Fire Training Center
Tower Stairwell Repair
Fairbanks, Alaska

Final Construction Documents

For:
City of Fairbanks
800 Cushman Street
Fairbanks, AK 99701

September 30, 2020

Design Alaska

Fire Training Center
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Final Construction Documents

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By:
Design Alaska, Inc.
601 College Road
Fairbanks, Alaska 99701

September 30, 2020

PART 1 GENERAL

1.1 SCOPE: SECTION 01 10 00 - SUMMARY

A. This section summarizes the work covered by the contract documents including the owner and contractor use of the premises.

1.2 PROJECT INFORMATION

A. Work of this Contract comprises reonvations to the Fire Training Center, located at 1710 30th Avenue, Fairbanks.

B. Owners name and contact

Christina Rowlett
City of Fairbanks, Purchasing Agent
907-459-6779

C. A/E name and contact

Patrick Brandon, PE
Design Alaska, Project Manager
907-452-1241

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Work includes, but is not limited to, demolition, general construction, and hazardous materials abatement.

B. Alternates will be exercised at the option of Owner as specified on Bid Schedule and specification 01 23 00 Alternates.

1.4 LOCAL CONDITIONS

A. Bidders shall familiarize themselves with the Contract Documents and existing conditions, which affect Work, required by the Contract Documents. It will be assumed that bidders have made a personal examination of the jobsite, existing conditions, and documents for prior construction projects associated with this facility made available by the Owner for review by Bidders during the bid period.

B. Failure to visit the jobsite, to review existing conditions, or to review documents for prior construction projects associated with this facility made available by the Owner for review by Bidders during the bid period will in no way relieve the successful Bidder from the necessity of furnishing any materials or performing any Work that may be required to complete the Work in accordance with the Contract Documents with no additional cost to the Owner.

C. For building access and for access to the documents for prior construction projects associated with this facility contact:

Jeff Jacobson
Public Works Director
907-459-6817

1.5 PERMITS, FEES, AND INSPECTIONS

A. Obtain, pay for, and comply with the requirements of all permits, fees, and inspections required by public authorities including plan-check fees associated with the City of Fairbanks permit process.

B. Transmit copies of permit applications, permits received, and public authority inspection reports to the Owner's project manager within three days of making permit application or receiving permits or reports.

1.6 REFERENCE STANDARDS

A. For products or workmanship specified by association, trade, or regulatory agency standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Obtain a copy of standards referenced. Maintain a copy at the jobsite during execution of Work to which the standard applies.

C. The date of the standard is that in effect as of the bid date except when a specific date is specified.

1.7 OWNER OCCUPANCY

A. The Owner will occupy premises during entire period of construction for the conduct of its normal operations.

B. Cooperate with Owner to minimize conflict and to facilitate its operations. In case of conflict accept Contracting Officer's direction as final and adjust use of premises accordingly.

1. Contractor to completely remove and replace one stairwell at a time such that the owner can maintain use of one side of the facility at all times.

C. Coordinate Work in and use of premises with the Owner.

1. The “Commercial Stairwell” as identified on the Drawings must be operational for the entire month of June. Construction work shall either be complete prior to June or shall commense after July 1st.

1.8 CONTRACTOR USE OF PREMISES

A. Limit use of premises for Work and for construction operations, to allow for Owner occupancy, Work of other Contractors, and public access.

B. Limit areas of construction operations to those areas requiring renovation only.

C. Limit on site storage of materials to Owner project manager indicated staging areas. Contractor is responsible for security of stored materials.

D. Do not smoke except in specifically designated smoking areas.

E. Take reasonable and adequate precautions to protect the Owner’s property from damage during execution of Work. Restore any damage to Owner property resulting from execution of Work or replace in a manner satisfactory to the Contracting Officer.

F. Do not begin demolition of existing Work or construction of new Work in any Work area until all required construction materials for that Work area are stored on site or at Contractor's place of business.

G. Limit construction activities which generate noise levels in excess NC=60 between 7 p.m. and 7 a.m. Monday through Friday and all day Saturday and Sunday.

H. Limit construction access to building to the location indicated. Keep construction access points locked at all times. Contractor will be provided with two sets of keys for construction access points.

1.9 OWNER - FURNISHED PRODUCTS

A. There are no Owner furnished products.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 23 00 - ALTERNATES

A. This secition summarizes alternates within the scope of work.

1.2 SCHEDULE OF ALTERNATES

A. Alternate No. 1, Hot-Dip Galvanized stair components: All work indicated as Alternate 1, which is work associated with providing HDG stair stringers, hand rails, and guard rails. This, in lieu of epoxy painted stair fabrications.

1.3 PROCEDURE FOR ALTERNATES

A. Alternates will be exercised at the option of Owner. Accepted alternates will be indicated on the Contract and included within the conformed Contract Documents.

B. Coordinate related work and modify surrounding work affected by accepted alternates as required to complete the Work.

C. Provide all Work as part of the Base Bid except that Work specifically indicated to be provided as part of an alternate.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 25 00 - SUBSTITUTION PROCEDURES

A. This section summarizes procedures to substitute products and procedures during the course of the project.

1.2 SUBSTITUTIONS

A. Whenever a material, article or piece of equipment is identified in the Contract Documents by reference to manufacturer's or vendor's names, trade names, catalog numbers, etc., it is intended to establish a minimum standard. Unless otherwise noted any material, article or equipment of other manufacturers or vendors which will perform adequately the duties imposed by the general design of the Project will be considered equally acceptable; provided, the material, article or equipment so proposed is, in the opinion of the Contracting Officer, of equal substance, function, dimension, appearance and quality.

B. Prior to the bid opening, the Bidder shall make their own determination in selecting which specified or substitute equipment to base their proposal upon. Substituted items shall be equal to or better than that specified or indicated in regards to quality, workmanship, finish, space requirements, electrical requirements, performance, or warranties.

C. After the bid opening, the Contractor shall submit sufficient data in accordance with this Section to establish equality. The Contracting Officer shall be the sole judge of equality and acceptability.

D. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Submit request for substitution on form provided by Owner’s project manager.

E. Request for substitution constitutes a representation that the Contractor:

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

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

3. Will coordinate installation and make other changes that may be required for Work to be complete in all respects.

4. Waives claim for additional costs that may subsequently become apparent.

F. Acceptance of substitute materials will not relieve the Contractor of the responsibility for any changes in their own work or in the work of other crafts caused by the substitution. Any additional costs resulting from substitutions are the responsibility of the Contractor.

G. Any proposed substitution whose characteristics differ from the specified item to such an extent as to necessitate changes in the mechanical, electrical or other basic design of the Project, shall include the cost of any such changes, the design and the cost of design, which costs shall be borne by the Contractor. Determination of a substitution request will be based on the Contracting Officer's comparisons as to quality, adaptability, aesthetics, Contract amount change, if applicable, etc., between the proposed substitution and specified item.

H. Substitutions will not be considered when they are indicated or implied on Shop Drawings or Product Data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.

I. Only one request for substitution will be considered for each product. When substitution is not accepted, provide specified product.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

ATTACHMENT: SUBSTITITION REQUEST FORM

SUBSTITUTION REQUEST FORM

☐ We hereby submit for your consideration the following product as a Pre-Approved equal to the specified item(s). Or

☐ We hereby submit for your consideration the following product as an Equal to the specified item(s). (check only one)

Spec Section/Paragraph No: _____ Item: _____

Specified Product (make/model #): _____

Proposed Product (make/model #): _____

Supporting Documents of Product by Proposer (Circle documents provided):

Drawings	Catalog Cuts	Performance and Test Data	Warranties
Samples	Maintenance Requirements	Training & Certification Requirements	Nearest Supplier

(All information provided shall become the property of the CoF)

A. Describe the principle differences between the proposed product and that specified, and compare the significant qualities of the proposed product. Use additional sheets for this comparison if required. _____

B. Will the proposed product be equal to or better than specified product? _____

C. Describe any differences between the manufacturer's warranties/endorsements of the proposed and specified items. _____

D. Will maintenance/service and parts be locally available?* YES / NO (circle one)
*(Attach sheet to this request form indicating the name, address; and telephone numbers of company offering maintenance, service, and parts).

Submitter's Name/Signature: _____/_____ Date: _____

Firm Name: _____ Address: _____

Telephone No: _____ Name of Manufacturer's Rep.: _____

For Use By Consultant

Accepted: _____

Accepted as noted: _____

Not accepted: _____

Received too late: _____

REVIEWED BY: _____

For Use By the City of Fairbanks

Accepted: _____

Accepted as noted: _____

Not accepted: _____

Received too late: _____

REVIEWED BY: _____

PART 1 GENERAL

1.1 SCOPE: SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

A. This section describes procedures for contract modifications including change orders.

1.2 SUBMITTALS

A. Submit name of the individual authorized to accept changes, and to be responsible for informing others in Contractor's employ of changes in the Work.

1.3 DOCUMENTATION OF CHANGE IN CONTRACT PRICE AND CONTRACT TIME

A. Maintain detailed records of Work done on a Cost of the Work plus a Fee basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.

B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.

C. On request, provide additional data to support computations:

1. Quantities of products, labor, and equipment.

2. Taxes, insurance, and bonds.

3. Overhead and profit.

4. Justification for any change in Contract Time.

5. Credit for deletions from Contract, similarly documented.

D. Support each claim for additional costs, and for Work done on a cost of the Work plus a Fee basis, with additional information:

1. Origin and date of claim.

2. Dates and times Work was performed, and by whom.

3. Time records and wage rates paid.

4. Invoices and receipts for products, equipment and subcontracts, similarly documented.

1.4 PRELIMINARY PROCEDURES

A. Owner project manager may submit a Proposal Request which includes: Detailed description of change with supplementary or revised Drawings and Specifications, the projected time for executing the change and the period of time during which the requested price will be considered valid.

B. Contractor may initiate a change by submittal of a request to Owner's project manager describing the proposed change with a statement of the reason for the change, and the effect on Contract Price and Contract Time with full documentation.

1.5 LUMP SUM CHANGE ORDER

A. Will be based on Proposal Request and Contractor's lump sum quotation or Contractor's request for Change Order as approved by the project manager.

1.6 UNIT PRICE CHANGE ORDER

A. For pre-determined unit prices and quantities, Change Order will be executed on a lump sum basis.

B. For unit costs or quantities of units of work which are not predetermined, execute Work under a Work Order. Changes in Contract Price or Contract Time will be computed as specified for Cost of the Work plus Fee via Change Order.

1.7 COST OF THE WORK CHANGE ORDER

A. Submit itemized account and supporting data after completion of change, within time limits in Conditions of the Contract.

B. Owner's project manager will determine the change allowable in Contract Price and Contract Time as provided in Conditions of the Contract.

1.8 EXECUTION OF CHANGE ORDERS

A. Owner's project manager will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

1.9 CORRELATION OF CONTRACTOR SUBMITTALS

A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price as shown on Change Order.

B. Promptly revise Progress Schedules to reflect any change in Contract Time and to adjust times for other items of Work affected by the change and resubmit.

C. Promptly enter changes in Project Record Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 30 00 - ADMINISTRATIVE PROVISIONS

A. This section covers administration procedures as related to this specific project including meetings, applications for payment and safety.

1.2 PRE-CONSTRUCTION MEETING

A. Attend Owner initiated preconstruction meeting.

1.3 PROGRESS MEETINGS

A. Conduct project meetings in which the Owner's project manager may attend throughout progress of Work at a maximum of one week intervals to discuss Work progress, status of submittals, pending changes and substitutions, and other items affecting progress and status of Work.

B. Make physical arrangements for meetings. Employ job superintendent to attend meetings. Instruct subcontractor representatives to attend meetings as appropriate to discuss progress and status of Work.

C. Notify Owner's project manager a minimum of 48 hours prior to meeting of any requested agenda items.

1.4 PRE-INSTALLATION CONFERENCES

A. When required by individual specification section, convene pre-installation conference prior to commencing work of that section.

B. Require attendance of entities directly affecting, or affected by, work of that section.

C. At the meeting review conditions of installation, preparation and installation procedures, and coordination with related work.

1.5 APPLICATIONS FOR PAYMENT

A. Submit in accordance with contract provisions.

B. Content and Format as required by Owner.

1.6 SAFETY

A. Comply with all Federal and State regulations concerning safety of personnel and equipment.

1.7 FIRE-SAFETY

A. Maintan the project site, to reduce hazards from fire. Provide protective equipment or fire watch personel as needed to support the project.

1.8 ONE YEAR CORRECTION PERIOD

A. If within one year after the date of Final Completion or such longer period of time as may be prescribed by Regulatory Requirements or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work, materials, or products are found to be defective, the Contractor shall promptly, without cost to the Owner and in accordance with the Contracting Officer's written instructions, either correct such defective Work, or, if it has been rejected by the Contracting Officer, remove it from the site and replace it with conforming Work.

B. If the Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, the Owner may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect, and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals) will be paid by the Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service for the benefit of the Owner before Substantial Completion of all the Work, the correction period for that item may begin on an earlier date if so provided in the Specifications of by Change Order.

D. Provisions of this paragraph are not intended to shorten the statute of limitations for bringing an action.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 33 00 – SUBMITTAL PROCEDURES

A. This section covers submittal procedures including submittal register, products and schedule of values.

1.2 PROCEDURES

A. Deliver submittals to Owner’s project manager as directed under Owner’s project manager accepted form.

B. Transmit submittals in accordance with approved Construction Progress Schedule, Submittal Register, and in such sequence to avoid delay in the Work or Work of other Contracts.

C. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.

D. Coordinate submittals with requirements of Work and of Contract Documents.

E. After Owner’s project manager review of submittal, revise and resubmit as required, identifying changes made since previous submittal.

F. Distribute copies of reviewed submittals to concerned persons including one set to field office. Instruct recipients to promptly report any inability to comply with provisions.

G. Make resubmittals under procedures specified for initial submittals; identify changes made since previous submittal.

H. Acceptance of schedules, Shop Drawings, Product Data, or samples by the Owner or their representative in no way relieves the Contractor of obligation to perform Work in accordance with requirements of the Contract Documents.

1.3 SUBMITTAL REGISTER

A. Submit a Submittal Register. Attached is a Register to use as the basis of the Register submitted. The Register attached is not necessarily complete. Add items as required to provide a complete Submittal Register. Complete Contractor planned Submit Date column. No other form of Register will be accepted.

B. Other submittals will not be accepted for review until a submittal register acceptable to the Project Manager has been received by the Project Manager.

1.4 CONSTRUCTION PROGRESS SCHEDULES

A. Submit 3 copies of initial progress schedules not more than 21 days after Contract award.

B. The progress schedule must be approved by the Owner's project manager before any Application for Payment will be processed by the Owner's project manager .

C. Submit horizontal bar chart with separate bar for each major trade or operation, identifying first workday of each week.

D. Submit updated progress schedules monthly with each Application for Payment.

1. Reflect changes since previous submittal.

2. Indicate progress of each activity to date of submission.

1.5 SCHEDULE OF VALUES

A. Submit a Schedule of Values a minimum of 21 days prior to submitting first application for payment. Use Owner accepted form.

B. Provide with line item break down matching the line items on the Construction Progress Schedule.

C. Prepare a schedule that provides a total sum of line item values equal to the total contract amount. Include in each line item a directly proportional amount of Contractor's overhead and profit.

D. Provide substantiating information justifying information provided when requested.

E. Do not revise value attributed to each category once the Owner's project manager accepts the Schedule of Values.

F. Revise schedule to list change orders, for each application for payment.

1.6 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. General:

1. Submit one (1) electronic copy (PDF format) of the review submittal or resubmittal for review and acceptance by the Owner's project manager , for each submittal group. Electronically Index (Bookmark) each section and item within the electronic submittal.

2. Submittals are required for all materials of construction and equipment specified and indicated on the Drawings.

3. Coordinate submittals into logical groupings to facilitate interrelation of the several items:

   a. Interior finishes which involve Owner's project manager selection of colors, textures, or patterns. No selections will be made until all interior materials requiring color, texture, or pattern selection have been submitted.

   b. Associated items, which require correlation for efficient function or for installation.

   c. Group items by specification section. Submit items covered by a common specification section simultaneously.

4. The Owner's project manager will consider expedited review of required submittals. Submit a list of items for which expedited reviews are requested at the preconstruction conference. Substantiate each request by reference to the Project schedule. The Owner's project manager will be the sole judge as to whether or not expedited reviews are warranted.

5. Apply Contractor's stamp, signed or initialed, certifying to review, verification of products, field dimensions and field construction criteria, and coordination of information with requirements of Work and Contract Documents. Notify Owner's project manager in writing at time of submittal of any deviations from requirements of Contract Documents. Note deviation on Item Data Sheet.

6. Precede each item with a completed Item Data Sheet. See required format attached to the end of this Specification Section.

7. Identify each item with an item number matching the item number for that item listed in the Submittal Schedule and Shop Drawing Record. Separate each item by divider sheets with plastic index tabs between each item. Type item numbers on both sides of paper inserts.

8. Each submittal or resubmittal shall be complete and shall contain all previously submitted material except that being replaced by new or revised material, which shall be removed. Partial or improperly indexed or tabbed submittals or resubmittals shall be rejected without review or comment.

9. With each resubmittal include a complete summary of all changes and additions made to the equipment review submittal since the previous submittal. Only those items included in the summary will be reviewed with the resubmitted package.

10. Do not submit "updates" for previous submittal packages with resubmittals. Previous submittals will not be updated.

11. A list of minimum submittals required is provided in each Section. These lists are not necessarily complete or all-inclusive and the Contractor is responsible for complete submittal.

B. Shop Drawings:

1. Present in a clear and thorough manner. Label each Drawing with Owner Project name and Project number. Identify each element of Drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.

2. Identify field dimensions; show relation to adjacent or critical features or Work or products.

3. Minimum Sheet Size: 11 inches by 17 inches.

C. Product Data:

1. Submit only pages that are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

2. Modify manufacturer's standard schematic Drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.

D. Samples:

1. Submit full range of manufacturers' standard colors, textures, and patterns except when more restrictive requirements are specified.

2. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

ATTACHMENT: ITEM DATA SHEET
SUBMITTAL REGISTER

ITEM DATA SHEET

1. Item Name/Drawing Equipment Number:

2. Specification Section/Drawing Number:

3. Manufacturer/Model Number:

4. Size/Capacity:

5. Use And Location: (a)

6. Spare Parts Source:

7. Providers Of Warranty Service:

8. Proposed Deviations From The Contract Documents: (b)

9. Other Contractor Comments:

(a) For most sections of the specifications this information need only be provided when the product's use and location is not obvious. This information must be provided for all items provided under Specification Sections 12 13 00 and 23 09 23.

(b) If this section is left blank it will be assumed that proposed equipment is exactly as specified and indicated on the drawings.

Printed on:										**Owner:**	**City of Fairbanks**
9/30/2020	**Project:** Fire Training Center Tower Stairwell Repair									**Contractor:**	
	Project No: 202002									**Consultant:**	**Design Alaska, Inc.**
SD-01 Preconstruction; SD-02 Shop Drawings; SD-03 Product Data; SD-04 Samples; SD-05 Design Data; SD-06 Test Report; SD-07 Certificates; SD-08 Manufacturer's Instructions; SD-09 Manufacturer's Report; SD-10 O&M Data; SD-11 Closeout; SD-12 LEED											
						1=No Exception Taken; 2 = Accepted as Noted; 3 = Revise & Resubmit; 4 = Submit Specified Item; 5 = Rejected					
Item No.	**Transmittal No.**	**Spec. Section or Drawing No.**	**Submittal Description**	**Spec. Paragraph or Drawing Detail No.**	**Item Description**	**Contractor's Scheduled Submittal Date**	**Actual**		**Status**	*Corrections or comments do not relieve Contractor from compliance with Contract Documents. Submittals are reviewed only for general conformance with the design concept of the project and general compliance with the Contract Documents. The Contractor is responsible for confirming compliance with the Contract Documents, confirming & correlating all quantities & dimensions, selecting fabrication processes, techniques of construction, coordinating his work with that of other trades, and existing conditions; and performing his work in a safe and satisfactory manner.*	
							Submittal Date	**Return Date**		**Review Comments**	
01 26 00					**Contract Modification Procedures**						
1		1.2.A	SD-01		Name of Authorized Change Order Individual						
01 33 00					**Submittal Procedures**						
1		1.3	SD-01		Submittal Register						
2		1.4	SD-01		Construction Progress Schedules						
3		1.5	SD-01		Schedule of Values						
01 45 00					**Quality Control**						
1		1.2.A	SD-01		Testing Laboratory Information						
2		1.2.B	SD-01		Special Inspector Qualifications						
01 73 29					**Cutting and Patching**						
1		1.2.A	SD-01		Written Request - Cutting or Alteration that affects structural integrity of building element						
02 41 19					**Selective Demolition**						
1		1.2.A	SD-01		Dump Records, Bills of Lading, Handling and Tracking Records						
2		1.2.B	SD-01		Name and Qualifications of HAZMAT Person						
05 50 00					**Metal Fabrications**						
1		1.2.A	SD-03	2.8	Abrasive Metal Nosings and Treads						
2		1.2.A	SD-03	2.10	Paint Products						
3		1.2.B	SD-02		Shop Drawings						
4		1.2.C	SD-05		Qualification Data for Fabricator						
5		1.2.C	SD-05		Qualification Data for Installer						
6		1.2.D	SD-07		Welding Certificates						

Reviewed By _____

Date _____

PART 1 GENERAL

1.1 SCOPE: SECTION 01 35 16 - ALTERATION PROJECT PROCEDURES

A. Alteration and renovation of existing spaces and materials.

B. Abatement of hazardous materials.

PART 2 PRODUCTS

2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials: As specified in individual Specification Sections.

B. Match existing products and work for patching and extending Work. Determine quality of existing products by inspection and any necessary testing.

PART 3 EXECUTION

3.1 ALTERATION AND RENOVATION

A. Coordinate Work of alterations and renovations of existing spaces and materials to expedite completion and to accommodate Owner occupancy.

B. Patch Work in a manner to minimize damage and restore products and finishes to original condition.

C. Install products as specified in individual Specification Sections.

3.2 TRANSITIONS

A. Where new Work abuts or aligns with existing, make a smooth and even transition. Patched Work shall match existing adjacent work in texture and appearance.

3.3 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces which are disturbed, damaged, or otherwise made defective in appearance or function by the execution of Work under this Contract. Restore to original condition.

B. Repair substrate prior to patching finish.

3.4 FINISHES

A. Finish surfaces as specified in individual Sections.

B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

C. Remove existing work, materials and items as indicated on the Drawings, as required by job site conditions, as scheduled, and as specified herein, to accomplish Work and alteration in the existing building.

D. Remove work carefully and only to the extent required for the final Work. Minimize damage to adjacent materials.

E. When portions of existing conditions are shown, it is not meant to indicate that all existing conditions are shown.

F. Patch existing surfaces which are made defective in appearance or function by the execution of Work.

G. Cut rigid materials using masonry saw or core drill. Pneumatic tools and electric hammers are not permitted.

H. Conduct all operations with a minimum of noise.

3.5 HAZARDOUS MATERIALS

A. There are known hazardous materials present at the Project work area.

1. Employ a Competent Person to fulfill the role as defined in 29 CFR 1926.32(f), 1926.62, and 1926.111 to identify Hazardous material that may be on site.

2. The stair system contains lead paint. These systems may not be welded, sawed, filed sanded or removed in a manner that would cause lead dust to be released. Lead paint must be removed by certified and licensed lead abatement personnel.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 42 16 - DEFINITIONS

A. Explanation of terminology used within the Drawings and Specifications.

1.2 SPECIFICATION FORMAT AND COMPOSITION

A. Specifications are divided into Divisions and Sections for the convenience of writing and using. Titles are not intended to imply a particular meaning or to fully describe the Work of each Division or Section, and are not an integral part of the text that specifies the requirements. Contracting Officer is not bound to define the limits of any subcontract, and will not enter into disputes between the Contractor and their employees, including subcontractors.

B. Pages are numbered independently for each Section. Section number is shown with the page number at the bottom of each page. "End of Section" is noted on the last page of each Section. It is Contractor's responsibility to verify that Contract Documents received for bidding and construction are complete in accordance with Table of Contents.

C. These Specifications are of the abbreviated, or "streamlined" type, and include incomplete sentences.

D. Omissions of words or phrases such as "the Contractor shall," "in conformity therewith," "shall be," "as noted on the Drawings," "according to the Drawings," "a," "an," "the" and "all" are intentional.

E. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the Drawings.

1.3 DRAWINGS: CONTENT EXPLANATION

A. Where on any of the Drawings a portion of the Work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other portions of the Work.

B. Wherever a detail is referenced and developed for a specific condition, same or similar detail shall apply to identical or similar conditions elsewhere on Project even though not specifically referenced.

C. Where the word "similar" occurs on the Drawings, it shall be interpreted in its general sense and not as meaning identical, all details shall be worked out in relation to their location and their connection with other parts of the Work.

D. The figured dimensions on the Drawings or notes indicating dimensions shall be used instead of measurements of the Drawings by scale. No scale measurements shall be used as a dimension.

E. Provide piping, ductwork, equipment, and accessories indicated on the Drawings unless it is specifically indicated that the piping, ductwork, equipment, or accessory is existing.

F. Unless otherwise indicated, abbreviations and symbols used in the Drawings and Specifications are intended to have the meaning commonly accepted in the construction industry. Contact the Contracting Officer for definition if any question arises concerning them.

G. Certain items used generally throughout the Specifications and Drawings are used as follows:

1. Indicated: The term "indicated" is a cross reference to details, notes or schedules on the Drawings, other paragraphs or schedules in the Specifications, and similar means of recording requirements in the Contract Documents. Where terms such as "shown", "noted", "schedules", and "specified" are used in lieu of "indicate", it is for the purpose of helping the reader accomplish the cross reference, and no limitation of location is intended except as specifically noted.

2. Installer: The person or entity engaged by Contractor, their subcontractor or sub-subcontractor for the performance of a particular unit of work at the Project site, including installation, erection, application, and similar required operations. It is a general requirement that installers be recognized experts in the Work they are engaged to perform.

3. Provide: Except to the extent further defined, the term "provide" means to supply and install, complete and ready for the intended use.

4. Furnish: Except as otherwise defined in greater detail, the term "furnish" is used to mean the same as "provide".

5. Guarantee and Warranty: "Warranty" is generally used in conjunction with products manufactured or fabricated away from the Project site, and "guarantee" is generally used in conjunction with units of work which require both products and substantial amounts of labor at the Project site. The resulting difference is that warranties are frequently issued by manufacturers, and guarantees are generally issued by Contractor and frequently supported (partially) by product warranties from manufacturers.

6. Work: Work is the act of, and the result of, performing services, furnishing labor, furnishing and incorporating materials and equipment into the Project and performing other duties and obligations, all as required by the Contract Documents. Such Work, however incremental, shall culminate in the entire completed Project, or the various separately identifiable parts thereof.

7. Owner: As defined in the agreement of the project, which includes the owners designated representatives to bind the owner.

8. Contracting Officer: Contracting Officer means Owners Representative that is responsible for the administrative portions of the project.

9. Contractor: As defined in the agreement as the performer of the work.

1.4 CONFLICTS

A. Report any conflicts to Contracting Officer for clarification.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 45 00 - QUALITY CONTROL

A. This section covers quality control plan and procedures.

1.2 SUBMITTALS

A. Testing laboratory name, address, and telephone number.

1. Evidence of testing laboratory's authorization to operate in the State of Alaska.

2. Name, registration, address, and telephone number of registered engineer employed by testing agency to review services provided by testing agency.

B. Special Inspector Qualifications.

1.3 QUALITY CONTROL, GENERAL

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality.

1.4 WORKMANSHIP

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

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

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking and to minimize the transfer of sound and vibration.

D. Provide finishes to match approved samples.

1.5 MANUFACTURERS' INSTRUCTIONS

A. Comply with instructions in full detail, including each step in sequence. Provide accessories recommended by manufacturer for service intended and accessories indicated. Should instructions conflict with Contract Documents, request clarification from Owner's project manager before proceeding.

1.6 CONSTRUCTION PHOTOGRAPHS

A. Take photographs of construction throughout progress of construction. At a minimum, take twelve photographs of construction at end of each work week. Photograph interior, exterior, and stored materials.

B. During each phase of construction, also take photographs providing full coverage of the following elements of construction at the beginning and completion of that element of construction.

1. Demolition.

2. Stair framing.

3. Final completion.

C. Deliver photo to the Owner's project manager with Record Documents. Catalog and index files in chronological sequence.

1.7 TESTING LABORATORY SERVICES

A. Employ and pay for services of an Independent Testing Laboratory, authorized to operate in the State of Alaska, to perform inspections, tests, and other services required by individual Specification Sections.

B. Testing Laboratory Responsibilities.

1. Employ registered engineer to review services.

2. Perform services in accordance with requirements of governing authorities and with specified standards.

3. Cooperate with the Owner's project manager in performing services.

4. Utilize testing equipment calibrated within a period of six months, or as otherwise recommended by the equipment manufacturer, and checked for accuracy prior to use.

5. Promptly submit inspection and test reports to Owner's project manager in duplicate list the following applicable information:

a. Project title, number, and location.

b. Testing laboratory name, address, and telephone number.

c. Name of inspector.

d. Date of inspection or test.

e. Date of report.

f. Work and location of Work tested or inspected.

g. Applicable Specification Section.

h. Type of test performed, results of test, interpretation of test results, and indication of compliance or non-compliance with specified standards and with Contract Documents.

6. Leave copies of inspection and test reports for the following items with the Contractor on site before leaving the site:

a. LBP testing.

1.8 CODES, ORDINANCES, AND STANDARDS

A. Federal, State and Local Codes and Ordinances take precedence over these Specifications and Drawings where conflicts occur unless the Drawings or Specifications call for more stringent requirements. Notify the Owner's project manager in writing of conflicts.

B. Follow latest adopted editions of Code of Federal Regulations, Alaska Administrative Code, International Building Code, International Mechanical Code, Uniform Plumbing Code, International Fire Code, National Electrical Code, ADA Accessibility Guidelines, NFPA, ASME, NEMA, ASHRAE, SMACNA, etc. as applicable.

C. Comply with all applicable laws, building and construction codes, OSHA Safety and Health Regulations and applicable requirements of any governmental agency under whose jurisdiction this Work is being performed.

1.9 AUTHORITY HAVING JURISDICTION PERMITS AND INSPECTIONS

A. The Authority Having Jurisdiction (AHJ) and public authorities for this project is as follows:

1. City of Fairbanks
Building Department, City Hall
800 Cushman Street
Fairbanks, AK 99701
(907) 459-6270

B. Apply for and obtain a plan review and permits for the project in accordance with AHJ policies and procedures. Pay any applicable fees for the permits. Submit copies of applications, permits and any correspondence with the AHJ to the owner for information.

C. Obtain all required inspections by the AHJ. Schedule all inspection with AHJ and provide information to the owner. Inform owner immediately if inspection is rescheduled. Provide copied of all inspection reports and follow-up items. Provide support and assistance for all AHJ inspections.

D. Post all permits on jobsite in a location which can observed by AHJ when entering the job site. Keep plan reviewed, signed, construction drawings and specifications available for the AHJ use when inspecting the site.

E. Obtain certificate of occupancy, if applicable. Provide a bond at no additional expense to the owner if needed to allow for completion of work after a certificate of occupancy has been granted. Deliver certificate of occupancy to the owner.

1.10 SPECIAL INSPECTIONS

A. Contractor shall hire third-party Special Inspector for all code-required special inspections. Required Special Inspections are listed on the project Drawings.

B. Leave copies of Special Inspection reports for the following items with the Contractor on site before leaving the site:

a. Visual weld inspections.

b. Bolted connection inspections.

1.11 OWNER INSPECTION

A. The Owner will periodically inspect the Work. Provide assistance to inspection personnel required for complete and thorough inspections. Owner will inspect the Work at will, and may occur at the following stages:

1. At completion of demolition Work.

2. At completion of structural framing and before framing is concealed.

3. Substantial completion inspection.

4. Final inspection.

B. Inspection of Work or the witnessing of testing of Work by the Owner or their representative in no way relieves the Contractor of obligation to perform Work in accordance with requirements of the Contract Documents.

C. Request shall identify the Project, Project No., its location, the Contractor, and a contact person and describe the nature of the desired test or inspection.

D. If the request is for testing or inspection of Work previously tested or inspected, include the Owner's prior listing of deficiencies accompanied by the remedies provided since the prior test or inspection.

E. Provide a minimum of three (3) working days' notice to Owner's project manager and public authorities prior to performing testing of Work. The Owner's project manager or their representative will not necessarily witness testing.

1. Record the performance of tests.

2. Include date, time and time interval, test results, brief description of method of tests, and witnesses.

3. Submit this record to the Owner's project manager prior to scheduling substantial completion and final inspections.

F. Substantial Completion and Final Inspections:

1. Provide minimum of 14-calendar days written notice to Owner's project manager of intent to have Work ready for inspection. Confirm that Work will be ready for inspection a minimum of three (3) working days' notice prior to date of inspection.

2. Prior to inspection:

a. Deliver to the Owner's project manager required equipment, Drawings, and records.

b. Clean fixtures and equipment. Remove manufacturer's stickers and leave free of dust and dirt.

c. Remove boxes, scrap, and other debris.

d. Touch up holidays or damaged painted surfaces.

e. Contractor's Superintendent shall review Work for conformance with Contract Documents and develop a list of items not conforming to the Contract Documents. Correct Work identified as not conforming to the Contract Documents. With request for inspection, Contractor's Superintendent shall verify in writing that this review has been performed, that the Work conforms with the Contract Documents, and submit their original list of items not conforming to the Contract Documents, annotated with corrective action taken to resolve each deficiency noted.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

A. This section covers temporary facilities and controls related to the scope of work.

1.2 TEMPORARY UTILITIES, GENERAL

A. The Contractor is responsible for damage or harm to material, equipment, Work, personnel, etc. that might result from use of temporary utilities.

B. When use of Owner facilities, the Owner makes no guarantee as to sources, availability, adequacy, or interruptions of service of utilities during performance of Contract. Systems or parts of systems utilized shall be complete in all respects prior to consideration of use. Provide barriers and warning labels on energized equipment. Prevent interference with Owner's normal operation. Maintain systems during construction and return the systems to like new condition prior to substantial completion and final inspections.

C. The facility's new and existing utility systems may be utilized. Owner will pay utility costs for normal construction operations.

1.3 ELECTRICITY AND LIGHTING

A. Provide such temporary service required for construction operations, with branch wiring and distribution boxes located to allow service and lighting by means of construction type power cords.

B. Provide such temporary electricity and lighting as necessary to carry on the Work and to protect personnel, work and materials from such damage or injury.

1.4 HEAT AND VENTILATION

A. Building is unheated.

B. Provide temporary ventilation of enclosed areas to cure materials, to disperse humidity, and to prevent accumulation of dust, fumes, vapors, and gases.

C. Non-vented or open flame heating/ventilating equipment are not permitted.

D. Electric heaters are not permitted.

1.5 TEMPORARY OPERATION OF FACILITY'S MECHANICAL SYSTEMS

A. Building has no operating mechanical systems.

1.6 TELEPHONE SERVICE

A. Building has no operating telephone.

1.7 WATER

A. Anticipate no access to building water.

1.8 SANITARY FACILITIES

A. Provide and maintain daily portable self-contained units secluded from public view. New or existing facilities shall not be used.

1.9 BARRIERS

A. Building is located within a secure area. Maintain secure area to prevent public entry to construction areas.

1.10 PROTECTION OF INSTALLED WORK

A. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.

1.11 CLEANING DURING CONSTRUCTION

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

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to closing space.

1.12 FIELD OFFICES AND SHEDS

A. Provide a construction field office for use by Contractor personnel as required. Locate office in Owners designated staging area.

1.13 SITE RESTORATION

A. Remove project field office and shed, and other construction facilities, including subsurface features, at Project completion.

B. Return to original condition those portions of the site affected by construction operations not otherwise restored by the Work. Remove debris.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 60 00 - PRODUCT REQUIREMENTS

A. This section covers product requirement, transportation and storage of materials.

1.2 PRODUCTS

A. Products include material, equipment, and systems.

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

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

D. Do not use materials and equipment removed from existing structure, except as specifically required, or allowed, by Contract Documents.

E. Provide products and systems that do not contain asbestos or asbestos-containing materials.

1.3 TRANSPORTATION AND HANDLING

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

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

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

1.4 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

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

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

1.5 PRODUCT OPTIONS

A. Products specified by reference standards or by description only: Use any product meeting those standards.

B. Products specified by naming one or more manufacturers followed by the term "No Substitutions": Use only specified manufacturers, no substitutions allowed.

C. Products specified by naming one or more manufacturers followed by the term “or equal”: Submit a request for substitution for any manufacturer not specifically named.

D. When only one product manufacturer is specified, it is intended only to establish the level of quality against which the proposed substitutions shall be judged, and shall not be construed as attempting to limit competition.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 70 00 - CLOSEOUT REQUIREMENTS

A. This section covers contract closeout requirements, operation and maintenance manual, warranties, spare parts and maintenance, and systems demonstrations.

1.2 CLOSEOUT PROCEDURES

A. Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion.

B. Owner will occupy Project for the purpose of conducting business under provision stated in Certificate of Substantial Completion.

C. When Contractor considers Work to be substantially complete, submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Owner inspection.

1. Substantial Completion is obtained when the Work has progressed to the point where, in the opinion of the Owner, the Work is sufficiently complete in accordance with the Contract Documents so that the Work can be utilized for the purposes for which is was intended. Irrespective of other Work, Substantial Completion cannot be obtained until electrical and life-safety systems are in place. When the Contractor, by written notice to the Owner, certifies that the Work is substantially complete, the Owner and its representatives, within a reasonable time, will conduct an inspection to determine the actual status of completion. When the Owner, on basis of said inspection, determines that the Work is substantially complete, the Contractor will be so notified and a list of deficiencies, to be corrected or completed by the Contractor, will be attached to said notice. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

D. In addition to submittals required by the conditions of the Contract, provide submittals required by governing authorities, and submit a final statement of accounting giving total adjusted Contract Price, previous payments, and sum remaining due.

1.3 FINAL CLEANING

A. Execute prior to substantial completion.

B. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Clean roofs, gutters, downspouts, and drainage systems.

C. Clean site; sweep paved areas, rake clean other surfaces.

1.4 PROJECT RECORD DOCUMENTS

A. Maintain one record copy of:

1. Contract Drawings.

2. Specifications.

3. Addenda.

4. Design Clarifications (DCVRs).

5. Change Orders and other modifications to the Contract.

6. Reviewed Shop Drawings, Product Data, and Samples.

7. Field test records.

8. Inspection certificates.

9. Manufacturer's certificates.

10. Construction photographs.

B. Store Record Documents and samples in clean, dry, and legible condition in Field Office apart from documents used for construction.

C. Keep Record Documents and samples available for inspection by Owner’s project manager.

D. Record actual construction information on a set of Construction Document Drawings.

E. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.

F. Legibly mark Contract Drawings and Shop Drawings to record actual construction, including:

1. Field changes of dimension and detail.

2. Changes made by Addenda.

3. Changes made by Modifications.

4. Details not on original Contract Drawings.

5. References to related shop drawings and Modifications.

G. Legibly mark Contract Specifications to record actual construction, including:

1. Manufacturer, trade name, and catalog number of each product actually installed, particularly optional items and substitute items.

2. Changes made by Addenda and Modifications.

H. Upon request by the Owner's project manager submit complete collection of Record Documents to the Owner's project manager for review and duplication as desired.

I. Prior to request for final inspection, submit record documents to the Owner's project manager for review. Documents shall bear a statement signed by a legal representative of the Contractor indicating that the Record Documents reflect "as-built" conditions. Correct and resubmit to Owner's project manager until Owner's project manager accepts the Record Documents as complete.

J. At Contract closeout, deliver corrected Record Documents to the Owner's project manager. The Owners Engineer shall modify the CAD files as necessary to correctly show all features of the Project by bringing the CAD files into agreement with the approved preliminary as-built prints. Upon completion, the Record Drawing set shall be delivered to the Contractor on full-size paper prints, together with the preliminary as-built marked prints. The Contractor legal representative shall approve the Record Drawings by signing the drawing stamp indicating that the Record Documents reflect "as-built" conditions.

1.5 OPERATION AND MAINTENANCE DATA

A. Review Submittals and Timing:

1. Submit for review two (2) copies plus the number required by the Contractor, identical copies of the Operations and Maintenance Manuals for review and acceptance by the Owner's project manager. The Owner's project manager will retain one (1) copy for reference and the additional reviewed copy will be returned to the Contractor.

2. Submit one (1) electronic copy of the Operation and Maintenance Manuals for review and acceptance by the Owner's project manager.

3. Submit for review not less than seven days prior to Substantial Completion Inspection.

B. Final Operation and Maintenance Manuals:

1. Provide five (3) hard copies of the complete, reviewed, corrected and accepted Operation and Maintenance Manuals to the Owner's project manager

2. Provide an electronic copy of the accepted Operation and Maintenance Manuals to the Owner's project manager.

3. Provide a minimum of five working days prior to Project Substantial Completion Inspection and 5 working days prior to any scheduled training on equipment.

C. Provide data in separate volumes for:

1. Architectural materials and finishes. Include:

a. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.

b. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

c. Additional Requirements: As Specified in individual Specifications sections.

D. General Form:

1. Identify each item of the O&M Manual with an item number. Number the first item within a Specification section "#1", the second item within a Specification section "#2", and so forth. Restart numbering sequence with each Specification section. Further separate sections by divider sheets with plastic index tabs between each item. Type item numbers on both sides of paper inserts.

2. Provide an alphabetical index at the front of the binder that locates individual items by tab number.

3. Precede each item by a copy of the item data sheet attached at the end of specification section 01 33 00.

4. Material included shall indicate the specific item(s) utilized for this project. Delete or cross out all other items.

5. All material must be clearly readable. "Faxed" then photocopied information is not acceptable.

6. Provide complete operation and maintenance manual submittals. Partial or incomplete submittals required under this section will be returned without review.

7. Provide copies of warranties combined with the rest of the data provided for the equipment warrantied.

E. Hard Copy Form:

1. Organize by specification section. Separate each section by a heavy stock divider sheet with plastic index tab. Type Specification section numbers on both sides of paper inserts.

2. Separate each item with consecutively numbered heavy stock divider sheets with plastic index tab. Type item number on both sides of paper inserts.

3. Bind the Operation and Maintenance Manuals in three ring, D-ring style binders with page lifters and vinyl covers. Expandable catalog type two-hole binders with soft board covers and metal prong fasteners will not be accepted.

4. Label the front cover and end panel. Label to include Project title, Project number, date, and facility name.

F. Electronic Form:

1. Provide in PDF file format, current version. Provide a single file for each volume.

2. Electronically Index (Bookmark) each section and item, by item data number and name within the electronic submittal.

3. Provide digital copies on Compact Disc (CD) or USB compatible memory card (Flash Drive). Review submittals may be by file transfer or email if coordinated.

1.6 WARRANTIES

A. All manufacturer and supplier standard equipment, item or accessory warranties shall be the Contractor's responsibility under Project warranty period.

B. All warranties longer than the Project warranty period shall be assigned to the Owner.

C. Specified or indicated warranties in the project may remain the responsibility of the Contractor after expiration of Project warranty period.

D. For items of Work delayed materially beyond Date of Substantial Completion, provide updated warranty data within ten days after Owner acceptance, listing date of acceptance as start of warranty period.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 01 73 29 - CUTTING AND PATCHING

A. Requirements and limitations for cutting and patching of Work.

1.2 SUBMITTALS

A. Submit written request in advance of cutting or alteration which affects:

1. Structural integrity of any element of Project.

B. Include in request:

1. Identification of Project and Owner's Project number.

2. Location and description of affected Work.

3. Necessity for cutting or alteration.

4. Description of proposed Work and products to be used.

5. Date and time that Work will be executed.

PART 2 PRODUCTS

2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials: As specified in individual Specification Sections.

B. Match existing products and work for patching and extending Work. Determine quality of existing products by inspection and any necessary testing.

C. For any change in materials, submit request under provisions of Section 01 33 00 the General Requirements.

PART 3 EXECUTION

3.1 GENERAL

A. Execute cutting, fitting, and patching including excavation and fill to complete Work, and to:

1. Fit the several parts together, to integrate with other Work.

2. Remove and replace non-conforming and defective Work.

3. Remove samples of installed Work for testing.

3.2 INSPECTION

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

B. After uncovering, inspect conditions affecting performance of Work.

C. Beginning of cutting or patching means acceptance of existing conditions.

3.3 PREPARATION

A. Provide supports to assure structural integrity of surroundings. Provide devices and employ methods as required to protect other portions of Project from damage.

B. Provide protection from elements for areas that may be exposed by uncovering Work; maintain excavations free of water.

C. Provide devices and employ methods as required to protect Contractor and Owner personnel from openings in walls, floors, and ceilings through which personnel may fall or through which objects may fall on to personnel below.

3.4 PERFORMANCE

A. Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

B. For all new Work, employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

C. Cut rigid materials using masonry saw or core drill. Pneumatic tools and electric hammers are not permitted.

D. Restore Work with new products in accordance with requirements of Contract Documents.

E. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 02 41 19 - SELECTIVE DEMOLITION

A. This section covers selective demolition for renovation projects, including abatement of hazardous materials.

1.2 SUBMITTALS

A. Submit dump receipts, bills of lading, handling and tracking records, and other information demonstrating that all debris and abandoned items resulting from demolition operations have been legally and properly removed from the site.

B. Submit name and qualifications of proposed HAZMAT competent person.

PART 2 PRODUCTS

2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials: As specified in individual Specification Sections.

B. Match existing products and work for patching and extending Work. Determine quality of existing products by inspection and any necessary testing.

PART 3 EXECUTION

3.1 GENERAL

A. Remove existing work, materials and items as indicated on the Drawings, as required by job site conditions, as scheduled, and as specified herein, to accomplish Work and alteration in the existing building.

B. Remove work carefully and only to the extent required for the final Work. Minimize damage to adjacent materials.

C. When portions of existing conditions are shown, it is not meant to indicate that all existing conditions are shown.

D. Patch existing surfaces which are made defective in appearance or function by the execution of Work.

E. Cut rigid materials using masonry saw or core drill. Pneumatic tools and electric hammers are not permitted.

F. Conduct all operations with a minimum of noise.

3.2 PREPARATION FOR DEMOLITION

A. Plan all work in advance, informing Contracting Officer of procedure and schedule.

B. Verify existing conditions affecting Work including existing sizes and materials indicated prior to beginning Work or ordering materials that are affected by existing conditions. Notify Contracting Officer of conflicts in writing.

C. Take reasonable and adequate precautions to protect the Owner's property from damage during demolition Work, moving of debris, and damage by the elements. Restore any damage to Owner property due to the aforesaid work or replace in a manner satisfactory to the Contracting Officer.

D. Provide and maintain suitable barricades, shelters, lights, and danger signals during the progress of the Work. Provide barricades meeting the requirements of the applicable building codes. Assume the responsibility of barriers to completion of Contract and remove at completion of Contract.

E. Where openings are to be cut in existing structures, cut such openings with care. Where materials, equipment, frames, etc., are to be removed, remove such items with care to minimize damage to adjacent materials.

3.3 SELECTIVE DEMOLITION

A. Cut, move, or remove items as necessary for access to alterations and renovations Work; replace and restore at completion.

B. Remove unsuitable material, such as rotted wood, rusted metals, and deteriorated masonry and concrete; replace materials as specified for finished Work.

C. Remove surface finishes and prepare surfaces to provide for proper installation of new Work and new finishes.

3.4 DISPOSAL OF DEBRIS

A. Promptly remove from the site, including concealed spaces, debris resulting from construction and demolition operations and abandoned items. No accumulation of debris will be permitted.

B. Legally and safely dispose of debris resulting from construction and demolition operations at a landfill of the Contractor's choosing off site.

3.5 INSPECTION

A. Verify that demolition is complete, and areas are ready for installation of new Work.

B. Beginning of restoration Work means acceptance of existing conditions.

3.6 ALTERATION AND RENOVATION

A. Coordinate Work of alterations and renovations of existing spaces and materials to expedite completion and to accommodate Owner occupancy.

B. Patch Work in a manner to minimize damage and restore products and finishes to original condition.

C. Fit Work at penetrations of surfaces as specified in Cutting and Patching Specification.

3.7 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces which are disturbed, damaged, or otherwise made defective in appearance or function by the execution of Work under this Contract. Restore to original condition.

B. Repair substrate prior to patching finish.

3.8 FINISHES

A. Finish surfaces as specified in individual Sections.

B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.9 HAZARDOUS MATERIALS

A. There are known hazardous materials present at the Project work area.

3.10 HAZARDOUS MATERIALS

A. Hazardous materials have been identified as being present in areas affected by the Work of this project.

1. Employ a Competent Person to fulfill the role as defined in 29 CFR 1926.32(f), 1926.62, and 1926.111 to identify Hazardous material that may be on site.

2. There may be unidentified or additional hazardous materials, such as ACM, particularly in inaccessible areas that were not previously accessed and tested during the hazardous materials investigation. The contractor shall be alert to the possible presence of hazardous materials that have not been previously identified and safeguard their workers and the public from accidental exposure to hazardous materials. Laboratory costs of testing suspected hazardous materials is at the contractor's expense and reimbursable only if positive. If materials suspected to be hazardous by the contractor test positive, the Owner, at their sole discretion, will either abate the hazardous material with its own forces or will issue a change order to the contractor to have it abated.

3. The stair system contains lead paint. These systems may not be welded, sawed, filed sanded or removed in a manner that would cause lead dust to be released. Areas of less than six square feet in area may be modified by these processes by knowledgeable workers in accordance with regulations. Larger areas of lead paint must be removed by certified and licensed lead abatement personnel.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 05 50 00 - METAL FABRICATIONS

A. Section Includes:

1. Abrasive Metal Nosings and Treads.

2. Stair Stringers.

3. Stair Guard Rails & Hand Rails.

4. Anchor bolts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

1.2 SUBMITTALS

A. Product Data: For the following:

1. Metal nosings and treads.

2. Paint products.

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

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

C. Qualification Data:

1. For qualified installer.

2. For qualified fabricator.

3. For qualified testing agency.

D. Welding certificates.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Fabricator Qualifications: Engage a firm experienced in fabricating work similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to fabricate structural steel without delaying the Work.

C. Welder Qualifications: Qualify procedures and personnel according to the following, as applicable:

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

D. Inspector Qualifications: Tests and Inspections shall be performed by an AWS Certified Weld Inspector (CWI) with the proper AWS certifications to be able to conduct such tests and inspections.

1.4 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

1.5 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

PART 2 PRODUCTS

2.1 METALS, GENERAL

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

2.2 FERROUS METALS

A. Steel Plates, Shapes, Bars, and Channels: ASTM A 36.

B. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.

C. Steel Pipe: ASTM A 53.

2.3 FASTENERS

A. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 325, Type 3; with hex nuts, ASTM A 563, Grade C3; and, where indicated, flat washers.

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

C. Post-Installed Anchors: Per Drawings.

2.4 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Shop Primers: Provide primers that comply with specified finishes.

C. Finish Coat: Macropoxy 646 or approved equal.

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

2.5 FABRICATION, GENERAL

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

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

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

D. Form exposed work with accurate angles and surfaces and straight edges.

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

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

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

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

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

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

2.6 FABRICATION QUALITY CONTROL

A. Testing Agency: Engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports. Minimum testing agency qualifications per Part 1 of this specification.

1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

2. Testing agency will conduct and interpret tests and state in each report whether test specimens comply with or deviate from requirements.

a. All shop welds are to be visually inspected.

3. Inspections listed above are not required where the work is done on the premises of a fabricator registered and approved to perform such work without special inspection, AWS Certified Fabricator or approved equivalent.

2.7 MISCELLANEOUS FRAMING AND SUPPORTS

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

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

C. Galvanize miscellaneous framing and supports where indicated.

D. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

2.8 ABRASIVE METAL NOSINGS AND TREADS

A. Type per Drawings.

B. Drill for mechanical anchors and countersink. Locate holes not more than 4 inches from ends and not more than 12 inches o.c., evenly spaced between ends, unless otherwise indicated. Provide closer spacing if recommended by manufacturer.

1. Provide two rows of holes for units more than 5 inches wide, with two holes aligned at ends and intermediate holes staggered.

2.9 FINISHES, GENERAL

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

B. Finish metal fabrications after assembly.

C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.10 STEEL FINISHES - GENERAL

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

B. Preparation for Macropoxy coating: Prepare surfaces to comply with requirements indicated below:

1. SSPC-SP2/3, "Power Tool Cleaning."

2. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

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

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

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

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

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

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

3.3 INSTALLING NOSINGS, TREADS, AND THRESHOLDS

A. Center nosings on tread widths unless otherwise indicated.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections. Minimum testing agency qualifications per Part 1 of this specification.

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

C. Welded Connections:

1. All field welds will be visually inspected according to AWS D1.1/D1.1M.

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

1) Liquid Penetrant Inspection: ASTM E 165.

2) Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.

3) Ultrasonic Inspection: ASTM E 164.

4) Radiographic Inspection: ASTM E 94.

3.5 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0 mil dry film thickness.

B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint.

C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION

Calculations

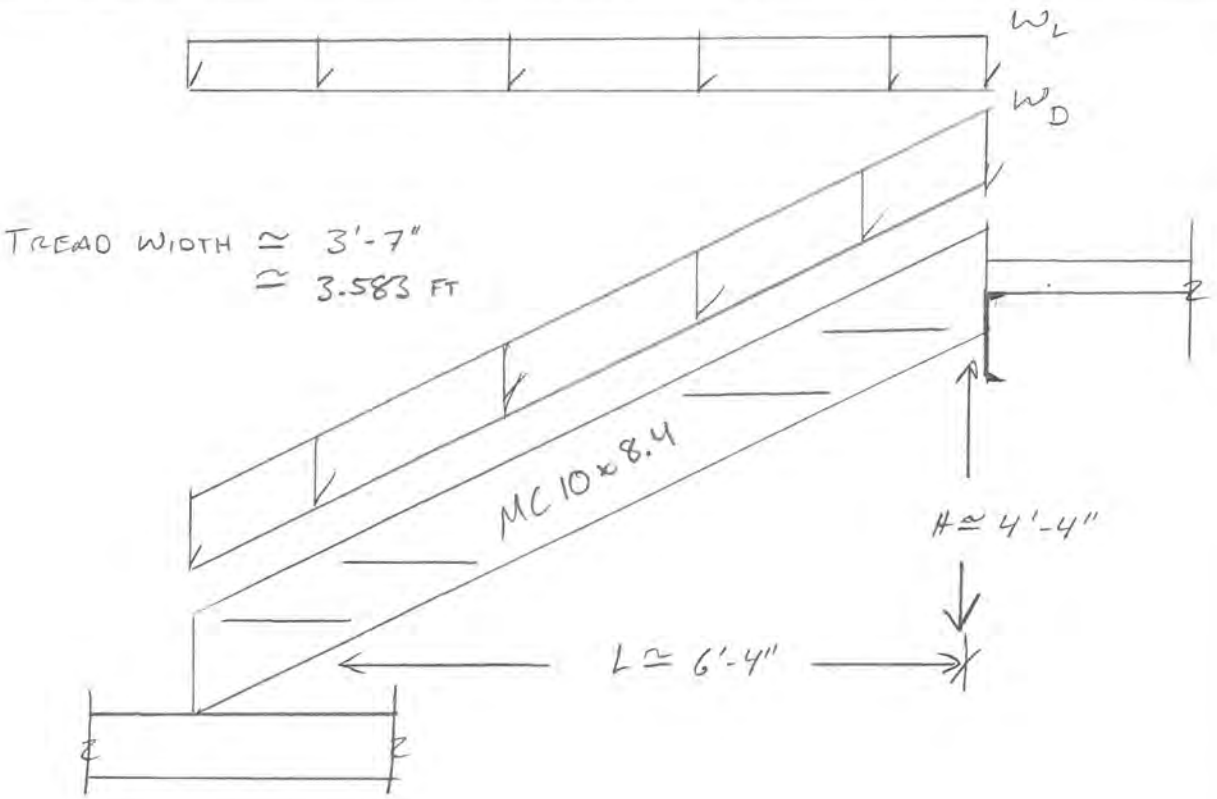
PROJECT CoF FTC TOWER STAIRWELL REPLACEMENT

COMM. NO. 202002 MADE BY SMM DATE 9/18/2020

CHECKED BY DATE

CALCULATIONS FOR MC STRINGER DESIGN SHEET NO. 1 of 4

Design Alaska



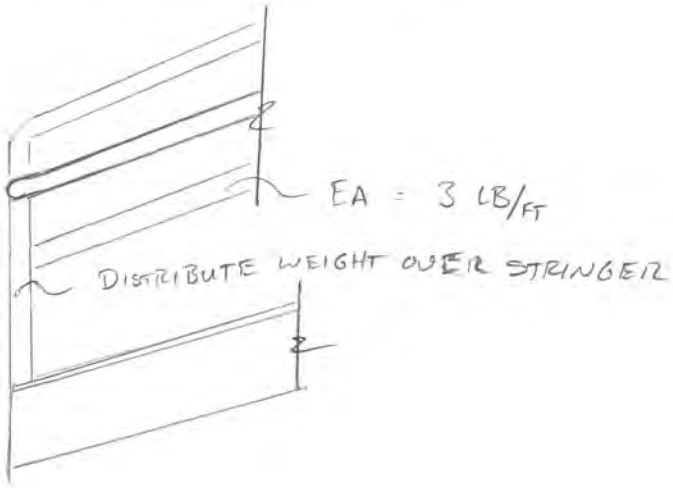
STAIR LOADS

LIVE = 100 PSF OR 300 LB : ASCE 7-10

SELF-WEIGHT = 8.4 LB/FT : MC10x8.4

TREAD WEIGHT = 8.9 PSF : 19W4 TREAD

GUARD RAIL WT = (4) x 3 LB/FT = 12 LB/FT : SCH. 80 PIPE



Design Alaska

-> TRANSLATE HORIZONTAL LIVE LOAD TO LOAD ALONG SLOPE

$$\text{SLOPE LENGTH} = \sqrt{6.33^2 + 4.33^2} = 7.67 \text{ FT}$$

$$\text{LIVE ALONG SLOPE} = 100 \text{ PSF} \times \frac{6.33 \text{ FT}}{7.67 \text{ FT}} = 82.5 \text{ PSF}$$

-> COMBINE LOADS (LRFD)

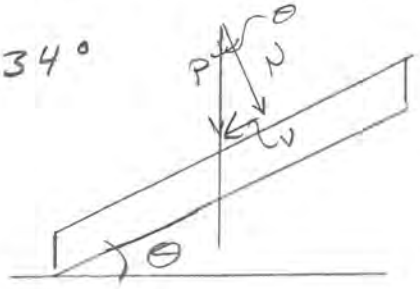
$TL = 1.2\,D + 1.6\,L$: CONTROLING COMBINATION PER ASCE 7-10, 2.3.2

$$TL = 1.2\left(8.4 \tfrac{LB}{FT} + 12 \tfrac{LB}{FT} + \frac{8.9 \text{ PSF}}{2 \text{ STRINGERS}} \times 3.583 \text{ FT}\right) + 1.6\left(\frac{82.5 \text{ PSF}}{2 \text{ STRINGERS}} \times 3.583 \text{ FT}\right)$$

$\therefore TL = 280 \text{ PLF}$

-> DETERMINE THE NORMAL COMPONENT OF THE LOAD

$$\theta = \text{ATAN}\left(\tfrac{4.33}{6.33}\right) = 34°$$



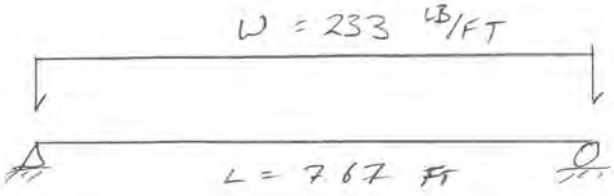
$$TL_N = TL \cdot \cos(\theta) = 280 \text{ PLF} \cdot \cos(34°)$$

$\therefore TL_N = 233 \text{ LB/FT}$

-> DETERMINE DEMAND

$$M_u = \frac{w\ell^2}{8} = \frac{0.233 \text{ K/FT} \times (7.67 \text{ FT})^2}{8}$$

$\therefore M_u = 1.71 \text{ K-FT}$: BENDING MOMENT DUE TO DEAD + DISTRIBUTED LIVE LOAD



PROJECT COF FTC TOWER STAIRWELL REP.
COMM. NO. 202002 MADE BY SMM DATE 9/18/2020
CHECKED BY DATE
CALCULATIONS FOR MC STRINGER DESIGN SHEET NO. 3 of 4

Design Alaska

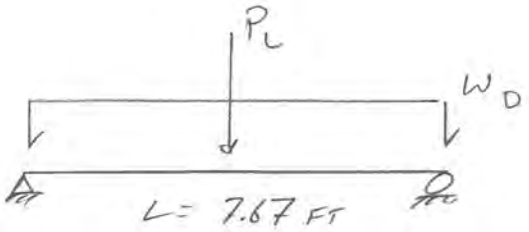
→ CHECK MOMENT DEMAND FROM CONCENTRATED LOAD

WORST CASE IS FOR CONCENTRATED LOAD APPLIED AT MID-SPAN ALONG THE GUARD RAIL EDGE.

LIVE LOAD = 1.6 × 300 LB × cos 34° ≃ 400 LB

DEAD LOAD = $1.2\left(8.4\ ^{LB}/_{FT} + 12\ ^{LB}/_{FT} + \frac{8.9\ PSF}{2\ STRINGER} \times 3.583\ F\right) \times \cos 34°$

= 37 PLF



$$M_u = \frac{w l^2}{8} + \frac{P l}{2}$$

$$= \left(\frac{0.037\ KLF \times (7.67\ FT)^2}{8}\right) + \left(\frac{0.4\ K \times 7.67\ FT}{2}\right)$$

$\therefore M_u = 1.81$ FT-K : BENDING MOMENT DUE TO DEAD + CONCENTRATED LIVE LOAD

→ DETERMINE THE MOMENT CAPACITY

ASSUME AXIAL COMPONENT WILL HAVE A NEGLIGIBLE EFFECT ON CAPACITY

$\phi M_n = 6.75$ FT-KIPS : AISC 15 TABLE 3-11
UNBRACED LENGTH = 7.5 FT

$\therefore$ UTILIZATION = $\frac{1.81}{6.75} = 27\%$

$\therefore$ O.K.

→ MAX SHEAR

$$V = \frac{280\ PLF \times (l = 7.67\ FT)}{2} = 1.07\ KIPS$$

PROJECT COF FTC TOWER STAIRWELL REPAIR

COMM. NO. 202002 MADE BY SMM DATE 9/21/2020

CHECKED BY DATE

CALCULATIONS FOR MC STRINGER DESIGN SHEET NO. 4 of 4

Design Alaska

-7 CHECK MC STRINGER DEFLECTION (LIVE LOAD)

$P_L = 300\ LB \times \cos 34^\circ = 248.7\ LB$

$L = 7.67\ FT \times 12\ \frac{IN}{FT} = 92.04\ IN$

$\frac{l}{360} = \frac{92.04\ IN}{360} = 0.2557\ IN$

$\therefore \Delta_L\ LIMIT = 0.2557\ IN$

$\Delta_{MAX} = \frac{P l^3}{48 EI}$

$= \frac{0.2487\ KIPS \times (92.04\ IN)^3}{48 \times 29{,}000\ KSI \times 31.9\ IN^4} = 0.0044\ IN$

$\therefore$ O.K UNDER POINT LOAD

$W_L = \frac{82.5\ PSF}{2\ STRINGERS} \times 3.583\ FT = 0.148\ K/FT$

$\Delta_{MAX} = \frac{5 w l^4}{384 EI}$

$= \frac{5 \times (0.148\ K/FT)(92.04\ IN)^4}{384 \times 29{,}000\ KSI \times 31.9\ IN^4} = 0.149\ IN$

$\therefore$ O.K. UNDER DIST. LOAD

PROJECT C of FTC STAIRWELL

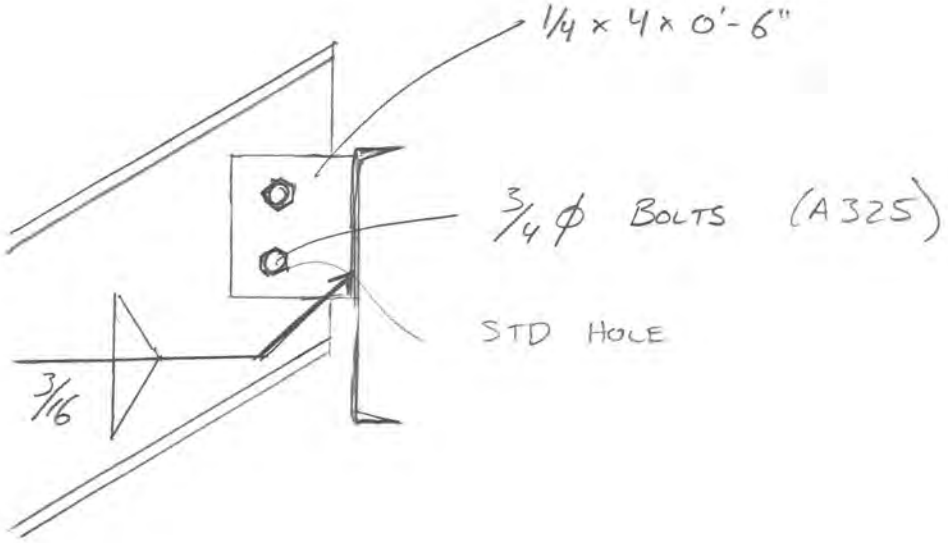
COMM. NO. 202002 MADE BY SMM DATE 9/18/2020

CHECKED BY DATE

CALCULATIONS FOR SHEAR TAB DESIGN SHEET NO. 1 of 1

Design Alaska

DETERMINE CONNECTION CAPACITY OF SHEAR TAB



→ USE AISC 15 TABLE 10-10a

AVAILABLE STRENGTH = 24.5 KIPS

∴ O.K. BY INSPECTION

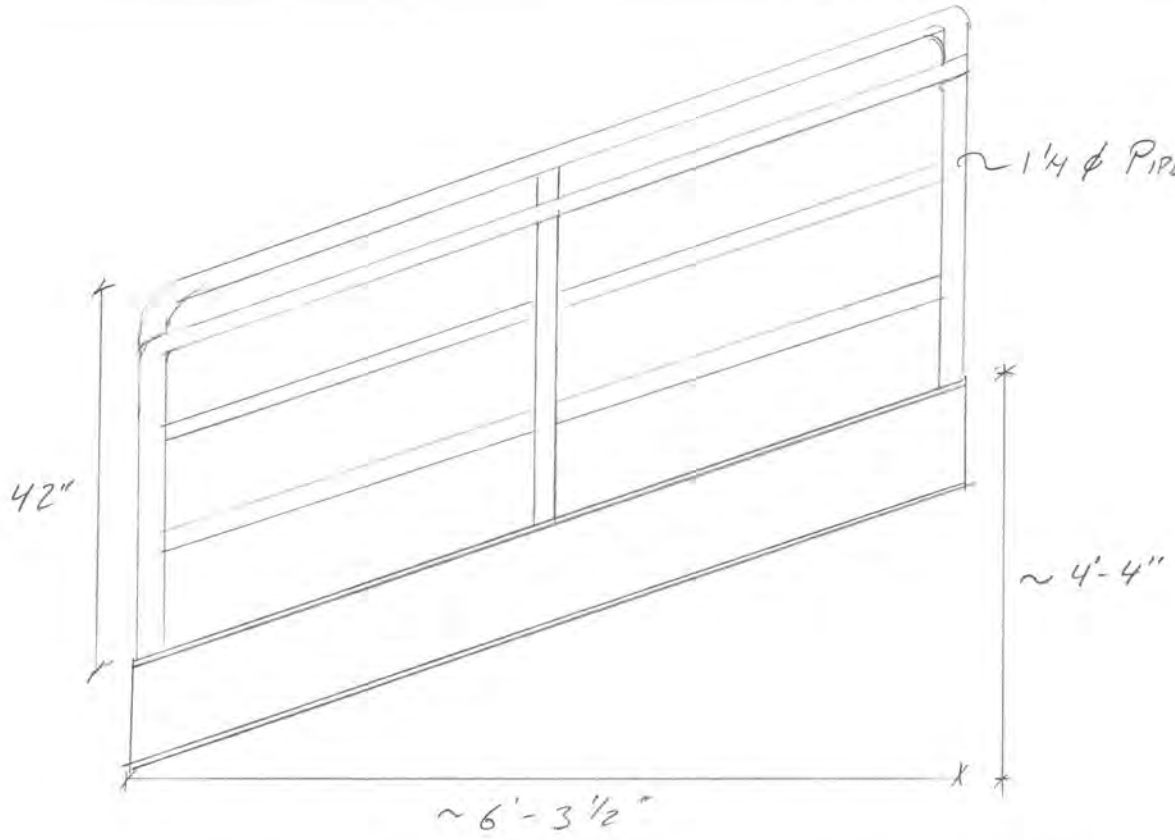
PROJECT CoF FTC Tower Stairwell

COMM. NO. 202002 MADE BY SMM DATE 20 AUG 2020

CHECKED BY DATE

CALCULATIONS FOR Railing Capacity (Existing) SHEET NO. 1-F2

Design Alaska



Handrail length $\simeq \sqrt{(4.33\ \text{Ft})^2 + (6.33\ \text{Ft})^2}$

$\simeq 7.67\ \text{Ft}$

-> Railing is 1-¼" ϕ Pipe - conservatively assume SCH 40 (standard pipe)

Stiffness Ratio for Load Distribution (Graph Appended)

$$CR = \frac{C_{RAIL}}{C_{POST}} = \frac{(EI/L)}{(EI/h)} = \frac{L}{h}$$

$$CR = \frac{\text{Post Spacing}}{\text{Post Height}} = \frac{7.67\ \text{Ft}/2}{3.5\ \text{Ft}}$$

$$CR = 1.1$$

Load Proportion Factors

$P_{f\text{-END POST}} = 0.82$

$P_{f\text{-CENTER POST}} = 0.51$ ← Use $P_{f\text{-CENTER}}$ since end posts are braced at direction change.

PROJECT CoF FTL Tower Stairwell

COMM. NO. 202002 MADE BY SMM DATE 20 Aug 2020

CHECKED BY _____ DATE _____

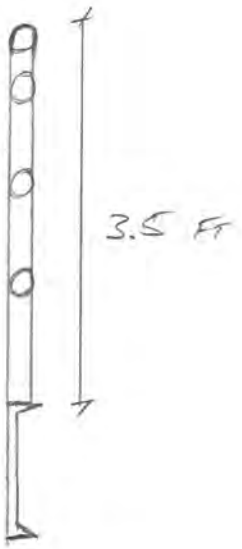
CALCULATIONS FOR Railing Capacity SHEET NO. 2 of 2

Design Alaska

Post Moment Check:

200 LB Point Load per OSHA Standards

$P_L = 1.6 \times 200\ LB$ (LRFD Live) $P_L \rightarrow$



$M_u = P_L \times P_{f\text{-center}} \times h$

$= 320\ LB \times 0.51 \times 3.5\ FT$

$= 0.571\ FT\text{-}KIPS$

$\phi M_n = 0.9 \times F_y \times Z$ [AISC F8.1]

$= 0.9 \times 35\ ksi \times 0.305\ in^3$

$= 9.6\ IN\text{-}KIPS$

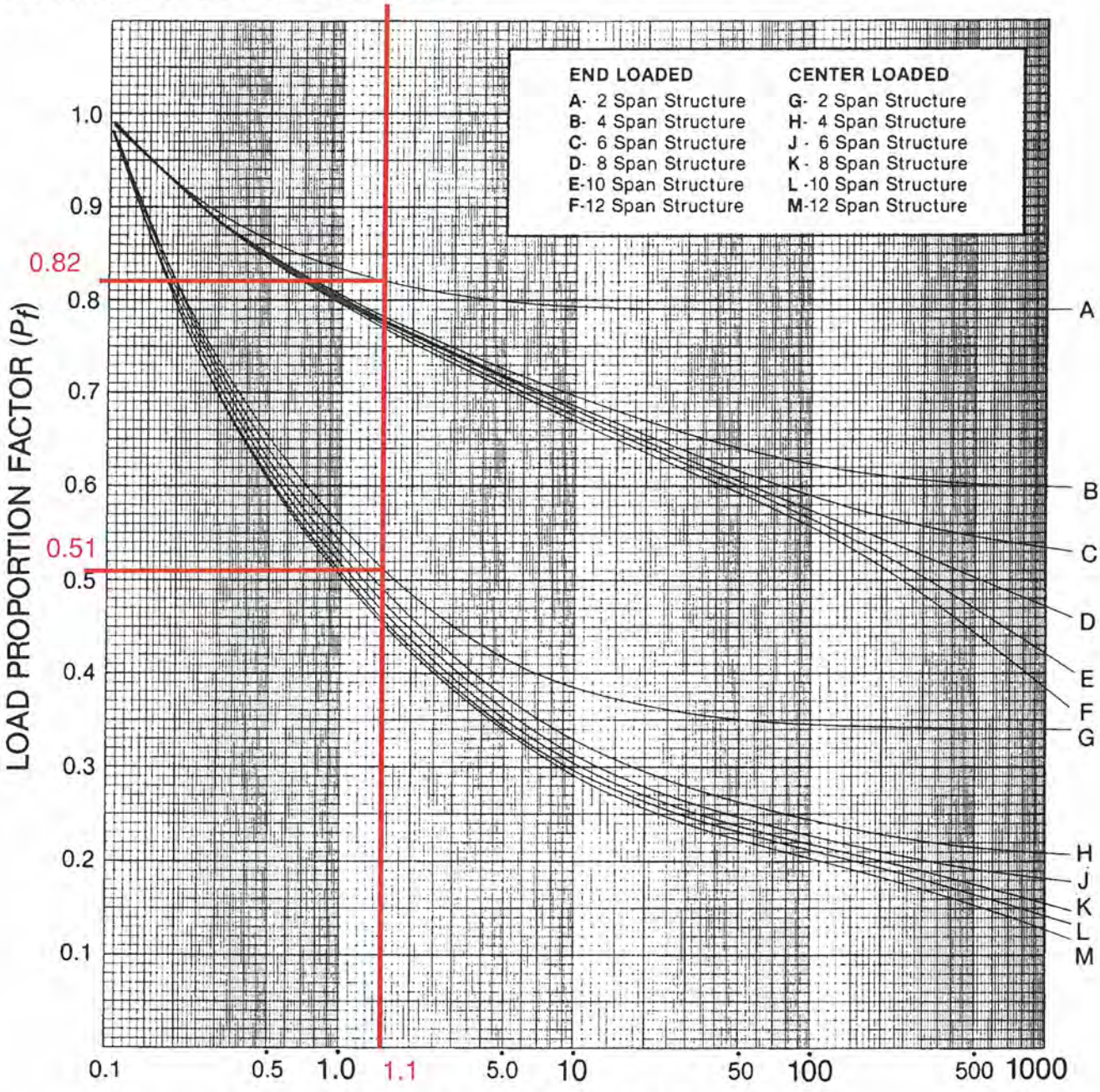
$= 0.8\ FT\text{-}KIPS$ $\therefore$ OK

Railing Moment Check:

$M_u = \frac{320\ LB \times 7.67\ FT/2}{4} = 0.307\ FT\text{-}KIPS$

$\therefore$ O.K.

RAILING SYSTEM LOAD DISTRIBUTION



$$CR = \frac{\text{C rail}}{\text{C post}} \qquad \text{C post} = \frac{EI}{h} \qquad \text{C rail} = \frac{EI}{L}$$

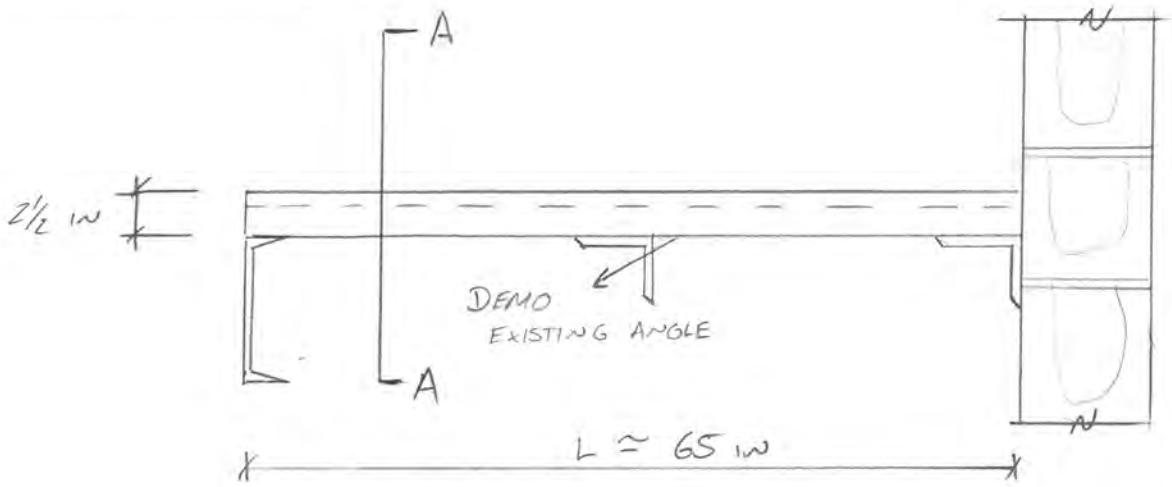
The stiffness ratio (*CR*) is then plotted on the graph above to obtain Load Proportion Factor (P_f).

When the load proportion factor has been determined, it is multiplied by the total load to determine the load one post must sustain.

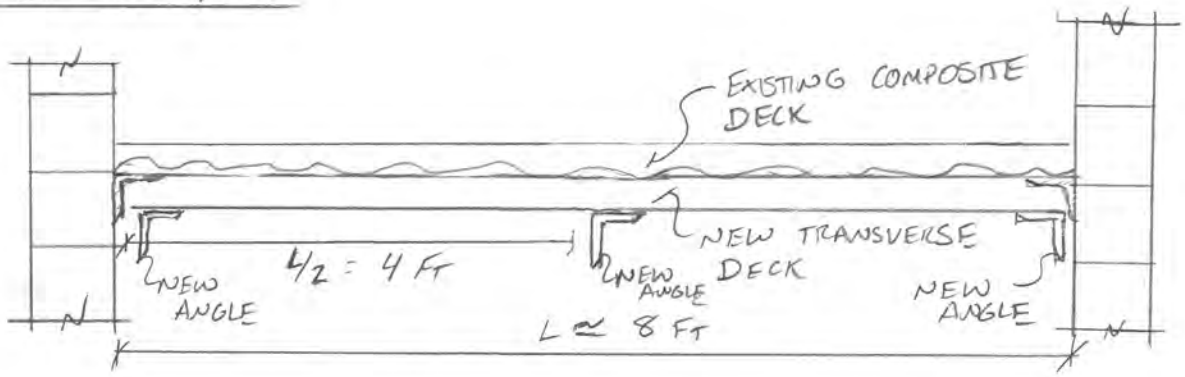
This graph has been determined by computer analysis and confirmed by laboratory test.

Design Alaska

EXISTING LANDING:



SECTION A-A



WEIGHT OF EXISTING DECK:

METAL DECK ≈ 2.5 PSF
2 IN CONC ≈ 25 PSF
] W_{DECK} ≃ 30 PSF

LIVE LOAD = 100 PSF

→ USE ASD TO MATCH FLOOR DECK TABLES

TL = 1.0 D + 1.0 L = 130 PSF

∴ USE TL = 135 PSF TO ACCOUNT FOR LIGHTING HUNG FROM DECK

Design Alaska

-> SELECT DECK USING 4'-6" SPAN TO PROVIDE EXTRA ANGLE MOUNTING TOLERANCE.

-> SELECT DECK WITH BOTTOM FLANGE VENTING

TRY 1.3 CSU 22 :

DESIGN CRITERIA LIMITS - DOUBLE SPAN

$W_{R/\Omega} = 191$ PSF > TL = 135 PSF

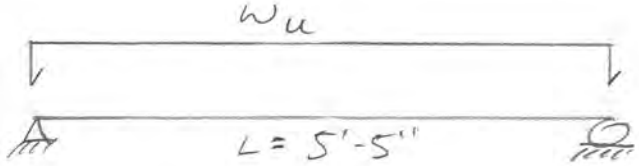
∴ USE VULCRAFT 1.3CSU22

CHECK THE ANGLE SUPPORTS :

TRIB WIDTH = 4/FT

LL = 100 PSF

$DL_{DECK + MISC} = 35$ PSF



TL = 1.2 (35 PSF) + 1.6 (100 PSF)

∴ TL = 202 PSF ⟹ W_u = 4 FT × 202 PSF

∴ W_u = 0.808 KIPS / FT

$$M_u = \frac{w\ell^2}{8} = \frac{(0.808\ K/FT)(5.417\ FT)^2}{8}$$

∴ M_u = 2.96 FT-KIPS

Design Alaska

TRY L3×3×1/4 TO MATCH EXISTING:

SECTION PROPERTIES:

$S_x = 0.569\ in^3$
$I_x = 1.23\ in^4$
$\bar{y} = 0.836\ in$
} AISC 15 TABLE 1-7

A36 STEEL
$F_y = 36\ ksi$
$F_u = 58\ ksi$
} AISC 15 TABLE 2-4

YIELDING:

$M_n = 1.5 M_y$ AISC 15, EQ (F10-1)

$M_y = S_x F_y$
$= 0.569\ in^3 \times 36\ ksi$

$\phi M_n = 0.9 \times 1.5 \times 0.8 \cdot 0.569\ in^3 \times 36\ ksi \times \frac{1\ FT}{12\ in}$ ← DOES NOT APPLY TO FLEXURAL, ONLY BUCKLING

$\therefore \phi M_n = 2.3$ FT-KIPS
$\therefore$ NOT GOOD

→ REDUCE TRIBUTARY WIDTH

USING (3) ANGLES, TRIB WIDTH = 2'-8"

$w_u = 2.67\ FT \times 0.202\ KSF = 0.540\ KLF$

$M_u = \frac{0.540\ KLF \times (5.417\ FT)^2}{8} = 1.98$ FT-KIPS

$\therefore$ O.K. YIELDING.

Design Alaska

-> PER AISC 15 SPEC COMMENTARY, DEFLECTION OFTEN CONTROLS OVER LATERAL-TORSIONAL BUCKLING. CHECK DEFLECTION LIMITS.

PER IBC 2015 TABLE 1604.3 :

$$\Delta L = \frac{\ell}{360}$$

$$= \frac{65 \text{ INCHES}}{360} = 0.18 \text{ INCHES}$$

-> DETERMINE THE LIVE LOAD DEFLECTION OF THE ANGLE

$$W_L = 100 \text{ PSF} \times 2.67 \text{ FT} = 0.267 \text{ KLF}$$

$$\Delta_{MAX} = \frac{5 w_L \ell^4}{384 E I}$$

$$= \frac{5 \times \left(0.267 \text{ KLF} \times \frac{1 \text{ FT}}{12 \text{ IN}}\right)(65 \text{ IN})^4}{384 \cdot 29{,}000 \text{ KSI} \cdot 1.23 \text{ IN}^4}$$

$$= 0.145 \text{ IN}$$

-> PER AISC 15 SPECIFICATIONS COMMENTARY, ACTUAL DEFLECTIONS IN ANGLES MUST BE INCREASED 82% IF DEFLECTIONS ARE DETERMINED ABOUT THE GEOMETRIC AXIS.

$$\therefore \Delta_{MAX} = 1.82 \times 0.145 \text{ IN} = 0.263 \text{ IN}$$

NOT ACCEPTABLE

Design Alaska

TRY L3×3×7/16 :

$$\Delta_{MAX-LL} = \frac{5 \cdot \left(0.267\ ^{K}/_{FT} \times \frac{1}{12}\right)(65\ IN)^4}{384 \cdot 29{,}000\ KSI \cdot 1.98\ IN^4}$$

$$\therefore \Delta_{MAX-LL} = 0.164\ \text{INCHES} \Rightarrow \text{O.K.}$$

→ CHECK LATERAL-TORSIONAL BUCKLING

1) DETERMINE RATIO OF M_y/M_{CR}

$$M_y = (F_y = 36\ KSI)(S_x = 0.946\ IN^3)(0.8)$$ (0.8 FACTOR FOR L.T.B)

$$= 27.24\ KIP\text{-}IN$$

$$M_{cr} = \frac{0.58\ E\ b^4 t\ C_b}{L_b^2}\left[\sqrt{1 + 0.88\left(\frac{L_b \cdot t}{b^2}\right)^2} + 1\right]$$

WHERE:

$C_b = 1.14$ AISC 15 MANUAL T3-1

$E = 29{,}000\ KSI$

$b = 3\ \text{INCHES}$

$t = 7/16\ \text{INCHES}$

$L_b = 65\ \text{INCHES}$

$$= \left(\frac{0.58 \times 29{,}000\ KSI \times (3\ IN)^4 \times 7/16\ IN \times 1.14}{(65\ IN)^2}\right) \times \ldots$$

$$\ldots \left[\sqrt{1 + 0.88\left(\frac{65\ IN \times 7/16\ IN}{(3\ IN)^2}\right)^2} + 1\right]$$

$$\therefore M_{cr} = 73.8\ \text{IN-KIPS}$$

Design Alaska

$$\frac{M_y}{M_{cr}} = \frac{27.24 \text{ IN-KIPS}}{73.8 \text{ IN-KIPS}} \leq 1.0$$

$$\therefore M_n = \left(1.92 - 1.17\sqrt{\frac{M_y}{M_{cr}}}\right) M_y \leq 1.5 M_y$$

$$= \left(1.92 - 1.17\sqrt{\frac{27.24}{73.8}}\right) \times 27.24 \text{ IN-KIPS} \leq 1.5 \times 27.24$$

$$= 32.9 \text{ IN-KIPS} \leq 40.86 \text{ IN-KIPS}$$

$\therefore$ LATERAL - TORSIONAL BUCKLING CONTROLS

$$\phi M_n = 32.9 \text{ IN-KIPS } (0.9)$$

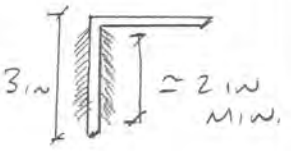
$$\therefore \phi M_n = 2.47 \text{ IN-KIPS}$$

$\therefore$ USE L 3x3 x 7/16
MAX LENGTH = 5' - 5"
MAX SPACING = 2' - 8"

USE 3/16 FILLET EA SIDE OF VERTICAL LEG

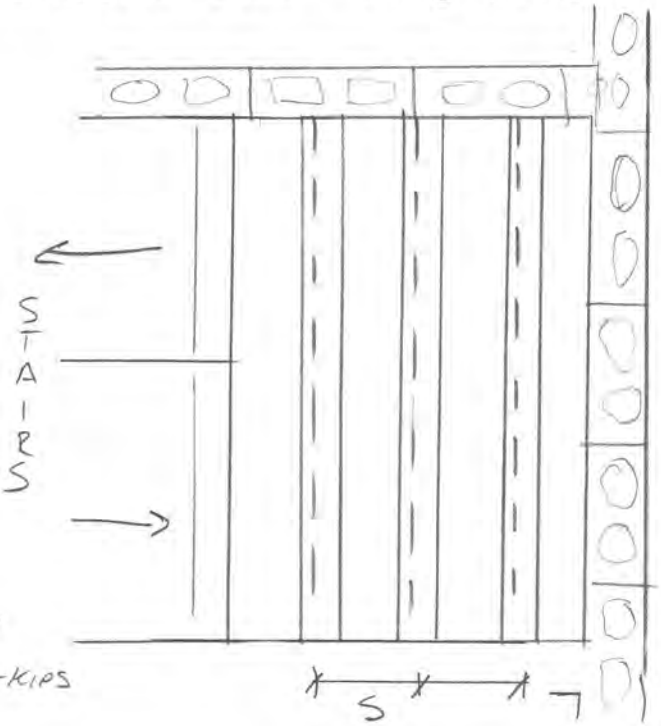
$$\phi R_n = 1.392 \text{ KIP/IN} \times 3 \times 4 \text{ IN}$$

$$\therefore \phi R_n = 16.7 \text{ KIPS} \Rightarrow \text{O.K.}$$



Design Alaska

-7 CHECK ADDITIONAL L3x3x— MEMBERS ADDED TO MILDLY CORRODED DECK → NO NEW NON-COMPOSITE DECK



$TL = 202$ PSF

$w_u = 202\ PSF \times 1.5\ FT$

$= 0.303$ KLF

$M_u = \frac{0.303\ KLF \times (8FT)^2}{8}$

$= 2.424$ KIP-FT

$\phi M_n = S_x F_y \phi$

$= 0.946\ in^3 \times 36 ksi \times 0.9$

$= 30.65$ IN-K $= 2.55$ FT-KIPS

∴ O.K. YIELDING

$S \approx 1.5$ FT

$L = 8$ FT

ANGLE = L3x3x7/16

$\Delta L = \frac{5 w l^4}{384 E I} \times 1.82$

$= \frac{5 \times (0.1\ KSF \times 1.5\ FT)(96\ in)^4}{384 \times 29{,}000 ksi \times 1.98\ in^4} \times 1.82 = 0.438$ IN

$\Delta LL\_ALLOW = \frac{l}{360} = \frac{96}{360} = 0.267$ IN

∴ NOT GOOD IN DEFL.

Design Alaska

→ TRY 2L 3×3×3/16

SECTION PROPERTIES:

$I_x = 2 \times 0.948\ in^4 = 1.896\ in^4$

$S_x = 2 \times 0.433\ in^3 = 0.866\ in^3$

$F_y = 36\ ksi \quad F_u = 58\ ksi$

$Z_x = 2 \times 0.774\ in^3 = 1.548\ in^3$

1) CHECK YIELDING - WEB LEGS IN TENSION

$M_n = M_p = F_y Z_x \leq 1.6 F_y S_x$

$= 36\ ksi \times 1.548\ in^3 \leq 1.6 \times 36\ ksi \times 0.866\ in^3$

$= 55.73\ in\text{-}kip \leq 49.88\ in\text{-}kip$ (CONTROLS)

$\therefore \phi M_n = 0.9 \times 49.88\ in\text{-}kips = 44.9\ in\text{-}kips$

$\therefore \phi M_n = 3.74\ ft\text{-}kips$

2) CHECK MEMBER IN DEFLECTION (LIVE LOAD)

$w_L = 0.1\ ksf \times (2\ ft = \text{TRIB WIDTH}) = 0.2\ klf$

$\Delta_{LL} = \frac{\ell}{360} = \frac{96\ in}{360} = 0.267\ inches$

$I_{REQ} = \frac{5\, w_L\, \ell^4}{384 \cdot E \cdot \Delta_{LL}}$

$= \frac{5 \cdot (0.2\ klf/12)(96\ in)^4}{384 \cdot 29{,}000\ ksi \cdot 0.267\ in}$

$\therefore I_{REQ} = 2.38\ in^4 > I_{x\text{-}2L3\times3\times3/16} = 1.896\ in^4$

$\Rightarrow$ SELECT LARGER ANGLE

Design Alaska

TRY 2L 3x3x 1/4

SECTION PROPERTIES:

$I_x = 2 \times 1.23\ in^4 = 2.46\ in^4$

$S_x = 2 \times 0.569\ in^3 = 1.138\ in^3$

$Z_x = 2 \times 1.02\ in^3 = 2.04\ in^3$

$F_y = 36\ ksi \qquad F_u = 58\ ksi$

1) CONFIRM DEFLECTION

$$\Delta_{LL} = \frac{5 \times \left(\frac{0.2\ KLF}{12}\right) \times (96\ in)^4}{384 \times 29{,}000\ ksi \times 2.46\ in^4} = 0.258\ in$$

$$\left(\Delta_{LL} = 0.258\ in\right) \leq \left(\frac{\ell}{360} = 0.267\ in\right) \quad \therefore O.K.$$

2) CHECK YIELDING

→ WEB LEGS IN TENSION

$$M_u = \frac{(0.202\ PSF \times 2\ FT)(8\ FT)^2}{8} = 3.23\ FT\text{-}KIPS$$

$M_u \leq \phi M_n$ FOR 2L 3x3x 3/16

$\therefore$ 2L 3x3x 1/4 O.K. BY INSP.

Design Alaska

-7 Lighter approach is to use HSS 3x3x 1/4

To carry largest landing load, (4) 2L3x3x1/4 are required. Replace with (4) HSS 5x3x1/4 to reduce weight and fabrication.

-7 Deflection controls design:

$$\frac{\ell}{360} = \frac{96\,in}{360} = 0.267$$

$$\Delta_{L-HSS} = \frac{5\times\left(\frac{0.2\,k/ft}{12}\right)(96\,in)^4}{384\times 29000\,ksi\times 3.02\,in^4} = 0.210\,in$$

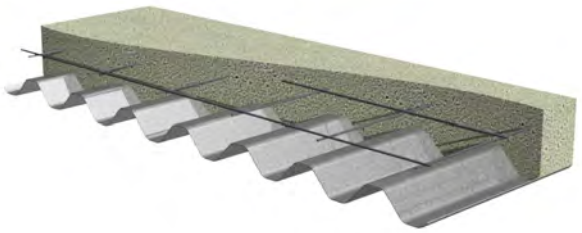
$$\left(\Delta_{L-HSS} = 0.210\,in\right) \le \left(\frac{\ell}{360} = 0.267\right)$$

$\therefore$ HSS 3x3x1/4 is O.K.

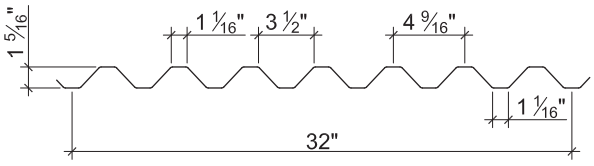
HSS Z_x and S_x are both greater than 2X the SA and Z_x for L 3x3x1/4. Since yielding of angles was sufficient, by inspection, the HSS 3x3x1/4 are sufficient.

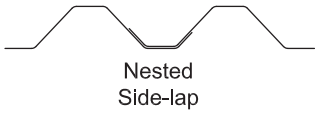
1.3C-32 NON-COMPOSITE DECK & ROOF DECK
GRADE 80 STEEL

ASD



Nominal Dimensions





Section Properties

Deck Gage	Deck Weight w_{dd} (psf)	Base Metal Thickness t (in.)	Yield Strength F_y (ksi)	Effective Moment of Inertia at Service Load $I_d = (2I_e+I_g)/3$ I_d+ (in⁴/ft)	I_d- (in⁴/ft)	Effective Section Modulus at F_y = 60 ksi S_e+ (in³/ft)	S_e- (in³/ft)	Allowable Moment M_n+/Ω (lb-ft/ft)	M_n-/Ω (lb-ft/ft)	Vertical Web Shear V_n/Ω (lb/ft)
26	0.9	0.0179	60	0.067	0.067	0.080	0.089	240	266	1422
24	1.3	0.0239	60	0.093	0.092	0.126	0.130	377	389	2538
22	1.6	0.0295	60	0.116	0.116	0.163	0.163	488	488	3481
20	1.9	0.0358	60	0.139	0.139	0.197	0.197	590	590	4211

Allowable Reactions at Supports Based on Web Crippling, R_n/Ω (lb/ft)

Deck Gage	Bearing Length of Webs, One-Flange Loading: End Bearing 1½"	End Bearing 2"	End Bearing 3"	Interior Bearing 1½"	Interior Bearing 2"	Interior Bearing 3"
26	353	391	454	393	430	492
24	614	677	783	746	812	923
22	915	1006	1158	1166	1265	1431
20	1318	1444	1656	1744	1885	2122

Standard Features

- ASTM A653 SS GR80 with G60
- Standard lengths – 6'-0" to 42'-0"
- IAPMO UES ER-652 and UL Listed
- Tables conform to ANSI/SDI NC-2017 and RD-2017

Optional Features

- Inquire regarding cost and lead times for:
  - -Short cuts < 6'-0"
  - -Sheet Lengths > 42'-0"
  - -Alternative metallic and painted finishes
- Side-lap or bottom flange slot venting

Inward Uniform Allowable Loads, ASD (psf)

Deck Gage	Spans	Criteria	Span (ft-in.) 4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	9'-0"	10'-0"
26	Single	W_n / Ω	120	95	77	63	53	45	39	34	30	24	19
		L/240	69	48	35	26	20	16	13	10	9	6	4
	Double	W_n / Ω	130	103	84	69	59	50	43	38	33	26	21
		L/240	---	---	---	64	49	39	31	25	21	15	11
	Triple	W_n / Ω	160	128	104	86	73	62	54	47	41	33	26
		L/240	130	91	66	50	38	30	24	20	16	11	8
24	Single	W_n / Ω	189	149	121	100	84	71	62	54	47	37	30
		L/240	95	67	49	37	28	22	18	14	12	8	6
	Double	W_n / Ω	191	152	123	102	86	73	63	55	48	38	31
		L/240	---	---	116	87	67	53	42	34	28	20	15
	Triple	W_n / Ω	237	188	153	127	107	91	79	69	60	48	39
		L/240	178	125	91	68	53	41	33	27	22	16	11
22	Single	W_n / Ω	244	193	156	129	108	92	80	69	61	48	39
		L/240	119	83	61	46	35	28	22	18	15	10	8
	Double	W_n / Ω	240	191	155	128	108	92	79	69	61	48	39
		L/240	---	---	147	110	85	67	53	43	36	25	18
	Triple	W_n / Ω	298	237	193	159	134	115	99	86	76	60	49
		L/240	224	158	115	86	66	52	42	34	28	20	14
20	Single	W_n / Ω	295	233	189	156	131	112	96	84	74	58	47
		L/240	142	100	73	55	42	33	27	22	18	12	9
	Double	W_n / Ω	290	230	187	155	130	111	96	84	73	58	47
		L/240	---	---	176	132	102	80	64	52	43	30	22
	Triple	W_n / Ω	361	286	233	193	162	138	120	104	92	73	59
		L/240	269	189	138	103	80	63	50	41	34	24	17

Notes:

1. Table does not account for web crippling. Required bearing should be determined based on specific span conditions.
2. The symbol "---" indicates that the uniform allowable load based on deflection exceeds the allowable load based on stress.

Steel Stair Treads

Steel grating stair treads are available fabricated to any size in type “W” welded, type "**DT**" dovetail pressure locked, or type "**SL**" swage locked grating. Treads are manufactured with a defined visible nosing and pre-punched end carrier plates or angles, ready for bolting or welding to the stair stringers.

Nosing Options

Checker Plate Nosing
welded to grating and carrier plates/angles

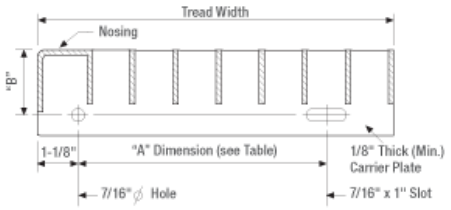
Cast Abrasive Nosing with Mounting Angle
mechanically fastened to welded mounting angle

Algrip Nosing
welded to grating and carrier plates/angles

Steel Carrier Plates & Angles

Steel Carrier Plates

Recommended for use with 19, 15, and 11 spaced gratings



"B" Dimension
1-3/4" for 3/4" thru 1-1/4" bearing bars
2-1/4" for 1-1/2" thru 1-3/4" bearing bars
3-1/4" for 2" thru 2-1/2" bearing bars

Steel Carrier Angles

Recommended for use with 8 and 7 spaced gratings

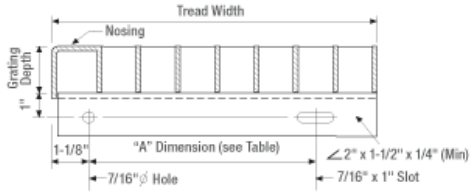


Table of Stair Tread Widths

19 Space			15 Space			11 Space		
Bearing Bars @ 1-3/16" O.C.			Bearing Bars @ 15/16" O.C.			Bearing Bars @ 11/16" O.C.		
Nominal Tread Width	Number of Bearing Bars	Standard "A" Dimension	Nominal Tread Width	Number of Bearing Bars	Standard "A" Dimension	Nominal Tread Width	Number of Bearing Bars	Standard "A" Dimension
6-1/4"	5	2-1/2"	7"	7	4-1/2"	6-1/4"	8	2-1/2"
7-3/8"	6	4-1/2"	8"	8	4-1/2"	7-5/8"	10	4-1/2"
8-1/2"	7	4-1/2"	8-7/8"	9	4-1/2"	9"	12	4-1/2"
9-3/4"	8	7"	9-7/8"	10	7"	10-3/8"	14	7"
11"	9	7"	10-3/4"	11	7"	11"	15	7"
12-1/8"	10	7"	11-5/8"	12	7"	11-3/4"	16	7"

8 Space			7 Space		
Bearing Bars @ 1/2" O.C.			Bearing Bars @ 7/16" O.C.		
Nominal Tread Width	Number of Bearing Bars	Standard "A" Dimension	Nominal Tread Width	Number of Bearing Bars	Standard "A" Dimension
6-1/2"	11	2-1/2"	6-3/4"	13	2-1/2"
7-1/2"	13	4-1/2"	7-5/8"	15	4-1/2"
9"	16	4-1/2"	8-1/2"	17	4-1/2"
10"	18	7"	10-1/8"	21	7"
11"	20	7"	11-1/8"	23	7"
12"	22	7"	12"	25	7"

Recommended Maximum Steel Stair Tread Lengths*

Bearing Bar Size	19 Space		15 Space		11 Space	
	1-3/16" O.C.		15/16" O.C.		11/16" O.C.	
	Plain	Serrated	Plain	Serrated	Plain	Serrated
3/4" x 3/16"	2'-4"	—	2'-8"	—	3'-1"	—
1" x 3/16"	3'-5"	2'-10"	4'-0"	3'-4"	4'-3"	3'-9"
1-1/4" x 3/16"	4'-8"	4'-2"	5'-1"	4'-6"	5'-6"	4'-10"
1-1/2" x 3/16"	5'-6"	5'-3"	5'-6"	5'-6"	5'-6"	5'-6"
1-3/4" x 3/16"	5'-6"	5'-6"	5'-8"	5'-6"	5'-11"	5'-7"
2" x 3/16"	5'-11"	5'-7"	6'-4"	6'-0'	6'-9"	6'-4"
2-1/4" x 3/16"	6'-8"	6'-3"	7'-1"	6'-9"	7'-7"	7'-2"
2-1/2" x 3/16"	7'-4"	7'-0"	7'-11"	7'-6"	8'-4"	7'-11"

Bearing Bar Size	8 Space		7 Space	
	1/2" O.C.		7/16" O.C.	
	Plain	Serrated	Plain	Serrated
3/4" x 3/16"	3'-7"	—	3'-10"	—
1" x 3/16"	4'-9"	4'-1"	5'-2"	4'-5"
1-1/4" x 3/16"	5'-6"	5'-5"	5'-6"	5'-6"
1-1/2" x 3/16"	5'-8"	5'-6"	5'-10"	5'-5"
1-3/4" x 3/16"	6'-6"	6'-1"	6'-9"	6'-4"
2" x 3/16"	7'-5"	6'-11"	7'-8"	7'-3"
2-1/4" x 3/16"	8'-3"	7'-10"	8'-7"	8'-2"
2-1/2" x 3/16"	9'-2"	8'-9"	9'-6"	9'-1"

* For treads up to 5'-6", maximum tread lengths are based upon 300 lb. concentrated load on the front 5 inches of the tread, at the center of the tread length. When treads exceed 5'-6" in length, design allows for 300 lb. concentrated loads at 1/3 points of tread length. Deflection is limited to the lesser of .250" or 1/240 of tread length in all cases.

Drawings

CITY OF FAIRBANKS

FIRE TRAINING CENTER TOWER STAIRWELL REPAIR

FAIRBANKS, ALASKA

GENERAL
G001 GENERAL INFORMATION

STRUCTURAL
S001 STRUCTURAL GENERAL NOTES
S100 STAIRWELL DEMOLITION
S200 STAIRWELL REPAIRS
S201 STAIRWELL REPAIRS - DETAILS
S202 STAIRWELL REPAIRS - DETAILS

PROJECT TEAM

OWNERS REPRESENTATIVE
CITY OF FAIRBANKS
POINT OF CONTACT: JEFF JACOBSON
800 CUSHMAN STREET, FAIRBANKS, AK 99701
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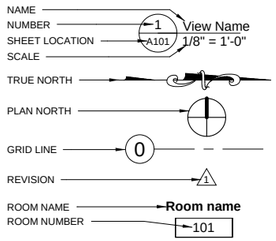
DESIGNERS REPRESENTATIVE
DESIGN ALASKA
POINT OF CONTACT: PATRICK BRANDON
601 COLLEGE ROAD, FAIRBANKS, AK 99701
907 452-1241
patrickb@designalaska.com

GENERAL SYMBOLS

SEE DISCIPLINES FOR SPECIFIC SYMBOLS



ALASKA MAP

VICINITY MAP

Design Alaska
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601 College Road Fairbanks AK 99701
907.452.1241 AECC511 designalaska.com

FIRE TRAINING CENTER TOWER STAIRWELL REPAIR

ISSUE DATE	30 SEPT 2020
COMM. NUMBER	202002
DESIGNED BY	SMM
DRAWN BY	SMM
SCALE	0" 1"

GENERAL INFORMATION

G001

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GENERAL STRUCTURAL NOTES

A. DESIGN CRITERIA
1. BUILDING CODE..... 2015 IBC (INTERNATIONAL BUILDING CODE)
   GOVERNING JURISDICTION..... CITY OF FAIRBANKS
2. LIVE LOADS
   FLOOR LIVE LOAD (STAIRS AND CORRIDORS) ..... 100 PSF / 300 LB CONCENTRATED

B. STRUCTURAL STEEL
1. SQUARE/RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 GRADE C (Fy = 50 KSI).
2. PIPE SHALL CONFORM TO ASTM A53 GRADE B (Fy = 35 KSI).
3. ANGLES, PLATES, AND CHANNELS SHALL BE ASTM A36 (Fy = 36 KSI).
4. ALL STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.
5. BOLTED CONNECTIONS SHALL BE ACCOMPLISHED WITH HIGH-STRENGTH BOLTS CONFORMING TO ASTM A325 IN STANDARD HOLES UNLESS NOTED OTHERWISE.
6. ALL BOLTED CONNECTIONS SHALL BE SNUG TIGHT AT A MINIMUM.
7. WELDING SHALL BE PERFORMED WITH E70XX ELECTRODES. WELDING SHALL BE DONE BY QUALIFIED WELDERS AND SHALL CONFORM TO THE AWS D1.1 STRUCTURAL WELDING CODE-STEEL, LATEST EDITION. ALL WELDS ARE INTENDED TO BE CONTINUOUS UNLESS NOTED OTHERWISE.
8. FIELD WELDS NOTED THROUGHOUT THE CONTRACT DOCUMENTS ARE ACCEPTABLE LOCATIONS FOR FIELD WELDING AT THE CONTRACTOR'S OPTION. FIELD WELDS MAY BE PERFORMED IN THE SHOP.

C. POST-INSTALLED ANCHORS
POST-INSTALLED ANCHORS SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

CONCRETE
SCREW ANCHORS
- INTERIOR: HILTI KH-EZ OR SIMPSON TITEN HD
- EXTERIOR: SIMPSON TITEN HD, 316 STAINLESS

MASONRY
HOLLOW CMU CELLS:
- INTERIOR: ASTM F1554 GRADE 36 THREADED ROD WITH HILTI HIT-HY 270 ADHESIVE IN SLEEVE, MIN 2" EMBED
- EXTERIOR: 304 OR 316 STAINLESS THREADED ROD WITH HILTI HIT-HY 270 ADHESIVE IN SLEEVE, MIN 2" EMBED

GROUTED CMU CELLS:
- INTERIOR: ASTM F1554 GRADE 36 THREADED ROD WITH HILTI HIT-HY 270 ADHESIVE, MIN 4-1/2" EMBED
- EXTERIOR: 304 OR 316 STAINLESS THREADED ROD WITH HILTI HIT-HY 270 ADHESIVE, MIN 4-1/2" EMBED

1. INSTALL POST-INSTALLED ANCHORS ONLY AS INDICATED ON THE DRAWINGS OR WITH SPECIFIC WRITTEN APPROVAL OF THE ENGINEER PRIOR TO INSTALLATION.
2. THE CONTRACTOR MAY NOT USE SUBSTITUTES FOR THE POST-INSTALLED ANCHORS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
3. SEE DRAWINGS FOR ANCHOR TYPE, SIZE, AND EMBEDMENT DEPTHS. INSTALL ANCHORS AS OUTLINED IN MANUFACTURER'S SPECIFICATIONS AND ICC REPORTS. UTILIZE PROPER DRILL TYPE, BIT SIZE, AND HOLE CLEANING, DRIVING OR TIGHTENING TECHNIQUES, UNLESS NOTED OTHERWISE.

D. STEEL DECK
1. STEEL DECK INSTALLATION SHALL COMPLY WITH ALL MANUFACTURER'S REQUIREMENTS AND THE STEEL DECK INSTITUTE'S SPECIFICATIONS FOR FABRICATION AND ERECTION.
2. BUILDING SYSTEMS & EQUIPMENT HUNG FROM STEEL DECK SHALL BE LIMITED TO LIGHT FIXTURES AND THE CONDUIT SERVING THEM.

E. GENERAL
1. CONTRACTOR IS TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS TO MATCH NEW CONSTRUCTION TO EXISTING CONSTRUCTION.
2. THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OR SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO: BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES FOR PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO (NOR SHALL OBSERVATION VISITS TO THE SITE INCLUDE INSPECTION OF THESE ITEMS.)
3. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF ALL SCAFFOLDING, BRACING AND SHORING.
4. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION. LOADS SHALL NOT EXCEED THE DESIGN LIVE LOAD.
5. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
6. DO NOT USE SCALED DIMENSIONS TAKEN FROM STRUCTURAL DRAWINGS. CONTACT STRUCTURAL ENGINEER IF DIMENSIONAL INFORMATION IS MISSING.

SPECIAL INSPECTIONS

THE FOLLOWING STRUCTURAL ITEMS REQUIRE SPECIAL INSPECTION PER IBC SECTIONS 1704-1707.
SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR INSPECTION AND TESTING THAT ARE NOT PART OF SPECIAL INSPECTIONS.

CONTINUOUS: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED.

PERIODIC: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.

SYSTEM or MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE or STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
DIVISION #03 - CONCRETE					
CONCRETE					
INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE	TABLE 1705.3			X	SPECIAL INSPECTIONS APPLY TO ANCHOR PRODUCT NAME, TYPE, AND DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, ADHESIVE EXPIRATION DATE, ANCHOR/ADHESIVE INSTALLATION, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE. INSPECTION FREQUENCY PER MANUFACTURER'S REQUIREMENTS BUT NOT LESS THAN 10% OF EACH ANCHOR, DOWEL, OR ADHESIVE TYPE
DIVISION #05 - METALS					
FABRICATORS					
FABRICATORS	1704.2.5 1704.2.5.1			X	SPECIAL INSPECTION IS REQUIRED FOR STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES FABRICATED ON THE PREMISES OF A FABRICATOR'S SHOP NOTE: SPECIAL INSPECTION IS NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION
STEEL					
HIGH STRENGTH BOLTING: (1) SNUG-TIGHT JOINT HIGH-STRENGTH BOLT INSTALLATION	1705.2.1	RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS SECTION 9 AISC 360: SECT. M2.5, N5.6.1		X	ALL CONNECTIONS INSPECTED AND VERIFIED SNUG
VERIFICATION OF FRAME JOINT DETAILS INCLUDING MEMBER AND COMPONENT LOCATIONS, BRACING, AND STIFFENERS		AISC 360 N5.7		X	
SINGLE PASS FILLET WELDS LESS THAN OR EQUAL TO 5/16"	1705.2.1 TABLE 1705.3	AWS D1.1 AISC 360 J2.2		X	ALL WELDS VISUALLY INSPECTED PER AWS D1.1 6.9 EXCEPTION: SPECIAL INSPECTION OF RAILING SYSTEMS COMPOSED OF STRUCTURAL STEEL ELEMENTS SHALL BE LIMITED TO WELDING INSPECTION OF WELDS AT THE BASE OF CANTILEVERED RAIL POSTS (1705.2.1)

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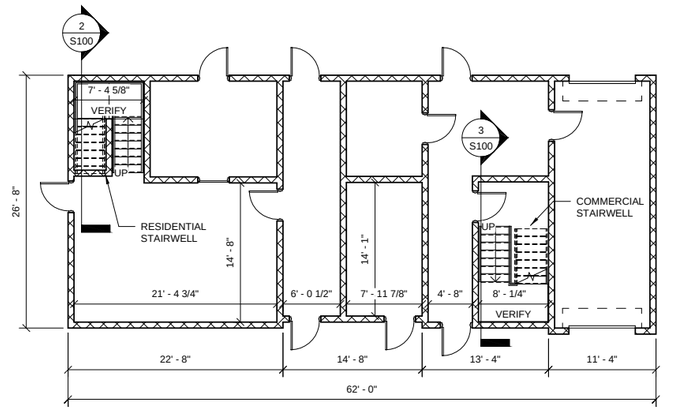
Patrick S. Brandon
30-Sep-2020
CE117988
REGISTERED PROFESSIONAL ENGINEER

FIRE TRAINING CENTER TOWER STAIRWELL REPAIR

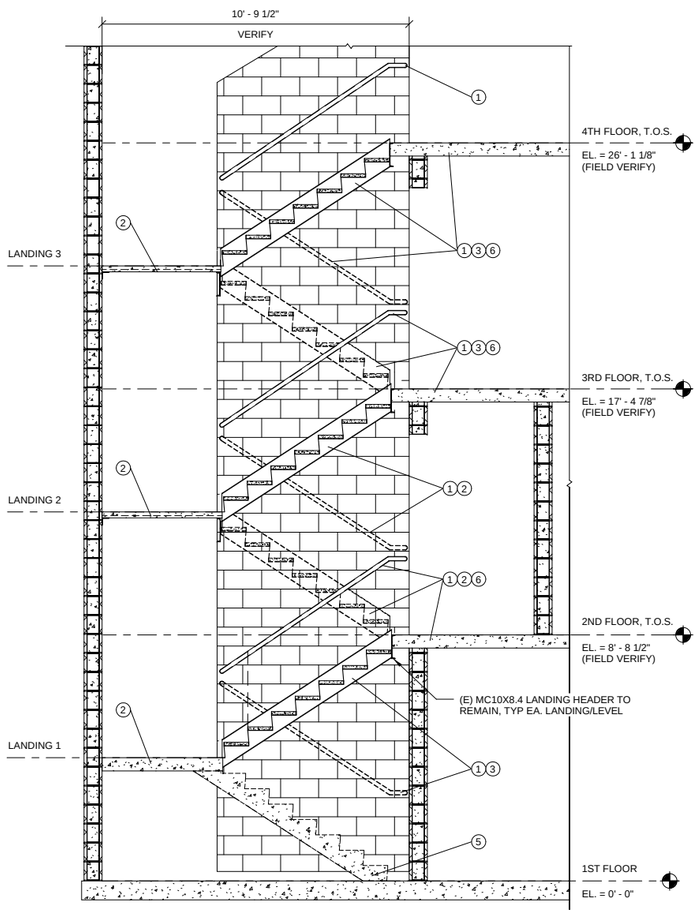
ISSUE DATE	30 SEPT 2020
COMM. NUMBER	202002
DESIGNED BY	SMM
DRAWN BY	SMM
SCALE	0" 1"

STRUCTURAL GENERAL NOTES

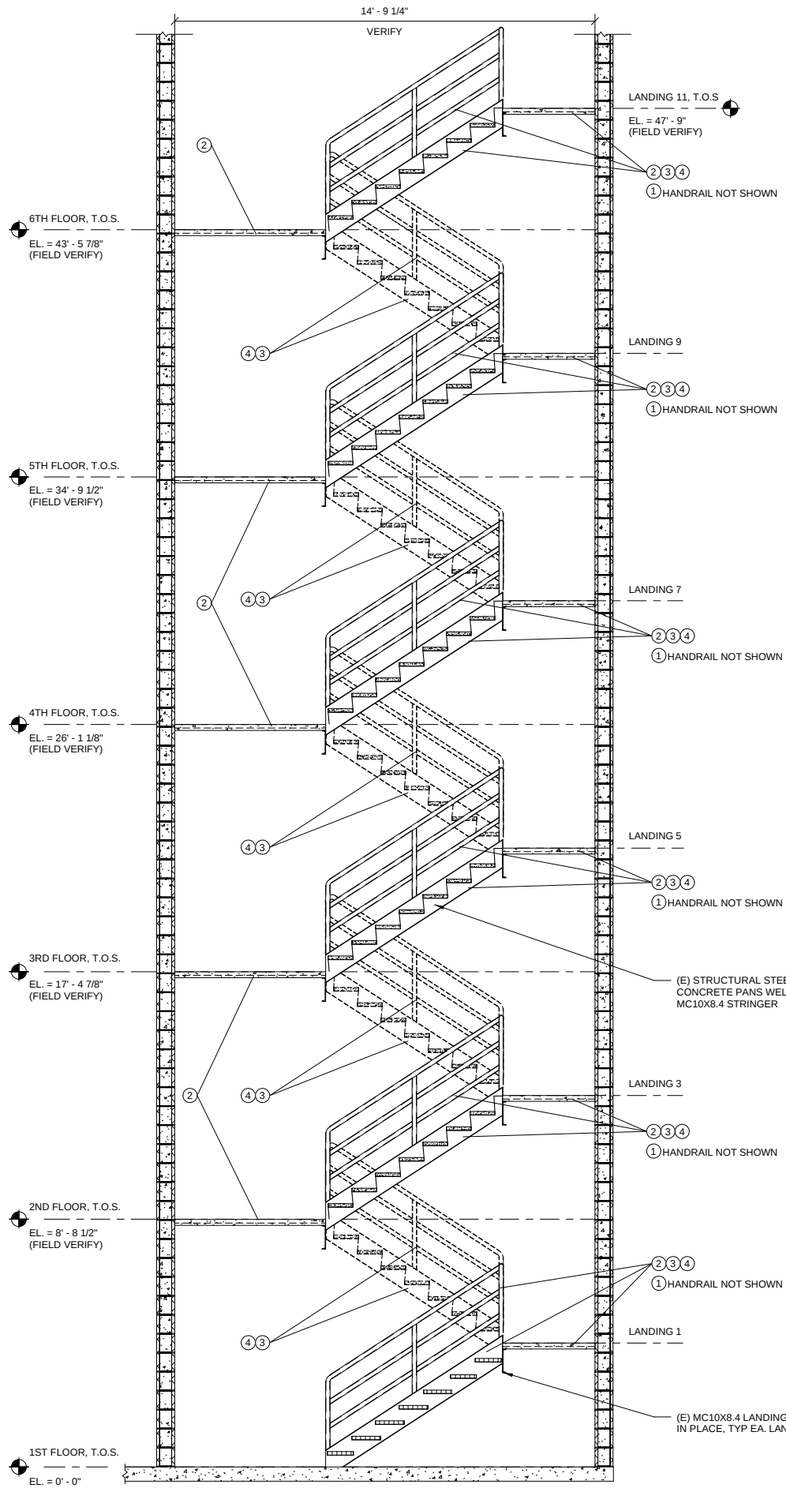
S001



1 S100 DEMOLITION PLAN
1/8" = 1'-0"



2 S100 WEST STAIRWELL
3/8" = 1'-0"



3 S100 EAST STAIRWELL
3/8" = 1'-0"

GENERAL NOTES

1. EXISTING STAIR COMPONENTS ARE SUSPECTED TO BE COATED WITH LEAD BASED PAINT. CONTRACTOR TO PROVIDE WORK PLAN FOR LBP TESTING. HANDLING, SELECT ABATEMENT NECESSARY FOR DEMOLITION, AND DISPOSAL.

DEMOLITION KEYNOTES

1. EXISTING WALL MOUNTED HANDRAIL TO REMAIN IN PLACE.
2. LANDING TO REMAIN IN PLACE.
3. DEMOLISH METAL STRINGER AND TREADS.
4. DEMOLISH GUARDRAIL.
5. CONCRETE STAIRS TO REMAIN IN PLACE.
6. ELEVATED FLOOR SLAB TO REMAIN IN PLACE.

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STAIRWELL
DEMOLITION

S100

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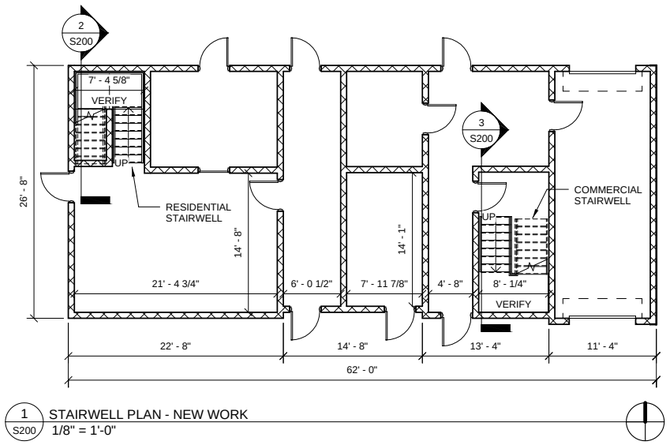
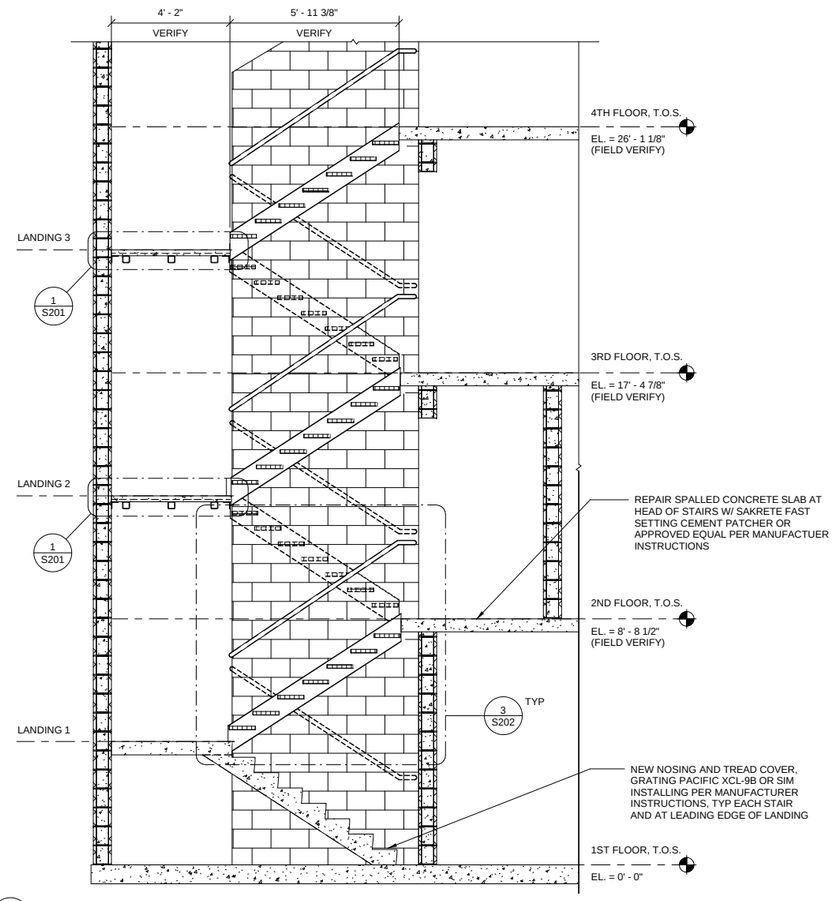
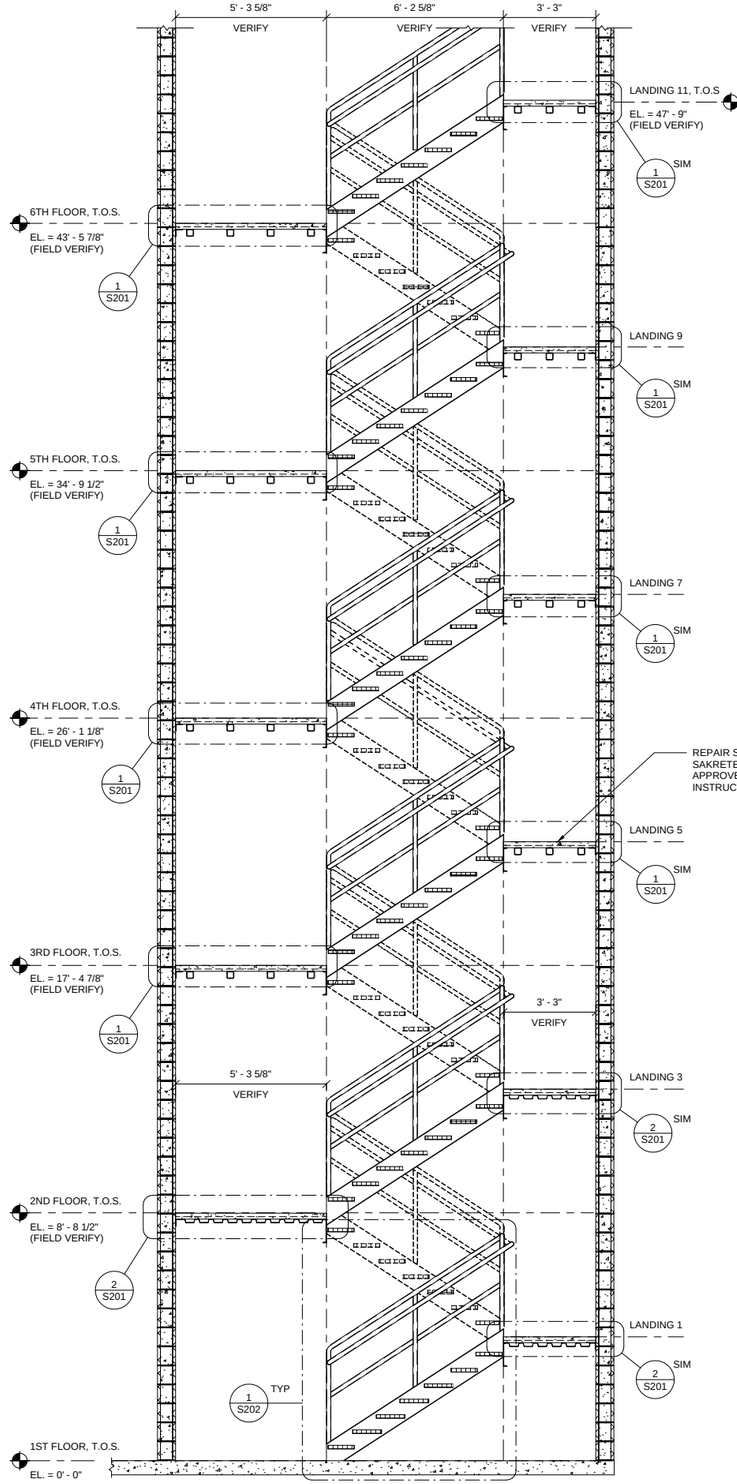


1 S200 STAIRWELL PLAN - NEW WORK
1/8" = 1'-0"



2 S200 WEST STAIRWELL - NEW
3/8" = 1'-0"



3 S200 EAST STAIRWELL - NEW
3/8" = 1'-0"

GENERAL NOTES

1. FIELD VERIFY DIMENSIONS.
2. CONTRACTOR TO REMOVE AND REINSTALL EXISTING CONDUIT AND LIGHT FIXTURES AT UNDERSIDE OF DECK. CONTRACTOR TO VERIFY PROPER FUNCTION OF FIXTURE BEFORE AND AFTER NEW WORK.
3. DIMENSIONS NOTED AS "UNIFORM" SHALL NOT VARY MORE THAN 3/8" BETWEEN THE LARGEST AND SMALLEST DIMENSION

BASE BID

COAT ALL NEW STEEL WITH MACROPOXY 646 OR APPROVED EQUAL.

ALTERNATE 1

ALL NEW STEEL TO BE HOT-DIPPED GALVANIZED.

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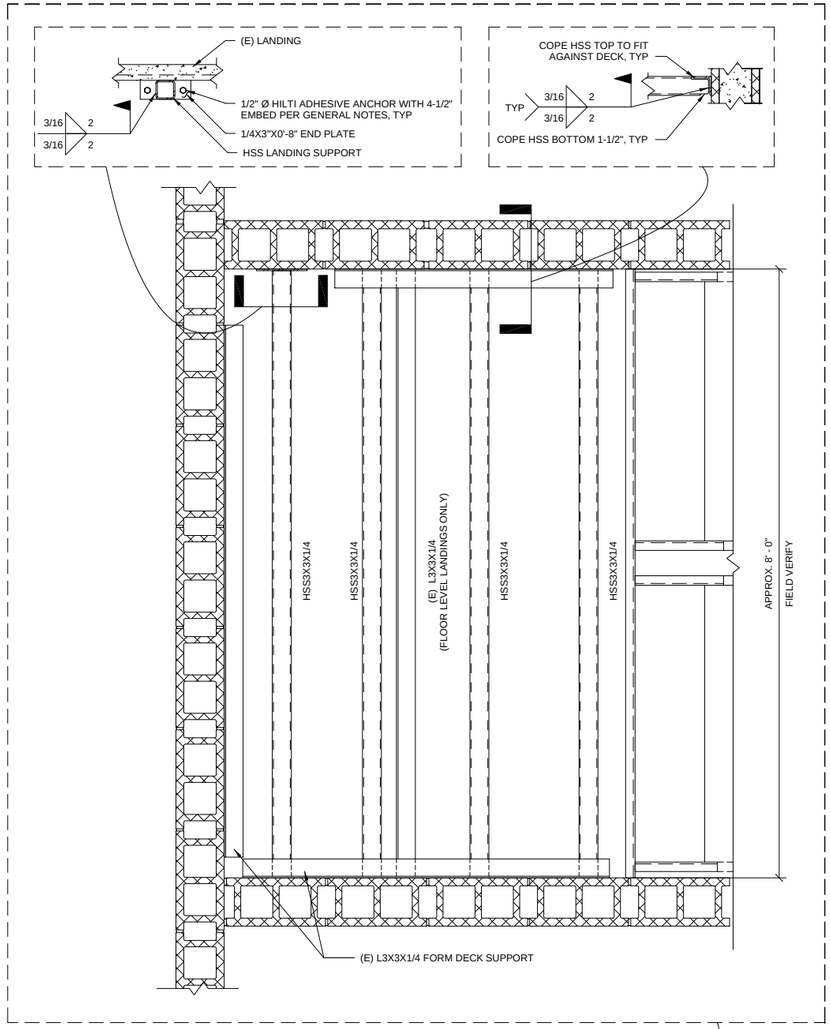
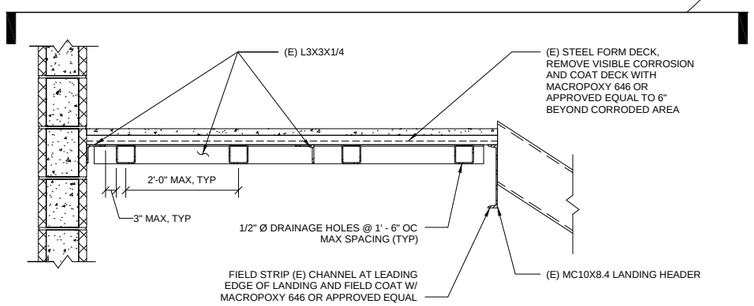
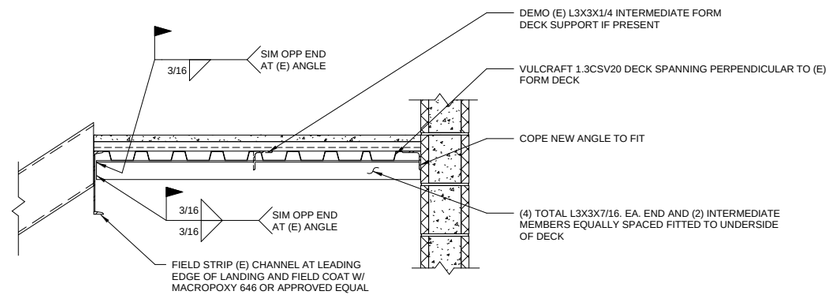
STAIRWELL REPAIRS

S200





1 S201 LANDING REPAIR - MINOR DECK CORROSION
1" = 1'-0"



2 S201 LANDING REPAIR - MAJOR CORROSION
1" = 1'-0"

GENERAL NOTES

1. FIELD VERIFY DIMENSIONS.
2. CONTRACTOR TO REMOVE AND REINSTALL EXISTING CONDUIT AND LIGHT FIXTURES AT UNDERSIDE OF DECK. CONTRACTOR TO VERIFY PROPER FUNCTION OF FIXTURE BEFORE AND AFTER NEW WORK.
3. DIMENSIONS NOTED AS "UNIFORM" SHALL NOT VARY MORE THAN 3/8" BETWEEN THE LARGEST AND SMALLEST DIMENSION

BASE BID

COAT ALL NEW STEEL WITH MACROPOXY 646 OR APPROVED EQUAL.

ALTERNATE 1

ALL NEW STEEL TO BE HOT-DIPPED GALVANIZED.

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STAIRWELL REPAIRS - DETAILS

S201

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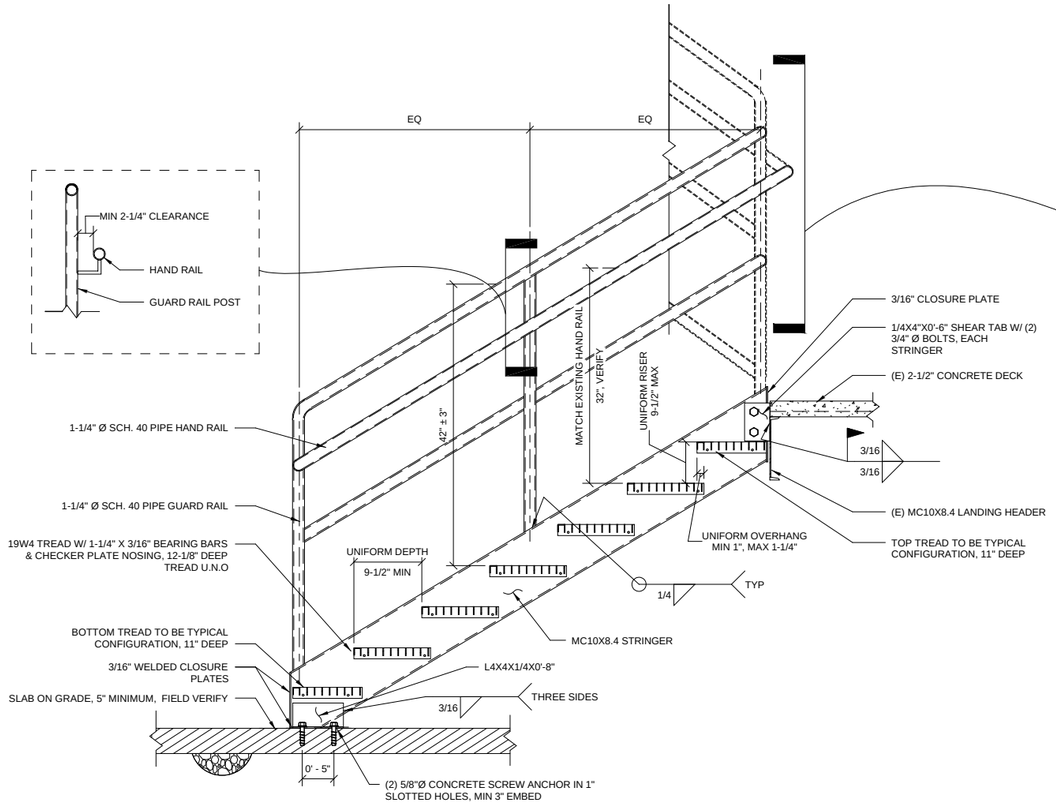
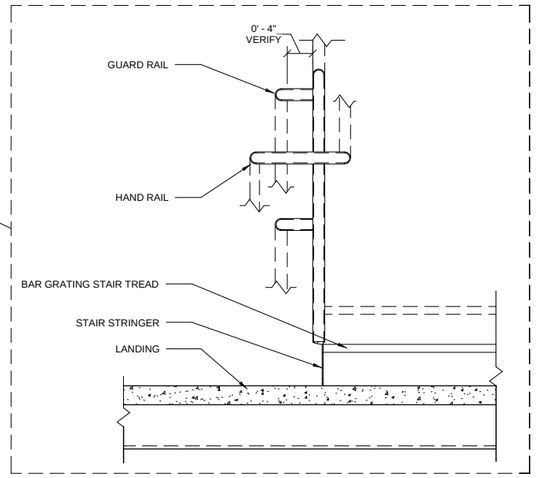


1 S202 TYPICAL - REPLACEMENT STAIRS - COMMERCIAL STAIRWELL
1" = 1'-0"



GENERAL NOTES

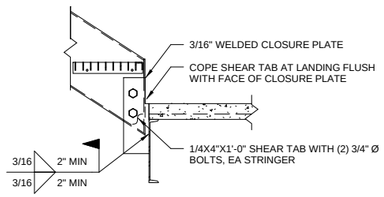
1. FIELD VERIFY DIMENSIONS.
2. CONTRACTOR TO REMOVE AND REINSTALL EXISTING CONDUIT AND LIGHT FIXTURES AT UNDERSIDE OF DECK. CONTRACTOR TO VERIFY PROPER FUNCTION OF FIXTURE BEFORE AND AFTER NEW WORK.
3. DIMENSIONS NOTED AS "UNIFORM" SHALL NOT VARY MORE THAN 3/8" BETWEEN THE LARGEST AND SMALLEST DIMENSION

BASE BID

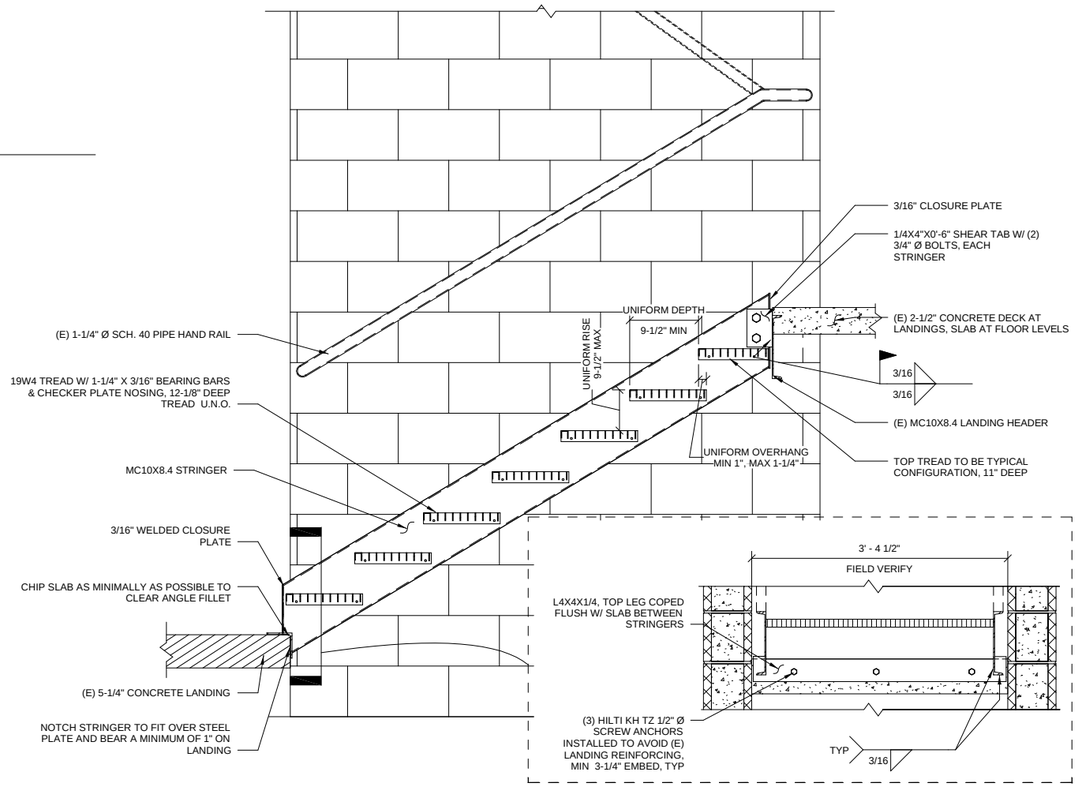
COAT ALL NEW STEEL WITH MACROPOXY 646 OR APPROVED EQUAL.

ALTERNATE 1

ALL NEW STEEL TO BE HOT-DIPPED GALVANIZED.



2 S202 TYPICAL STRINGER BOTTOM CONNECTION
1" = 1'-0"



3 S202 TYPICAL - REPLACEMENT STAIRS - RESIDENTIAL STAIRWELL
1" = 1'-0"

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STAIRWELL REPAIRS - DETAILS

S202