance check sheets which follow, target values for elevator performance are noted in the third column of the top section. Values for speed, performance, stopping zone and door operating times should be included in the maintenance agreement. These and other noted values are targets we judge appropriate for the equipment type, age and environment. They are values which can be adjusted and maintained without excessive effort.

The right hand columns in each section of the form indicated by “yes” or “no” whether items meet requirements. Numbered notes are explained at the bottom of the page.

Adjustments need improvement.

PROJECT: HEBER M. WELLS	REVIEW DATE: 4/8/05	REVIEWED BY: ERIC L. PANKEY
LOCATION:	FLOORS SERVED FRONT: 8	REAR:
CITY AND STATE: SALT LAKE CITY, UTAH	FLOOR DESIGNATIONS: P1, P2, 1 – 6	
ELEVATOR #: 1 LBA PROJECT#:	DOOR TYPE: CO X 2SP 1SP X OTHER	
TYPE: PASSENGER X SERVICE FREIGHT	DOOR SIZE: WIDTH: 42" HEIGHT: 84"	
GEARED X GEARLESS HYDRAULIC	MANUFACTURER: OTIS	
CAPACITY: 3500# SPEED: 350 F.P.M.	MAINTENANCE CONTRACTOR: KONE	

MEASURED PERFORMANCE	CAR EMPTY	TARGET CRITERIA	MEETS CRITERIA YES/NO	NOTES	INFORMATION
SPEED UP - FPM	323	332 – 368	NO		± 5 % (3, 5, or 10%)
SPEED DOWN- FPM	309	332 – 368	NO		± 5 % (3, 5, or 10%)
PERFORMANCE UP - SEC.	13.8	9 – 10	NO		TYPICAL FLOOR HEIGHT: 14'-0"
PERFORMANCE DOWN - SEC.	12.6	9 – 10	NO		MEASURED BETWEEN FLOORS: 2 AND 3
STOPPING ZONE	±3/8"	±3/8"	YES		± 1/4" X ± 3/8" ± 1/2"
DOOR OPEN-SEC.	2.6	1.5 – 2.0	NO		PRE OPENING: YES X NO
DOOR CLOSE-SEC.	3.1	2.4 MIN.	OK		DOOR OPERATOR SPEED
HOLD OPEN-CAR CALL - SEC.	2.4	3 - 5	NO		LOW MED X HIGH
INTERRUPTED RAY - SEC.	0.5	3.0 MIN.	NO		*>3 INITIAL 0.5 - 1.5 SECONDS THEREAFTER
HOLD OPEN-HALL CALL – SEC.	2.5	4 – 6	NO		
HOLD OPEN-NUDGING – SEC.	14.6	20 – 25	NO	1	
NUDGING CLOSE – SEC.	5.7	4.0	YES		1.68 X LBA MINIMUM TIME
STALL PRESS - LBS.	19	30 MAX.	YES		
NOTIFICATION TIME - SEC.	7.3	7.0	YES		PER ADA RULE (SEE ADA SURVEY)

ELEVATOR OPERATION/OBSERVATIONS						
RIDE QUALITY	MEETS CRITERIA YES/NO	NOTES	DOOR OPERATION CAR CONTROLS	MEETS CRITERIA YES/NO	NOTES	MAINTENANCE INFORMATION
UP ACCELERATION	YES		DOOR OPENING	YES		PHASE 1 & 2 TEST LOG: YES NO X
UP RIDE	YES		DOOR CLOSING	YES		5 YEAR TEST DATE: 10/04
UP DECELERATION	YES		DOOR REVERSAL	YES		ANNUAL TEST DATE: 0
UP STOP	YES		STOP SWITCH (KEYED)	NO	NOT KEYED	INSTALLATION DATE: 1982
DOWN ACCELERATION	YES		DOOR OPEN BUTTON	YES		JOB ID NO.:
DOWN RIDE	YES		DOOR CLOSE BUTTON	YES		MAINTENANCE CONTRACT RENEWAL DATE:
DOWN DECELERATION	YES		ALARM BUTTON	NO	2	
DOWN STOP	YES		TELEPHONE	YES		

NOTES	
1.	NUDGING BUZZER WEAK.
2.	DOES NOT ILLUMINATE.

PROJECT: HEBER M. WELLS	REVIEW DATE: 4/8/05	REVIEWED BY: ERIC L. PANKEY
LOCATION:	FLOORS SERVED FRONT: 8	REAR:
CITY AND STATE: SALT LAKE CITY, UTAH	FLOOR DESIGNATIONS: P1, P2, 1 – 6	
ELEVATOR #: 2 LBA PROJECT#:	DOOR TYPE: CO X 2SP 1SP X OTHER	
TYPE: PASSENGER X SERVICE FREIGHT	DOOR SIZE: WIDTH: 42" HEIGHT: 84"	
GEARED X GEARLESS HYDRAULIC	MANUFACTURER: OTIS	
CAPACITY: 3500# SPEED: 350 F.P.M.	MAINTENANCE CONTRACTOR: KONE	

MEASURED PERFORMANCE	CAR EMPTY	TARGET CRITERIA	MEETS CRITERIA YES/NO	NOTES	INFORMATION
SPEED UP - FPM	0	NOT CHECKED	0	1	± 5 % (3, 5, or 10%)
SPEED DOWN - FPM	0		0	1	± 5 % (3, 5, or 10%)
PERFORMANCE UP - SEC.	9.8	9 – 10	OK		TYPICAL FLOOR HEIGHT: 14'-0"
PERFORMANCE DOWN - SEC.	10.7	9 – 10	NO		MEASURED BETWEEN FLOORS: 2 AND 3
STOPPING ZONE	±3/8"	±3/8"	YES		± 1/4" X ± 3/8" ± 1/2"
DOOR OPEN-SEC.	1.6	1.6	YES		PRE OPENING: YES X NO
DOOR CLOSE-SEC.	3.1	2.4 MIN.	OK		DOOR OPERATOR SPEED
HOLD OPEN-CAR CALL - SEC.	3.9	3 - 5	YES		LOW MED X HIGH
INTERRUPTED RAY - SEC.	2.0	3.0 MIN.	NO		*>3 INITIAL 0.5 - 1.5 SECONDS THEREAFTER
HOLD OPEN-HALL CALL - SEC.	5.2	4 – 6	YES		
HOLD OPEN-NUDGING – SEC.	24.8	20 – 25	YES	2	
NUDGING CLOSE – SEC.	4.6	4.0	YES		1.68 X LBA MINIMUM TIME
STALL PRESS - LBS.	26	30 MAX.	YES		
NOTIFICATION TIME - SEC.	7.2	7.0	YES		PER ADA RULE (SEE ADA SURVEY)

ELEVATOR OPERATION/OBSERVATIONS						
RIDE QUALITY	MEETS CRITERIA YES/NO	NOTES	DOOR OPERATION CAR CONTROLS	MEETS CRITERIA YES/NO	NOTES	MAINTENANCE INFORMATION
UP ACCELERATION	YES		DOOR OPENING	NO	4	PHASE 1 & 2 TEST LOG: YES NO X
UP RIDE	YES		DOOR CLOSING	YES		5 YEAR TEST DATE: 10/04
UP DECELERATION	YES		DOOR REVERSAL	YES		ANNUAL TEST DATE: 0
UP STOP	NO	HARD	STOP SWITCH (KEYED)	NO	NOT KEYED	INSTALLATION DATE: 1982
DOWN ACCELERATION	YES		DOOR OPEN BUTTON	YES		JOB ID NO.:
DOWN RIDE	YES		DOOR CLOSE BUTTON	NO	NOT WORKING	MAINTENANCE CONTRACT RENEWAL DATE:
DOWN DECELERATION	YES		ALARM BUTTON	NO	5	
DOWN STOP	NO	BOUNCY	TELEPHONE	YES		

NOTES	
1. COULD NOT MEASURE BECAUSE OF SECURITY TIME OUT.	4. SOFT LOCK PICK NOT WORKING – UNACCEPTABLE OPERATION (?)
2. NUDGING BUZZER WEAK.	5. DOES NOT ILLUMINATE.
3. FLOOR PASSING SIGNAL NOT WORKING.	

PROJECT: HEBER M. WELLS	REVIEW DATE: 4/8/05	REVIEWED BY: ERIC L. PANKEY
LOCATION:	FLOORS SERVED FRONT: 8	REAR:
CITY AND STATE: SALT LAKE CITY, UTAH	FLOOR DESIGNATIONS: P1, P2, 1 – 6	
ELEVATOR #: 3 LBA PROJECT#:	DOOR TYPE: CO X 2SP 1SP X OTHER	
TYPE: PASSENGER X SERVICE FREIGHT	DOOR SIZE: WIDTH: 42" HEIGHT: 84"	
GEARED X GEARLESS HYDRAULIC	MANUFACTURER: OTIS	
CAPACITY: 3500# SPEED: 350 F.P.M.	MAINTENANCE CONTRACTOR: KONE	

MEASURED PERFORMANCE	CAR EMPTY	TARGET CRITERIA	MEETS CRITERIA YES/NO	NOTES	INFORMATION
SPEED UP - FPM	341	332 – 368	YES		± 5 % (3, 5, or 10%)
SPEED DOWN- FPM	303	332 – 368	NO		± 5 % (3, 5, or 10%)
PERFORMANCE UP - SEC.	10.8	9 – 10	NO		TYPICAL FLOOR HEIGHT: 14'-0"
PERFORMANCE DOWN - SEC.	10.5	9 – 10	NO		MEASURED BETWEEN FLOORS: 2 AND 3
STOPPING ZONE	±3/8"	±3/8"	YES		± 1/4" X ± 3/8" ± 1/2"
DOOR OPEN-SEC.	2.0	1.5 – 2.0	OK		PRE OPENING: YES X NO
DOOR CLOSE-SEC.	2.9	2.4 MIN.	OK		DOOR OPERATOR SPEED
HOLD OPEN-CAR CALL - SEC.	2.4	3 - 5	NO		LOW MED X HIGH
INTERRUPTED RAY - SEC.	1.4	3.0 MIN.	NO		*>3 INITIAL 0.5 - 1.5 SECONDS THEREAFTER
HOLD OPEN-HALL CALL – SEC.	4.3	4 – 6	YES		
HOLD OPEN-NUDGING – SEC.	--	20 – 25	--	2	
NUDGING CLOSE – SEC.	--	4.0	--	2	1.68 X LBA MINIMUM TIME
STALL PRESS - LBS.	1.9	30 MAX.	YES		
NOTIFICATION TIME - SEC.	7.3	7.0	YES		PER ADA RULE (SEE ADA SURVEY)

ELEVATOR OPERATION/OBSERVATIONS						
RIDE QUALITY	MEETS CRITERIA YES/NO	NOTES	DOOR OPERATION CAR CONTROLS	MEETS CRITERIA YES/NO	NOTES	MAINTENANCE INFORMATION
UP ACCELERATION	YES		DOOR OPENING	YES		PHASE 1 & 2 TEST LOG: YES NO X
UP RIDE	YES		DOOR CLOSING	NO	1	5 YEAR TEST DATE: 10/04
UP DECELERATION	YES		DOOR REVERSAL	YES		ANNUAL TEST DATE: 0
UP STOP	YES		STOP SWITCH (KEYED)	NO	NOT KEYED	INSTALLATION DATE: 1982
DOWN ACCELERATION	YES		DOOR OPEN BUTTON	YES		JOB ID NO.:
DOWN RIDE	YES		DOOR CLOSE BUTTON	YES		MAINTENANCE CONTRACT RENEWAL DATE:
DOWN DECELERATION	YES		ALARM BUTTON	NO	4	
DOWN STOP	YES		TELEPHONE	YES		

NOTES	
1.	HARD FINAL CLOSE.
2.	NUDGING OPERATION NOT WORKING.
3.	HALL LANTERN NOT WORKING ON SEVERAL FLOORS.
4.	DOES NOT ILLUMINATE.

PROJECT: HEBER M. WELLS	REVIEW DATE: 4/8/05	REVIEWED BY: ERIC L. PANKEY
LOCATION:	FLOORS SERVED FRONT: 8	REAR:
CITY AND STATE: SALT LAKE CITY, UTAH	FLOOR DESIGNATIONS: P1, P2, 1 – 6	
ELEVATOR #: 4 LBA PROJECT#:	DOOR TYPE: CO X 2SP 1SP X OTHER	
TYPE: PASSENGER X SERVICE FREIGHT	DOOR SIZE: WIDTH: 42" HEIGHT: 84"	
GEARED X GEARLESS HYDRAULIC	MANUFACTURER: OTIS	
CAPACITY: 3500# SPEED: 350 F.P.M.	MAINTENANCE CONTRACTOR: KONE	

MEASURED PERFORMANCE	CAR EMPTY	TARGET CRITERIA	MEETS CRITERIA YES/NO	NOTES	INFORMATION
SPEED UP - FPM	340	332 – 368	YES		± 5 % (3, 5, or 10%)
SPEED DOWN- FPM	305	332 – 368	NO		± 5 % (3, 5, or 10%)
PERFORMANCE UP - SEC.	9.8	9 – 10	OK		TYPICAL FLOOR HEIGHT: 14'-0"
PERFORMANCE DOWN - SEC.	10.6	9 - 10	NO		MEASURED BETWEEN FLOORS: 2 AND 3
STOPPING ZONE	±3/8"	±3/8"	YES		± 1/4" X ± 3/8" ± 1/2"
DOOR OPEN-SEC.	1.9	1.5 – 2.0	OK		PRE OPENING: YES X NO
DOOR CLOSE-SEC.	3.1	2.4 MIN.	OK		DOOR OPERATOR SPEED
HOLD OPEN-CAR CALL - SEC.	4.3	3 - 5	YES		LOW MED X HIGH
INTERRUPTED RAY - SEC.	1.4	3.0 MIN.	NO		*>3 INITIAL 0.5 - 1.5 SECONDS THEREAFTER
HOLD OPEN-HALL CALL – SEC.	4.8	4 – 6	YES		
HOLD OPEN-NUDGING – SEC.	19.6	20 – 25	NO	4	
NUDGING CLOSE – SEC.	3.7	4.0	NO		1.68 X LBA MINIMUM TIME
STALL PRESS - LBS.	117	30 MAX.	YES		
NOTIFICATION TIME - SEC.	7.6	7.0	YES		PER ADA RULE (SEE ADA SURVEY)

ELEVATOR OPERATION/OBSERVATIONS						
RIDE QUALITY	MEETS CRITERIA YES/NO	NOTES	DOOR OPERATION CAR CONTROLS	MEETS CRITERIA YES/NO	NOTES	MAINTENANCE INFORMATION
UP ACCELERATION	YES		DOOR OPENING	YES		PHASE 1 & 2 TEST LOG: YES NO X
UP RIDE	NO	BOUNCY	DOOR CLOSING	YES		5 YEAR TEST DATE: 10/04
UP DECELERATION	YES		DOOR REVERSAL	YES		ANNUAL TEST DATE: 0
UP STOP	NO	HARD	STOP SWITCH (KEYED)	NO	NOT KEYED	INSTALLATION DATE: 1982
DOWN ACCELERATION			DOOR OPEN BUTTON	YES		JOB ID NO.:
DOWN RIDE	NO	BOUNCY	DOOR CLOSE BUTTON	YES		MAINTENANCE CONTRACT RENEWAL DATE:
DOWN DECELERATION	NO	1	ALARM BUTTON	NO	2	
DOWN STOP	YES		TELEPHONE	YES		

NOTES	
1.	MACHINE GEAR LASH OR THRUST CAUSING JERKY SLOW DOWN.
2.	LEFT PANEL NOT WORKING – NO ILLUMINATION.
3.	TERMINAL LIMIT SWITCHES NOISY AT LOWER LANDING.
4.	NUDGING BUZZER NOT WORKING.

PROJECT: HEBER M. WELLS	REVIEW DATE: 4/8/05	REVIEWED BY: ERIC L. PANKEY
LOCATION:	FLOORS SERVED FRONT: 8	REAR:
CITY AND STATE: SALT LAKE CITY, UTAH	FLOOR DESIGNATIONS: P1, P2, 1 – 6	
ELEVATOR #: 5 LBA PROJECT#:	DOOR TYPE: CO 2SP X 1SP OTHER	
TYPE: PASSENGER SERVICE X FREIGHT	DOOR SIZE: WIDTH: 48" HEIGHT: 84"	
GEARED X GEARLESS HYDRAULIC	MANUFACTURER: OTIS	
CAPACITY: 4500# SPEED: 200 F.P.M.	MAINTENANCE CONTRACTOR: KONE	

MEASURED PERFORMANCE	CAR EMPTY	TARGET CRITERIA	MEETS CRITERIA YES/NO	NOTES	INFORMATION
SPEED UP - FPM	213	190 – 210	YES		± 5 % (3, 5, or 10%)
SPEED DOWN - FPM	198	190 – 210	YES		± 5 % (3, 5, or 10%)
PERFORMANCE UP - SEC.	12.9	12.5 – 13.5	YES		TYPICAL FLOOR HEIGHT: 14'-0"
PERFORMANCE DOWN - SEC.	12.4	12.5 – 13.5	YES		MEASURED BETWEEN FLOORS: 2 AND 3
STOPPING ZONE	±1/4"	±3/8"	YES		± 1/4" X ± 3/8" ± 1/2"
DOOR OPEN-SEC.	3.8	2.5 – 3.5	OK		PRE OPENING: YES X NO
DOOR CLOSE-SEC.	3.5	MIN. 4.0	NO	TOO FAST	DOOR OPERATOR SPEED
HOLD OPEN-CAR CALL - SEC.	8.4	3 - 5	OK	2	LOW MED X HIGH
INTERRUPTED RAY - SEC.	8.4	3.0 MIN.	OK	2	*>3 INITIAL 0.5 - 1.5 SECONDS THEREAFTER
HOLD OPEN-HALL CALL – SEC.	8.4	4 – 6	OK	2	
HOLD OPEN-NUDGING – SEC.	N/A	20 – 25	N/A		
NUDGING CLOSE – SEC.	N/A	4.0	N/A		1.68 X LBA MINIMUM TIME
STALL PRESS - LBS.	15	30 MAX.	YES		
NOTIFICATION TIME - SEC.	N/A	7.0	N/A		PER ADA RULE (SEE ADA SURVEY)

ELEVATOR OPERATION/OBSERVATIONS							
RIDE QUALITY	MEETS CRITERIA YES/NO	NOTES	DOOR OPERATION CAR CONTROLS	MEETS CRITERIA YES/NO	NOTES	MAINTENANCE INFORMATION	
UP ACCELERATION	YES		DOOR OPENING	NO	1	PHASE 1 & 2 TEST LOG:	YES NO X
UP RIDE	YES		DOOR CLOSING	NO	1	5 YEAR TEST DATE:	10/04
UP DECELERATION	YES		DOOR REVERSAL	NO	1	ANNUAL TEST DATE:	0
UP STOP	YES		STOP SWITCH (KEYED)	NO	NOT KEYED	INSTALLATION DATE:	1982
DOWN ACCELERATION	YES		DOOR OPEN BUTTON	YES		JOB ID NO.:	
DOWN RIDE	YES		DOOR CLOSE BUTTON	YES		MAINTENANCE CONTRACT RENEWAL DATE:	
DOWN DECELERATION	YES		ALARM BUTTON	NO	3		
DOWN STOP	YES		TELEPHONE	YES			

NOTES	
1.	DOOR OPERATION UNACCEPTABLE ON RE-OPEN.
2.	SUITABLE FOR OPERATION AND USAGE.
3.	DOES NOT ILLUMINATE.

APPENDIX THREE

EXISTING EQUIPMENT INVENTORY

Major equipment components and finishes are listed hereafter for future reference.

ELEVATOR NOS. 1 - 4

A. Description

- | | |
|-------------------------------|-----------------|
| 1. Manufacturer: | Otis |
| 2. Capacity and Speed (Duty): | 3500# @ 350 FPM |
| 3. Door Size: | 3'-6" x 7'-0" |
| 4. Operation: | Group VIP 260 |
| 5. Floors Served: | P1, P2, 1 - 6 |

B. Major Components

- | | |
|--------------------------|--|
| 1. Hoist Machine | Otis CT22 with direct current motor |
| 2. Power Conversion: | Otis motor generator set |
| 3. Operational Control: | Relay with solid state logic |
| 4. Door Operator: | Otis 7770 |
| 5. Door Reversal System: | Lambda full height infra red screen type detector |
| 6. Governor and Safety: | Otis centrifugal governor with flexible guide clamp safety |
| 7. Buffers: | Otis oil type |
| 8. Landing System: | Selector tape – car top mounted |

C. Car Enclosure

- | | |
|---------------|--------------------------------|
| 1. Shell: | Steel |
| 2. Lighting: | Down light |
| 3. Ceiling: | Dropped |
| 4. Car Doors: | Painted |
| 5. Walls: | Raised plastic laminate panels |

- | | |
|-------------------|-------------------------------------|
| 6. Front Columns: | Swing returns with integral buttons |
| 7. Sill: | Aluminum |
| 8. Handrails: | Bar type, 3 sides |
| 9. Base: | Painted steel cab shell |
| 10. Flooring: | Carpet |

D. Car Fixtures

- | | |
|------------------------------------|-----------------------------|
| 1. Car Operating Station: | Dual |
| 2. Car Position Indicator: | Multi-light type in transom |
| 3. Car Direction Indicator: | None |
| 4. Telephone Cabinet: | In front return |
| 5. Phase II Firefighters' Service: | None |
| 6. Other: | Security system |

E. Hoistway Entrances

- | | |
|------------------|-------------------------------|
| 1. Frames: | Stainless Steel, No. 4 Finish |
| 2. Door Panels: | Painted steel |
| 3. Access Means: | Mechanical drop key |
| 4. Sills: | Aluminum |

F. Hall Fixtures

- | | |
|------------------------------|---|
| 1. Hall Pushbuttons | Dual at Lobby, Single at typical floors
(Stainless Steel Faceplates) |
| 2. Hall Lanterns: | All floors (Stainless Steel Faceplates) |
| 3. Hall Position Indicators: | None |
| 4. Phase I Fire Service: | At Lobby (Stainless Steel Faceplate), Separate
from hall button |
| 5. Other: | Emergency power selection switch at Lobby |

Notes:

1. No direction arrows on car position indicators.

ELEVATOR NO. 5

A. Description

- | | |
|-------------------------------|----------------------|
| 1. Manufacturer: | Otis |
| 2. Capacity and Speed (Duty): | 4500# @ 200 FPM |
| 3. Door Size: | 4'-0" x 7'-0" |
| 4. Operation: | Selective collective |
| 5. Floors Served: | P1, P2, 1 - 6 |

B. Major Components

- | | |
|--------------------------|--|
| 1. Hoist Machine | Otis CT22 with direct current motor |
| 2. Power Conversion: | Otis motor generator set |
| 3. Operational Control: | Relay with solid state logic |
| 4. Door Operator: | Otis 7770 |
| 5. Door Reversal System: | Lambda full height screen type detector |
| 6. Governor and Safety: | Otis centrifugal governor with flexible guide clamp safety |
| 7. Buffers: | Otis spring type |
| 8. Landing System: | Selector tape – car top mounted |

C. Car Enclosure

- | | |
|-------------------|-------------------------------------|
| 1. Shell: | Steel |
| 2. Lighting: | Down light |
| 3. Ceiling: | Painted steel |
| 4. Car Doors: | Painted steel |
| 5. Walls: | Raised plastic laminate panels |
| 6. Front Columns: | Swing returns with integral buttons |
| 7. Sill: | Aluminum |
| 8. Handrails: | Bumper rails |
| 9. Base: | Painted steel cab shell |
| 10. Flooring: | Aluminum diamond plate |

D. Car Fixtures

- | | |
|-----------------------------|-----------------------------|
| 1. Car Operating Station: | Single |
| 2. Car Position Indicator: | Multi-light type in transom |
| 3. Car Direction Indicator: | None |
| 4. Telephone Cabinet: | In front return |
| 5. Phase II Firefighters': | None |
| 6. Other: | Security system |

E. Hoistway Entrances

- | | |
|------------------|---------------------|
| 1. Frames: | Painted steel |
| 2. Door Panels: | Painted steel |
| 3. Access Means: | Mechanical drop key |
| 4. Sills: | Aluminum |

F. Hall Fixtures

- | | |
|------------------------------|--|
| 1. Hall Pushbuttons | Single riser (Stainless Steel Faceplates) |
| 2. Hall Lanterns: | All floors (Stainless Steel Faceplates) |
| 3. Hall Position Indicators: | None |
| 4. Phase I Fire Service: | At Lobby (Stainless Steel Faceplates), Separate from hall button |
| 5. Other: | Emergency power selection switch at Lobby |

Notes:

1. No direction arrows on car position indicators.

APPENDIX FOUR

SAFETY FOR EXISTING ELEVATORS

A. BACKGROUND

The State of Utah had adopted the American National Standard Code for Elevator Safety, A17.3-2000. The survey sheets included in this Appendix indicate the state of compliance for existing elevators in the Heber Wells Building. The following requirements and approximate budget cost should be budgeted as upgrades or included in major modernization.

B. COMPLIANCE ISSUES

<u>RULE</u>	<u>REQUIREMENT</u>	<u>BUDGET COST⁽¹⁾</u>
2.7.4	Restrict opening car door if car not at floor.	\$ 5,000
3.4.6	Cab lights guarded or coated to protect passengers if broken.	\$ 500
3.10.4 R)	Stop switch key operated.	\$ 1,200
3.11.3	Firefighters' Service per A17.1-1987.	\$25,000
3.11.3 5)	Instructions for fire service operation required at return landing and in car.	(In above)

(1) Four passenger and one service elevator.

ASME A17.3 - 2002
 SAFETY FOR EXISTING ELEVATORS
 ELECTRIC ELEVATORS

BUILDING: HEBER M. WELLS – STATE OFFICE BUILDING	ELEVATOR NOS.: 1 – 5
LOCATION: SALT LAKE CITY, UTAH	DATE: 4/8/05

THE NATIONAL SAFETY CODE FOR ELEVATORS AND ESCALATORS RECOMMENDS THE FOLLOWING CRITERIA BE MET ON A RETROACTIVE BASIS, FOR ALL EXISTING ELEVATORS. ITEMS MARKED ANO@ SHOULD BE CONSIDERED FOR UPGRADE.

ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
2.1 HOISTWAYS		
2.1.1	HOISTWAY ENCLOSED AND FIRE RATING PER LOCAL CODE OR ANSI/NFPA NO. 101	YES
2.1.2	NO WINDOWS IN HOISTWAY (OR PROTECTED ON OUTSIDE)	YES
2.1.3	HOISTWAY SUBSTANTIALLY FLUSH ON LOADING SIDES(2) SILL TOE GUARDS, FASCIA	YES
2.1.4	PIPES IN HOISTWAY SECURELY FASTENED. NO HAZARDOUS PIPING IN HOISTWAY. (IF CANNOT BE REMOVED MAY BE COVERED.)	YES
2.1.5	COUNTERWEIGHTS GUARDED BY UNPERFORATED METAL FROM 1 FOOT TO 7 FEET ABOVE FLOOR WITH SPECIFIC EXCEPTIONS	CHAIN COMPENSATION

ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
2.2 MACHINE ROOMS AND MACHINERY SPACES		
2.2.1	PROTECTED MACHINE ROOM ENCLOSURE ACCESSIBLE ONLY TO AUTHORIZED PERSONS. OTHER BUILDING ESSENTIAL EQUIPMENT PERMITTED, BUT MAY NOT BE ADDED	YES
2.2.2	PERMANENT ACCESS TO MACHINE ROOM REQUIRED. DOORS CLOSED AND LOCKED. DOORS CAN BE OPENED INSIDE WITHOUT A KEY	YES
2.2.3	PERMANENT LIGHTING	YES
2.2.4	NATURAL OR MECHANICAL VENTILATION TO AVOID OVERHEATING	YES
2.2.5	GUARD ANY PIPES IN MACHINE ROOM SO DISCHARGE WOULD NOT AFFECT ELEVATOR	N/A
2.2.6	PROTECT MACHINE ROOM EQUIPMENT FROM WEATHER	YES
2.3 PITS		
2.3.1	ACCESS MEANS FOR ALL PITS DOOR WITH LOCK & CLOSER. KEYS TO LOCK ON PREMISES	YES
2.3.2	NO PIT DRAINS CONNECTED TO SEWERS. SUMPS WITH OR WITHOUT PUMPS PERMITTED	YES
2.3.3	PIT STOP SWITCH - PROPER LOCATION, COLOR & MARKINGS ADJACENT TO ACCESS (3.10.4.E.).	YES

ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
2.4 CLEARANCES AND RUNBYS		
2.4.1	MAX FRONT CLEARANCE 5" EXCEPT VERTICAL SLIDING OK UP TO 72" (EXCEPTION FOR HEAVY, ETC.)	YES
2.4.2	CAR ON FULLY COMPRESSED BUFFER MAY NOT STRIKE ANYTHING	YES
2.4.3	RUNBY MAXIMUM CAR = 24" CWT = 36"	N/C
2.4.4	CAR AT MAXIMUM UPWARD TRAVEL MAY NOT STRIKE ANYTHING	YES
2.4.5	SILL CLEARANCE NOT LESS THAN 2" SIDE GUIDES 3/4" WITH CORNER GUIDES. MAXIMUM = 1 1/2"	YES
2.5 PROTECTION OF SPACES BELOW HOISTWAYS		
2.5	SAFETY DEVICES, BUFFERS ETC. IF SPACE BELOW HOISTWAY NOT PERMANENTLY SECURED	N/A
2.6 HOISTWAY ENTRANCES		
2.6.1	PASSENGER ENTRANCE FULLY GUARDED. SWING DOORS - NO HAND LATCHES, ETC. MIN. 6' GATE (66" @ TOP) ON FREIGHTS	YES
2.6.2	DOOR CLOSERS ON AUTOMATIC OPERATION ELEVATORS	YES
2.6.3	VISION PANEL REQUIRED ON MANUALLY OPERATED OR SELF CLOSING DOORS IF NO POSITION INDICATOR AT FLOOR	N/A
2.6.4	UPTHRUST AND STOPS ON HORIZONTAL SLIDE DOORS	YES

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ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
2.6.5	NON-SHEARING ASTRAGALS ON VERTICAL BI-PARTING DOORS	N/A
2.6.6	PULL STRAPS INSIDE AND OUTSIDE OF UPPER SECTION ON MANUAL OPERATED VERTICAL BI-PARTING DOORS	N/A
2.7 HOISTWAY DOOR LOCKING DEVICES, ETC.		
2.7.1	HOISTWAY DOORS. INTERLOCKS ON PASSENGER ELEVATORS (PLUS OTHER FOR FREIGHT)	YES
2.7.2	PARKING DEVICE REQUIRED AT EVERY LANDING EQUIPPED WITH UNLOCKING DEVICE ON ELEVATOR OPERABLE FROM CAR ONLY, ETC.	N/A
2.7.3	UNLOCKING DEVICES PERMITTED AT ALL LANDINGS. SWITCHES OR UNLOCKING DEVICES REQUIRED.	YES
2.7.4	RESTRICT CAR DOOR OPENING TO 4" WHEN CAR OUTSIDE UNLOCKING ZONE	NO
2.7.5	HOISTWAY EMERGENCY DOOR CONTACTS OPENED BY DEVICE PERMANENTLY ATTACHED TO & OPERATED BY EMERGENCY DOOR & CAN BE MAINTAINED IN THE OPEN POSITION	N/A
2.8.1	POWER DOOR KINETIC ENERGY NO MORE THAN 7 LB-FT CLOSING FORCE NOT MORE THAN 30 POUNDS	YES
2.8.2	POWER DOOR REOPENING DEVICE	YES
3.1 BUFFERS AND BUMPERS		
3.1	BUFFERS OR BUMPERS (50 FPM MAXIMUM) REQUIRED	YES

ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
3.2 COUNTERWEIGHTS		
3.2	COUNTERWEIGHT RODS COTTER-PINNED. WEIGHTS PROTECTED SO THEY CANNOT BE DISLODGED OR DAMAGED WHEN TESTED	YES
3.3 CAR FRAMES AND PLATFORMS		
3.3.1	NON PERFORATED PLATFORM FLOOR IN FRAME SUPPORTED BY CAR FRAME	YES
3.3.2	PLATFORM SHEAR GUARD FULL WIDTH OF OPENING	YES
3.3.3	HINGED PLATFORM SILLS CONTACTED	N/A
3.3.4	FLOATING PLATFORMS PROHIBITED	N/A
3.3.5	UNDERSIDE OF WOOD PLATFORMS & OTHER EXPOSED WOOD SHALL BE EITHER COVERED BY SHEET METAL OR FIRE RETARDANT PAINT	YES
3.4 CAR ENCLOSURES		
3.4.1	CARS FULLY ENCLOSED ON TOP AND NON ENTRY SIDES. PASSENGER – SOLID; FREIGHT MAY BE PERFORATED	YES
3.4.2	CAR DOOR OR GATE WITH ELECTRIC CONTACT	YES
3.4.3	DOOR FACE TO DOOR FACE DISTANCE LIMITED (IF MORE MUST HAVE SPACE GUARD OR SIGHT GUARD)	YES
3.4.4	SIDE EXITS OPEN INTO CAR; LOCKED CAR TOP EXIT WITH HINGED OVER OPENABLE FROM CAR TOP ONLY AND OPEN OUTWARD	N/A

ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
3.4.5	TWO LAMPS IN CAR MINIMUM. PASSENGER: 5 FTC; FREIGHT: 22 FTC AUTOMATIC ELEVATORS: LIGHT SWITCH SECURED	YES
3.4.5(d)	EMERGENCY LIGHT REQUIRED ON PASSENGER ELEVATOR	YES
3.4.6	LIGHT BULBS SHALL BE EXTERNALLY GUARDED OR COATED & MOUNTED TO AVOID DAMAGE OR DISLODGE MENT	NO
3.5 SAFETIES		
3.5.1	CAR SAFETY DEVICE IF SUSPENDED BY WIRE ROPES	N/A
3.5.2	COUNTERWEIGHT SAFETY PER 2.5	N/A
3.5.3	SAFETY NOT STOP ASCENDING CAR OR COUNTERWEIGHT	YES
3.5.4	SAFETY APPLIED MECHANICALLY NO SAFETY DEPENDING ON TRACTION ALLOWED	YES
3.5.5	MAXIMUM GOVERNOR ROPE MOVEMENT TO SET SAFETY. TO 200: 42"; 201-375: 36"; OVER 375: 30" CWT SAFETIES: 42"	N/A
3.5.6	RAIL LUBRICANTS WHICH REDUCE SAFETY HOLDING POWER NOT ALLOWED – SIGNAGE ON CAR CROSSHEAD IF RAILS LUBRICATED	N/A
3.5.7	OVERALL LENGTH OF GUIDE RAILS SHALL EXTEND AT TOP & BOTTOM TO PREVENT DISENGAGEMENT AT EXTREME LIMITS OF TRAVEL	YES

ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
3.6.1	GOVERNOR OVERSPEED SWITCH IF SPEED OVER 150 FPM (ANY SPEED FOR COUNTERWEIGHT SAFETY)	YES
3.6.2	GOVERNOR ROPES OF IRON, STEEL, MONEL, PHOSPHOR, BRONZE, STAINLESS STEEL. NOT LESS THEN 3/8"	YES
3.7 CAPACITY AND LOADING		
3.7.1	RATED LOAD PER TABLE 3.7.1	YES
3.7.2	PARTITIONS TO REDUCE CAPACITY PERMANENTLY FASTENED	N/A
3.7.3	MINIMUM RATED LOAD FOR FREIGHT ELEVATORS PER 3.7.3B	N/A
3.7.4	CAPACITY PLATE INSIDE CAR. 1/4" MINIMUM CHARACTER ON PASSENGER CAR	YES
3.7.5	FREIGHT ONLY SIGN FREIGHT ELEVATOR	N/A
3.8 DRIVING MACHINES AND SHEAVES		
3.8.1	CAST IRON/STEEL GROOVED SHEAVES. NO SET SCREWS FOR TORQUE OR TENSION. FRACTION GEARING OR CLUTCH MECHANISM NOT ALLOWED	YES
3.8.2	CABLE DEVICE ON DRUM MACHINE	N/A
3.8.3	3 BELTS OR CHAINS AS A SET ON INDIRECT DRIVES	N/A
3.8.4	FRICITION BRAKE ON DRIVE MACHINE, SPRING OR GRAVITY APPLIED AND ELECTRICALLY RELEASED. RATED TO 125% RATED LOAD WHEN PASSENGERS CARRIED	YES

ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
3.9 TERMINAL STOPPING DEVICES		
3.9.1	ENCLOSED UPPER AND LOWER NORMAL TERMINAL STOPPING DEVICES REQUIRED	YES
3.9.2	ENCLOSED UPPER AND LOWER FINAL TERMINAL STOPPING DEVICES	YES
3.10 OPERATING DEVICES AND CONTROL EQUIPMENT		
3.10.1	ROPE OR ROD OPERATION DEVICES NOT PERMITTED	N/A
3.10.2	CAR SWITCHES GO AUTOMATICALLY TO STOP POSITION AND LATCH	N/A
3.10.3	CAR TOP OPERATION REQUIRED ON AUTOMATIC/CONSTANT PRESSURE ELEVATORS	YES

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ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
3.10.6	AC CURRENT ELEVATORS PROTECTED AGAINST REVERSE PHASE	N/A
3.10.7	NO DEVICE TO RENDER DOOR INTERLOCK/CONTACT INEFFECTIVE EXCEPT LEVELING DEVICES AND ACCESS SWITCHES	YES
3.10.8	BRAKE RELEASED ONLY WHEN POWER APPLIED TO DRIVE MACHINE MOTOR	YES
3.10.9	SINGLE FAILURE OF SWITCH, ETC. WILL NOT ALLOW CAR TO RUN DOOR OR GATE OPEN	YES
3.10.10	MEANS TO ABSORB REGENERATED POWER	YES
3.11 EMERGENCY OPERATION AND SIGNALING DEVICES		
3.11.1	SIGNAL DEVICES 1) ALARM ON EMERGENCY AND ALARM SWITCH IN CAR 2) TWO-WAY CONVERSATION ON CAR (PHONE OR INTERCOM, LOBBY TO CAR INITIATION NOT REQUIRED ON CAR) 3) 1 & 2 ON EMERGENCY POWER 4) 1 & 2 MUST SUMMON ASSISTANCE	YES YES YES YES
3.11.2	STANDBY POWER PERMISSIVE	YES
3.11.3	FIREFIGHTERS' SERVICE PER A17.3-1987 RULES 211.3-211.8 1) APPLIES TO ALL AUTOMATIC ELEVATORS HAVING A TRAVEL OF 25 FEET ABOVE OR BELOW DESIGNATED LANDING. 2) PHASE I RECALL – 3 POSITION SWITCH, ON-OFF-BYPASS.	NO NO

ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
	3) SMOKE DETECTORS AT EACH FLOOR AND IN MACHINE ROOM (NOT REQUIRED AT UNENCLOSED LANDINGS) 4) PHASE II OPERATION – 3 POSITION SWITCH, OFF-HOLD-ON IN THAT ORDER. RESTORE ON AT THE PHASE I SWITCH LEVEL 5) INSTRUCTIONS FOR PHASE I AND PHASE II REQUIRED 6) MANUAL SELECTION SWITCH FOR STANDBY POWER OPERATION REQUIRED.	YES NO, 2 POSITION SWITCH NO YES
3.12 SUSPENSION MEANS AND THEIR CONNECTION		
3.12.1	ELEVATOR WIRE ROPE FOR SUSPENSION	YES
3.12.2	ROPE DATA TAG (1/16" MINIMUM HEIGHT) 1) ROPE DIAMETERS IN INCHES 2) MANUFACTURER'S RATED BREAKING STRENGTH 3) GRADE OF MATERIAL USED 4) MONTH AND YEAR OF INSTALLATION 5) NON-PREFORMED OR PREFORMED 6) CONSTRUCTION CLASSIFICATION 7) NAME OF INSTALLER (PERSON OR FIRM) 8) NAME OF ROPE MANUFACTURER 9) NUMBER OF ROPES 10) DATE WHEN ROPE RESOCKETED OR OTHER TYPE FASTENING CHANGED	YES YES YES YES YES YES YES YES YES YES
3.12.3	SUSPENSION WIRE ROPE FACTOR OF SAFETY PER TABLE 3.12.3	YES
3.12.4	MINIMUM OF 3 SUSPENSION ROPES FOR TRACTION (2 FOR DRUM) MINIMUM 3/8" DIAMETER	YES

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ASME RULE NO.	REQUIREMENT	COMPLIES; YES OR NO OR NOT APPLICABLE (N/A)
3.12.5	SUSPENSION ROPE EQUALIZERS PERMISSIVE. MUST BE INDIVIDUAL COMPRESSION SPRING TYPE.	YES
3.12.6	SECURE SUSPENSION ROPES ON DRUM MACHINES WITH CLAMPS, SOCKETS, ETC.	N/A
3.12.7	ONE SPARE ROPE TURN ON DRUM MACHINE	N/A
3.12.8	SPLICED EYE BY RETURN LOOP OK IF EXISTING. REPLACE PER 17.1-212.9	N/A
3.12.9	AUXILIARY ROPE FASTENINGS OK IF APPROVED	N/A

APPENDIX FIVE

AMERICANS WITH DISABILITIES ACT

A. GENERAL

Check sheets covering requirements for disabled use of elevators required by The Americans With Disabilities Act are included in this Appendix. A listing of possible items not in compliance are discussed hereafter along with budget pricing for recommended action.

B. COMPLIANCE ISSUES

RULE	REQUIREMENT	BUDGET COST
4.10.1	Elevators should conform to requirements of ASME A17.1-1990.	N/A

Since these elevators were installed in 1982, not all requirements of the 1990 Code edition were included. We recommend compliance with ASME A17.3-2000 covered in Appendix Four.

4.10.3 4.10.12	Hall and car pushbuttons must be raised or flush.	Defer
-------------------	---	-------

Updating of ADA requirements being prepared by the Justice Department may relax this requirement. We suggest no immediate action be taken until rule is re-defined. Likely, any required action would be taken when elevators are modernized.

4.10.4	Hall lantern audible signal differentiating the direction of stopping cars is required.	N/A
--------	---	-----

We have assumed that this feature is available with existing control, but not working. Correction is included in the list of maintenance items.

4.10.6	When door reversal system is obstructed, doors must be held open at least 20 seconds before allowing closing at reduced speed.	N/A
--------	--	-----

Timing is presently less than 20 seconds and needs to be adjusted. Requirement is included in list of maintenance items.

4.10.11 The difference in elevation between sill height and car flooring cannot exceed 1/4". Present difference approximates 3/8" on Car Nos. 1 – 4. \$ 500

Adjust carpet height at sill.

4.10.12 The car evacuation floor button identification plate must include a raised star designation. \$ 500

Replace identification plate.

4.10.12 Identification plates required on car station controls as well as floor buttons. \$1,000

Add identification plates.

4.10.12 Alarm button in car operating station must illuminate when activated. \$1,000

Replace button with illuminating type.

4.10.13 Floor passing/stopping audible signal, or voice announcing of floor at which car is stopping and travel direction is required. \$2,500

Add floor passing tone now. (Add voice announcing when elevators are modernized.)

4.10.14 Telephone compartment door must be easy to open. Present door requires excessive force to grasp handle to open. Defer

Surface mount telephone controls, identification and instructions for use in new car station when elevators are modernized.

LERCH, BATES & ASSOCIATES INC.
 Consulting Groups

BUILDING: HEBER M. WELLS STATE OFFICE BUILDING		
LOCATION: SALT LAKE CITY, UTAH		
ELEVATOR NOS: 1 - 5	LBA NO:	ON-SITE REVIEW DATE: 4/8/05

<p><u>A. GENERAL APPLICATION</u></p> <p>ALL BUILDINGS, PASSENGER AND SERVICE ELEVATORS. FREIGHT ELEVATORS EXEMPT. (EXCEPTION: THOSE UNDER 3 STORIES HIGH AND LESS THAN 3000 FT.² PER STORY UNLESS SUCH BUILDINGS ARE SHOPPING CENTER, MALL OR PROFESSIONAL OFFICES OF A HEALTH-CARE PROVIDER.)</p>
<p><u>B. EFFECTIVE DATE</u></p> <p>SIGNED INTO LAW JULY 26, 1990.</p>
<p><u>C. COMPLIANCE DATE</u></p> <p>VARIABLE. EFFECTIVE JULY 26, 1992 FOR EXISTING BUILDING. APPLIES TO NEW CONSTRUCTION OCCUPIED FOR THE FIRST TIME AFTER JANUARY 26, 1993. NOTE: MANY OF THE RULES CAN BE INTERPRETED IN VARIOUS WAYS. THE FOLLOWING REPRESENTS OUR INTERPRETATION OF THE REGULATION AS OF THE DATE OF THE ON-SITE REVIEW.</p>
<p><u>D. TAX ASSISTANCE</u></p> <p>SECTION 190 OF THE IRS CODE ALLOWS UP TO \$35,000 TAX DEDUCTION PER YEAR TO BUSINESSES THAT MAKE ACCESSIBILITY ALTERATIONS TO EXISTING FACILITIES.</p>

RULE	REQUIREMENT	FINDINGS
4.10.1 GENERAL	ACCESSIBLE ELEVATOR ON ACCESSIBLE ROUTE.	YES
	CONFORM TO A17.1 - 1990	NO
4.10.2 AUTOMATIC OPERATION	AUTOMATIC OPERATION.	YES
	SELF LEVELING - STOPPING ACCURACY OF $\sqrt{1/2}$ " WITH OR WITHOUT RATED LOAD.	FULL LOAD NOT TESTED
4.10.3 HALL CALL BUTTONS	CENTERED 42" ABOVE FLOOR.	MEASURED 42"
	ILLUMINATING.	YES
	MINIMUM 3/4" IN SMALLEST DIMENSION.	MEASURED 7/8"
	UP BUTTON ABOVE DOWN BUTTON.	YES
	RAISED OR FLUSH BUTTON.	YES
	NOTHING PROJECTING OVER 4" ABOVE OR BELOW FIXTURE BETWEEN 27" AND 80" ABOVE FLOOR.	OK

RULE	REQUIREMENT	FINDINGS
4.10.4 HALL LANTERNS (NOTE: IN-CAR LANTERN SIMILARLY VISIBLE IS ACCEPTABLE.)	HALL LANTERNS. OR IN-CAR LANTERNS. VISUAL AND AUDIBLE - SOUND ONCE FOR UP, TWICE FOR DOWN. CENTERED AT LEAST 72" ABOVE FLOOR. AT LEAST 2-1/2" IN SMALLEST DIMENSION. VISIBLE FROM VICINITY OF HALL PUSHBUTTON	YES NO, NOT WORKING YES, MEASURED 74" YES, MEASURED 2 ½ " DIA. YES
4.10.5 RAISED AND BRAILLE CHARACTERS ON HOISTWAY ENTRANCES 4.30.4 APPLIES	ALL HOISTWAY ENTRANCES ON BOTH JAMBS. CENTERED 60" ABOVE FLOOR. MAXIMUM 2" HIGH CHARACTERS. RAISED CHARACTERS. CONTRASTING BACKGROUND PERMANENTLY APPLIED OK.	YES MEASURED 60" MEASURED 2" YES YES YES
4.10.6 DOOR PROTECTIVE AND REOPENING DEVICE (NOTE: EXISTING ELEVATORS WITH ELECTRO-MECHANICAL SAFETY EDGES WHICH REQUIRE CONTACT TO INITIATE DOOR REOPEN ARE ACCEPTABLE.)	DOORS OPEN AND CLOSE AUTOMATICALLY. DEVICE TO STOP AND REOPEN DOORS WHEN OBSTRUCTED. LIGHT RAYS 5" AND 29" ABOVE FLOOR. CONTACT NOT REQUIRED TO INITIATE DOOR REOPEN. DOORS REOPEN FULLY WHEN OBSTRUCTED. DEVICE, WHEN CONTINUOUSLY OBSTRUCTED, SHALL NOT ALLOW DOOR CLOSE FOR AT LEAST 20 SECONDS. *	YES YES FULL HEIGHT INFRARED RED SCREEN TYPE DETECTOR YES YES NO*

*CLOSING INITIATED IN LESS THAN 20 SECONDS ON SOME CARS.

RULE	REQUIREMENT	FINDINGS
4.10.7 DOOR AND SIGNAL TIMING FOR HALL CALLS	NOTIFICATION TIME (T) = INITIAL HALL LANTERN ILLUMINATION/SOUND UNTIL DOORS START TO CLOSE. * MEASURED AT = MINIMUM ACCEPTABLE NOTIFICATION TIME = 5 SECONDS. * (NO. 5) OR D = DISTANCE FROM POINT 60" DIRECTLY IN FRONT OF FURTHEST CALL BUTTON CONTROLLING THAT CAR TO CENTER OF ITS HOISTWAY DOOR. (NOS. 1 - 4) NOTIFICATION TIME: * $T = D / (1.5 \text{ F/S})$ OR $T = D / (445 \text{ MM/S})$	NO. 1: 7.3 YES NO. 2: 7.2 YES NO. 3: 7.3 YES NO. 4: 7.6 YES NO. 5: 7.0 YES 7.0 SECONDS (1 - 4) 5.0 SECONDS (5) <u>ELEVATOR NOS. 1 - 4</u> $D = 10.5 \text{ FEET} \pm$ $10.5 / 1.5 = 7 \text{ SECONDS}$
4.10.8 DOOR DELAY FOR CAR CALLS	MINIMUM DOOR HOLD OPEN = 3.0 SECONDS IN RESPONSE TO CAR CALL. *	YES
* ELEVATOR PERFORMANCE TIMES CAN VARY SIGNIFICANTLY OVER TIME. YOUR ELEVATOR MAINTENANCE CONTRACTOR MUST BE VERY CONSCIENTIOUS WITH MAINTENANCE AND ADJUSTMENT PROCEDURES TO MAINTAIN CONSISTENT RELIABILITY AND OPERATION.		
4.10.9 FLOOR PLAN OF ELEVATOR CARS	FIGURE 22: MINIMUM CLEAR INSIDE DIMENSIONS: CENTER-OPENING DOORS: 80" X 51" DOOR OPENING WIDTH = 36" MINIMUM CAR SILL TO HOISTWAY SILL CLEARANCE = 1-1/4" MAXIMUM	<u>ELEVATOR NOS. 1 - 4</u> YES, MEASURED 80" X 72" ELEVATOR NO. 5 ALSO SUITABLE YES, MEASURED 42" ON 1 - 4, 48" ON NO. 5 YES, MEASURED 1 1/4"
4.10.10 FLOOR SURFACES	COMPLY WITH 4.5: FIRM, STABLE AND SLIP RESISTANT. MAXIMUM 1/4" VERTICAL CHANGE IN LEVEL CAR SILL TO CAR FLOOR.	YES, CARPET (1 - 4) DIAMOND PLATE ALUMINUM (5) NO, MEASURED 3/8"
4.10.11 ILLUMINATION LEVELS	AT CAR CONTROLS, PLATFORM, CAR AND LANDING SILL = 5 FOOTCANDLES	YES

RULE	REQUIREMENT	FINDINGS
<p>4.10.12 CAR CONTROLS</p>	<p>BUTTONS - RAISED OR FLUSH. MINIMUM DIMENSION = 3/4".</p> <p>RAISED, TACTILE, BRAILLE/ARABIC CHARACTERS TO LEFT OF BUTTONS (SEE 4.30). APPLIED OK.</p> <p>RAISED STAR, FLOOR DESIGNATION AND BRAILLE TO LEFT OF MAIN ENTRY FLOOR BUTTON.</p> <p>FLOOR BUTTONS ILLUMINATE.</p> <p>FLOOR BUTTONS EXTINGUISH WHEN CALL ANSWERED.</p> <p>FLOOR BUTTONS = 54" MAXIMUM OFF FINISH FLOOR FOR SIDE APPROACH. OR FLOOR BUTTONS = 48" MAXIMUM OFF FINISH FLOOR FOR FRONT APPROACH.</p> <p>EMERGENCY CONTROLS GROUP AT BOTTOM NO LESS THAN 35" ABOVE FINISH FLOOR.</p> <p>ALARM BELL BUTTON ILLUMINATES WHEN ACTUATED (A17.1).</p> <p>LOCATE CONTROLS ON FRONT WALL IF DOORS ARE CENTER OPENING.</p>	<p>NO; RECESSED</p> <p>YES, ON FLOOR BUTTONS ONLY (AT LEAST ONE MISSING)</p> <p>YES</p> <p>NO</p> <p>YES</p> <p>YES</p> <p>YES, MEASURED</p> <p>YES, MEASURED 35"</p> <p>NO</p> <p>YES</p>
<p>4.10.13 CAR POSITION INDICATORS (ALL ELEVATORS)</p> <p>(NOTE: FLOOR PASSING TONE NOT REQUIRED IF AUTOMATIC VERBAL FLOOR ANNOUNCEMENT IS PROVIDED.)</p> <p>(NOTE: BUTTON TO ACTUATE TONE MAY BE PROVIDED.)</p>	<p>ABOVE CAR CONTROL PANEL OR DOOR.</p> <p>NUMERALS AT LEAST 1/2" HIGH.</p> <p>FLOOR PASSING TONE AT LEAST 20 DECIBELS WITH MAXIMUM FREQUENCY OF 1500 HZ. OR AUTOMATIC VERBAL FLOOR ANNOUNCEMENT.</p>	<p>YES</p> <p>YES, MEASURED 3/4"</p> <p>NO</p> <p>NO</p>

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RULE	REQUIREMENT	FINDINGS
<p>4.10.14 EMERGENCY COMMUNICATIONS</p> <p>(NOTE: DEVICE NOT REQUIRING HANDSET IS EASIER TO OPERATE. IDEALLY, 2-WAY SYSTEM SHOULD PROVIDE AUDIO AND VISUAL.)</p>	2-WAY PER A17.1-1990.	YES
	MINIMUM HANDSET CORD LENGTH FOR TELEPHONE = 29" MINIMUM.	N/A
	COMPARTMENT TOP MAXIMUM 48" OFF FINISH FLOOR.	YES, MEASURED 25"
	COMPARTMENT BOTTOM MINIMUM 15" OFF FINISH FLOOR.	YES, MEASURED 15"
	COMPARTMENT COVER EASILY OPENED; NOT REQUIRING TIGHT GRASPING, PINCHING OR TWISTING.	NO
	IDENTIFIED BY RAISED SYMBOL AND LETTERING.	YES
	VISUAL ACKNOWLEDGMENT OF EMERGENCY COMMUNICATION.	YES

APPENDIX SIX

MODERNIZATION EQUIPMENT DISPOSITION

Based on present equipment age, type and condition, we recommend modernization be considered within three years. Present equipment is aging and worn. It has been superseded by improving technology, and rendered obsolete in some areas by more comprehensive codes and laws as well as enforcement of those upgraded requirements.

The pages which follow outline equipment disposition in a modernization plan which we consider optimum for these elevators:

1. Alternating current drive and control.
2. Microprocessor/solid state operation.
3. Closed loop speed regulation for elevator and door operation.
4. Upgraded hoistway door operating system.
5. Compliance with current codes and laws.

MODERNIZATION EQUIPMENT DISPOSITION

 BUILDING HEBER M. WELLS

 ELEVATOR NOS. 1 - 5

LOCATION _____

 DATE APRIL 8, 2005

MACHINE ROOM	Retain Existing	Recond. Existing	Provide New	Notes
Hoist Machine		X		
Hoist Ropes			X	
Support Beams & Tie Downs	X			
Sleeves & Guards	X			
M.G. Set REMOVE				
Solid State Drive			X	VVVF
Controller			X	
Encoder			X	
Group Controller			X	
Governor	X			
Governor Rope			X	
Wiring			X	
Rope Gripper			X	
Lighting	X			
Access	X			
Ventilation	X			
Disconnect Switch			X	SHUNT TRIP
Sprinklers	X			
Smoke Detectors	X			
Heat Detector			X	
Enclosure	X			
Trap Door	N/A			
Heating / Air Conditioning			X	AIR CONDITIONING
Foreign Equipment	N/A			
Ladders / Stairs	N/A			
Hoist Beam	N/A			

MODERNIZATION EQUIPMENT DISPOSITION

 BUILDING HEBER M. WELLS

 ELEVATOR NOS. 1 – 5

LOCATION _____

 DATE APRIL 8, 2005

HOISTWAY	Retain Existing	Recond. Existing	Provide New	Notes
Main Guide Rails	X			
Counterweight Guide Rails	X			
Deflector Sheaves	X			N/A
Counterweight Frame	X			
Counterweight Safety	N/A			
Counterweight Sheave	X			CAR NO. 5 ONLY
Counterweight Guide Shoes		X		ADD SEISMIC RETAINER PLATES
Normal & Final Term. Devices	X			
Wiring & Traveling Cables			X	
Projections	X			CANTS EXIST
Set Backs	X			CANTS PROVIDED
Ventilation	X			
Enclosure	X			
Smoke Detectors			X	
Sprinklers	N/A			
Foreign Equipment	N/A			

MODERNIZATION EQUIPMENT DISPOSITION

 BUILDING HEBER M. WELLS

 ELEVATOR NOS. 1 – 5

LOCATION _____

 DATE APRIL 8, 2005

PIT	Retain Existing	Recond. Existing	Provide New	Notes
Access Ladder	X			
Access Door	N/A			
Car Buffer	X			
Counterweight Buffer	X			
Governor Tension Sheave	X			
Selector Tension Sheave	N/A			
Compensation Sheave Assembly	N/A			
Compensation Ropes / Chain	X			
Stop Switches	X			
Sump	N/A			
Sump Pit / Cover	N/A			
Light			X	FLUORESCENT
Light Switch			X	
Outlet			X	GFCI
Sprinkler	N/A			
Heat Detector	N/A			

MODERNIZATION EQUIPMENT DISPOSITION

 BUILDING HEBER M. WELLS

 ELEVATOR NOS. 1 – 5

LOCATION _____

 DATE APRIL 8, 2005

HOISTWAY ENTRANCE Side Slide/Swing	Retain Existing	Recond. Existing	Provide New	Notes
Frames	X			
Door Panels	X			
Transoms	N/A			
Sight Guards	X			TIGHTEN
Astragals	X			
Vision Panels	N/A			
Sills	X			
Sill Supports	X			
Fascia	X			
Toe Guard	X			
Dust Covers	X			
Struts and Headers	X			
Hanger and Tracks	X			
Hanger Rollers		X		AS REQUIRED
Closers		X		AS REQUIRED
Relating Mechanism		X		AS REQUIRED
Interlocks		X		
Guides			X	AS REQUIRED
Access	X			
Floor Identification	X			
Finish	X			

MODERNIZATION EQUIPMENT DISPOSITION

 BUILDING HEBER M. WELLS

 ELEVATOR NOS. 1 – 5

LOCATION _____

 DATE APRIL 8, 2005

CAR	Retain Existing	Recond. Existing	Provide New	Notes
Frame	X			CAR NO. 5
Sheave	X			
Platform	X			
Safety Devices	X			
Isolation	X			
Load Weighing Device			X	IF REQUIRED FOR PRE TORQUE
Guide Shoes			X	MINIMUM 8" ROLLERS W/SEISMIC RETAINER PLATES
Sills	X			
Flooring	X			
Fireproofing	X			
Toe Guard	X			
Door			X	STAINLESS STEEL NO. 4
Door Hangers			X	
Door Track	X			IF SUITABLE FOR NEW OPERATOR
Door Header	X			IF SUITABLE FOR NEW OPERATOR
Door Clutch	X			OTIS SWORD
Door Operator			X	
Door Contact			X	
Door Protection Device	X			
Photo Eyes	N/A			
Top Control Station	X			
Work Light & Receptacle			X	GFCI
Top Exit Contact			X	
Selector Tape Switch	N/A			
Door Restrictor			X	
Emergency Lighting	X			
Voice Announcing			X	

MODERNIZATION EQUIPMENT DISPOSITION

 BUILDING HEBER M. WELLS

 ELEVATOR NOS. 1 – 5

LOCATION _____

 DATE APRIL 8, 2005

CAR ENCLOSURE	Retain Existing	Recond. Existing	Provide New	Notes
Ceiling	X			
Lighting	X			
Ventilation		X		CLEAN BLOWER AND LUBRICATE
Walls	X			
Panels	X			
Returns	X			
Handrails	X			
Flooring	X			

MODERNIZATION EQUIPMENT DISPOSITION

 BUILDING HEBER M. WELLS

 ELEVATOR NOS. 1 – 5

LOCATION _____

 DATE APRIL 8, 2005

SIGNAL AND OPERATING DEVICES	Retain Existing	Recond. Existing	Provide New	Notes
Hall Pushbuttons			X	
Access Switches	N/A			
Firefighters' Hall Station				
Main Car Station			X	
Auxiliary Car Station			X	
Communication System Wiring			X	
Lobby Panel	N/A			
Fire Command Center	N/A			
Signaling Devices (Alarm Bell)	X			
Car Position Indicator	X			
Car Travel Lantern	N/A			
Hall Position Indicator	N/A			
Hall Pos. Ind. W/Lanterns			X	AT LOBBY
Hall Lanterns		X		LEDS AND ELECTRONIC CHIMES
"This Car Up" Sign	N/A			

APPENDIX SEVEN

MAINTENANCE AGREEMENT

A. GENERAL

The present maintenance agreement is included in this Appendix for reference. The present term extends until April 30, 2008. The DWS Administration Building as well as Heber Wells Building are included under the agreement. The agreement is very well written and, with minor exceptions, includes appropriate coverage for the type of elevators in the two buildings.

B. SPECIFIC COMMENTS

1. Paragraph 7 – Reference to “...pumps, pump motors...tanks” does not apply and could be eliminated.
2. Paragraph 7.I – For application with new microprocessor control/operation the list of specialized tools could include, “service tool necessary for retrieval of stored fault and operating information, equipment adjustment, performance and testing”.
3. Paragraph 7.K – Reference could be revised to, “American Society of Mechanical Engineers, ASME A17.1, current edition being enforced by the governing authority”.
4. Paragraph 7.L – Code reference could be deleted since it is covered in item “K”. Test record should be posted in the elevator machine room.
5. Paragraph 7.N – If possible, the performance values could be included. Speed should be indicated as “contract speed (See Paragraph 3) $\pm 5\%$ ”.
6. In the event work covered by the contract is performed on overtime at the Owner’s request only the overtime premium should be charged.

Two requirements might be included in future agreements:

7. Timing of door functions should reflect ADAAG requirements.
8. Requirements of ASME A17.3 Safety Code for Existing Elevators and Escalators, enforced by the Governing Authority should be observed. The elevator company should report deviations to the Owner for possible action.

APPENDIX EIGHT
PHOTOGRAPHS

- A. ELEVATOR NOS. 1 – 4
1. Typical hoistway entrances and fixtures
 2. Typical car enclosure
 3. Auxiliary car station
 4. Main car station
 5. Machine room
 6. Hoist machine – maintenance deficiencies
 7. Machine room material
 8. Car top
 9. Door vane, rollers and interlock
- B. ELEVATOR NO. 5
1. Typical hoistway entrance
 2. Car top
 3. Machine room view



- ▲ 1. TYPICAL HOISTWAY ENTRANCES ON ELEVATOR NOS. 1 – 4 WITH STAINLESS STEEL FRAMES AND PAINTED STEEL DOOR PANELS. NOTE CIRCULAR LENS HALL LANTERNS AND HALL PUSHBUTTON STATION BETWEEN ENTRANCES.

- ▶ 2. TYPICAL CAR INTERIOR ON ELEVATOR NOS. 1 – 4 IS SIMPLE AND ATTRACTIVE WITH REMOVABLE WALL PANELS, DROP CEILING WITH DOWN LIGHTS, STAINLESS STEEL BAR TYPE HANDRAIL AND CARPET FLOORING.



ELEVATOR NOS. 1 - 4



- ◀3. TYPICAL AUXILIARY CAR OPERATING STATION.

NOTE: HOISTWAY ENTRANCE FRAME (STAINLESS STEEL) FLOOR IDENTIFICATION PLATE.

ALSO NOTE THAT CONTROLS OTHER THAN FLOOR PUSHBUTTONS DO NOT HAVE IDENTIFICATION PLATES NEXT TO THEM.

- ▶4. TYPICAL MAIN CAR OPERATING STATION WITH TELEPHONE CABINET BELOW.

NOTES:

RED CIRCULAR SWITCH ABOVE CAR PUSHBUTTONS IS PHASE TWO FIRE CONTROL. SYSTEM DOES NOT MEET CURRENT CODE REQUIREMENTS FOR EXISTING ELEVATORS.

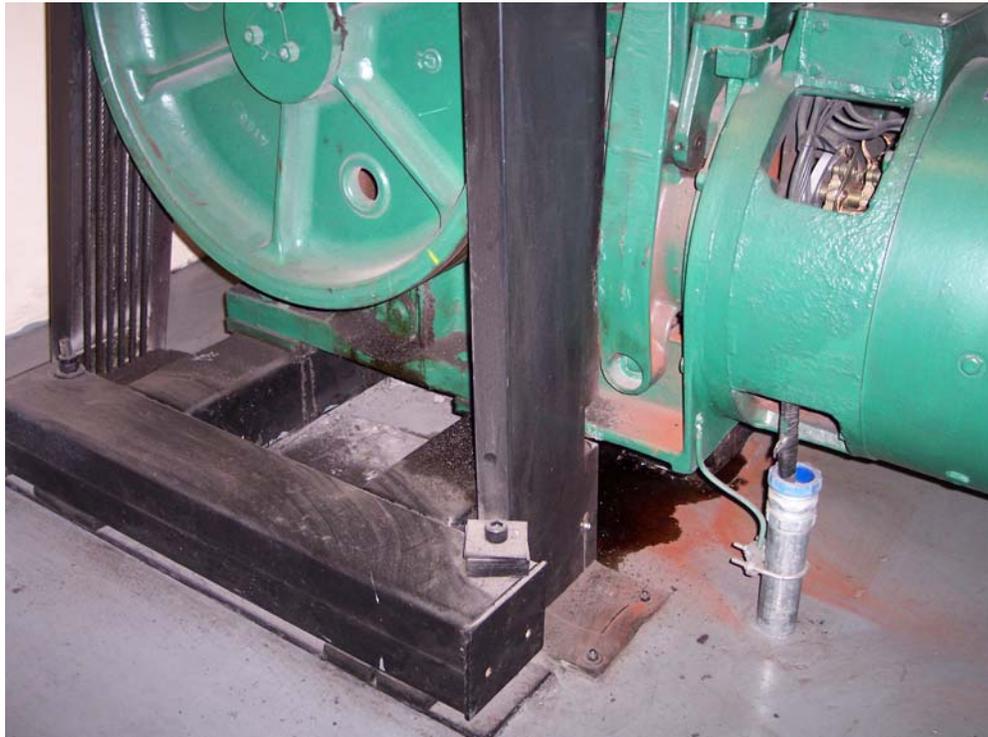
RED BUTTON BELOW FLOOR BUTTONS MUST BE KEYED TO MEET CURRENT REGULATIONS.

FLOOR IDENTIFICATION PLATE FOR 4TH FLOOR IS MISSING.





- ▲ 5. VIEW OF MACHINE ROOM OF ELEVATOR NOS. 1 – 4 INDICATING HOIST MACHINES (GREEN), GOVERNORS (SILVER) AND CONTROLS (LEFT UPPER PHOTO SECTION.)
- ▼ 6. ELEVATOR NO. 4 HOIST MACHINE. NOTE RED DUST (ROUGE) FROM HOIST CABLES, OIL LEAKAGE ON FLOOR AND OILY LINT AND DUST ON MACHINE SHEAVE AND PEDESTAL.





- ▲7. MACHINE ROOM MATERIAL SHOULD BE STORED IN CABINETS AND CONTAINERS, NOT STACKED IN CORNER.



◀8. TYPICAL CAR TOP, CAR NOS. 1 – 4 ARE DUE FOR SCHEDULED CLEAN UP OF SURFACES AND EQUIPMENT.

▼9. HOISTWAY DOOR VANES, ROLLERS AND INTERLOCKS ARE DUE FOR SCHEDULED CLEAN UP AND MAINTENANCE.





ELEVATOR NO. 5

- ◀1. TYPICAL HOISTWAY ENTRANCE.

NOTE:

NO ENTRANCE FRAME FLOOR IDENTIFICATION PLATES.

NO HALL DIRECTION SIGNAL FIXTURES.

HOISTWAY WITH PAINTED ELEVATOR DOORS AND SMOKE DOOR FRAME.

- ▼2. CAR TOP NEEDS SCHEDULED MAINTENANCE.

NOTE:

2:1 SHEAVE BELOW CROSSHEAD.





- ▲3. MACHINE ROOM VIEW OF HOIST MACHINE AND GOVERNOR. HOISTWAY IS VENTED TO OUTSIDE AIR THROUGH SHEET METAL DUCT ON RIGHT EDGE OF PHOTO.