

Part 1 General

1.1 ADMINISTRATIVE

- .1 Submit to Contract Administrator submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable. Review submittals prior to submission to Contract Administrator. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .5 Notify Contract Administrator, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .6 Verify field measurements and affected adjacent Work are co-ordinated.
- .7 Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.
- .8 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator review.
- .9 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 The Contractor shall arrange for the preparation of clearly identified Shop Drawings as specified or as the Contract Administrator may reasonably request. Shop Drawings are to clearly indicate materials, weights, dimensions, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of the Work. Where articles or equipment attach or connect to other articles or equipment, clearly indicate that all such attachments and connections have been properly coordinated, regardless of the trade under which the adjacent articles or equipment will be supplied and installed. Shop Drawings are to indicate their relationship to design Drawings and Specifications. Notify the Contract Administrator in writing of any deviations in Shop Drawings from the requirements of the Contract Documents.

- .3 The Contractor shall examine all Shop Drawings prior to submission to the Contract Administrator to ensure that all necessary requirements have been determined and verified and that each Shop Drawing has been checked and coordinated with the requirements of the Work and the Contract Documents. Examination of each Shop Drawing shall be indicated by stamp, date and signature of a responsible person of the sub-contractor for supplied items and of the General Contractor for fabricated items. Shop Drawings not stamped, signed and dated will be returned without being reviewed and stamped "Re-submit".
- .4 The Contractor shall submit a Shop Drawings delivery schedule and provide Shop Drawings in an orderly sequence so as to cause no delay in the Work. Failure to submit Shop Drawings in ample time is not to be considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed. Jointly prepare a schedule fixing the dates for submission and return of Shop Drawings.
- .5 The Contract Administrator will review and return Shop Drawings in accordance with the schedule agreed upon or otherwise with reasonable promptness so as to cause no delay in the Work.
- .6 Submit three (3) copies of white prints, plus one (1) copy of reproducibles, and three (3) copies of all fixture cuts and brochures.
- .7 Shop Drawing reviews by the Contract Administrator is solely to ascertain conformance with the general design concept. Responsibility for approval of detail design inherent in Shop Drawings rests with the Contractor and review by the Contract Administrator shall not imply such approval.
- .8 Shop Drawings will be returned to the Contractor with one of the following notations:
 - .1 When stamped "REVIEWED" or "NO EXCEPTIONS TAKEN", distribute additional copies as required for execution of the Work.
 - .2 When stamped "REVIEWED AS MODIFIED" or "MAKE NOTED CORRECTIONS", ensure that all copies for use are modified and distributed, same as specified for "REVIEWED".
 - .3 When stamped "REVISE AND RESUBMIT", make the necessary revisions, as indicated, consistent with the Contract Documents and submit again for review.
 - .4 When stamped "NOT REVIEWED" or "REJECTED", submit other Drawings, brochures, etc., for review consistent with the Contract Documents.
 - .5 Only Shop Drawings bearing "REVIEWED", "NO EXCEPTIONS TAKEN", "MAKE NOTED CORRECTIONS", or "REVIEWED AS MODIFIED" shall be used on the Work unless otherwise authorized by the Contract Administrator.
- .9 After submittals are stamped "REVIEWED", "NO EXCEPTIONS TAKEN", "MAKE NOTED CORRECTIONS" or "REVIEWED AS MODIFIED", no further revisions are permitted unless re-submitted to the Contract Administrator for further review.
- .10 Any adjustments made on Shop Drawings by the Contract Administrator are not intended to change the Contract Price. If it is deemed that such adjustments affect the Contract Price, clearly state as such in writing prior to proceeding with fabrication and installation of Work.

- .11 Make changes in Shop Drawings, which the Contract Administrator may require, consistent with Contract Documents. When re-submitting, notify the Contract Administrator in writing of any revisions other than those requested by the Contract Administrator.
- .12 Shop Drawings indicating design requirements not included in the Contract Documents require the seal of a qualified Professional Engineer, registered in the Province of Manitoba. Calculations shall be submitted for review, if requested, and sealed by a qualified Professional Engineer.
- .13 Only two (2) reviews of Shop Drawings will be made by the Contract Administrator at no cost. Each additional review will be charged to the Contractor at the Contract Administrator's scheduled rates. The Contract Administrator's charges for the additional Work will be deducted from the Contractor's Progress Certificates.
- .14 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.

1.3 PROCEDURES

- .1 The Contractor shall, if required by the Contract Administrator, submit for the review of the Contract Administrator method statements which describe in detail, supplement with Drawings where necessary, the methods to be adopted for executing any portion of Work.
- .2 These statements shall also include details of constructional plant and labour to be employed. Acceptance by the Contract Administrator shall not relieve the Contractor of any of his responsibilities, nor shall reasonable refusal to approve entitle the Contractor to extra payment or an extension of time.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

.1 Within the text of the specifications, reference may be made to the following standards:

- .1 ACI – American Concrete Institute
- .2 ANSI - American National Standards Institute
- .3 ASTM - American Society for Testing and Materials International
- .4 CEC - Canadian Electrical Code (published by CSA)
- .5 CEMA - Canadian Electrical Manufacturer's Association
- .6 CISC - Canadian Institute of Steel Construction
- .7 CPMA - Canadian Paint Manufacturer's Association
- .8 CGSB - Canadian General Standards Board
- .9 CSA - Canadian Standards Association
- .10 ICEA - Insulated Cable Engineers Association
- .11 IEEE - Institute of Electrical and Electronic Engineers
- .12 MPI – Master Painters Institute
- .13 NBC - National Building Code
- .14 NEMA - National Electrical Manufacturers Association
- .15 NETA – Inter National Electrical Testing Association
- .16 NFPA – National Fire Protection Association
- .17 RSIC – Reinforcing Steel Institute of Canada
- .18 SSPC - The Society for Protective Coatings
- .19 ULC - Underwriters' Laboratories of Canada

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSPECTION

- .1 Allow Contract Administrator access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Contract Administrator instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 The Contract Administrator will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, the City shall pay cost of examination and replacement.

1.2 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies may be engaged by the City for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by the City. Costs of additional tests required due to defective Work shall be paid by the Contractor.
- .2 All equipment required for executing inspection and testing will be provided by the respective agencies.
- .3 Employment of inspection/testing agencies does not relieve or relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by the Contract Administrator at no cost to the City. Pay costs for retesting and reinspection.

1.3 ACCESS TO WORK

- .1 The City, the Contract Administrator, and other authorities having jurisdiction shall have access to the Work.

1.4 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by the Contract Administrator as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of the Contract Administrator it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the City will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Contract Administrator.

1.5 REPORTS

- .1 Submit 4 copies of inspection and test reports to Contract Administrator.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.

1.2 CONTRACTOR'S OFFICE

- .1 Accommodation for the Contractor's office, plant, tools, equipment, and materials (including fuel) shall be the responsibility of the Contractor. Such accommodation at the Site shall be located after consultation with the Contract Administrator. The Contractor shall be responsible for the protection of its plant, tools, equipment, and materials stored on-site. Materials stored on the City's premises shall be neatly stacked and protected from the weather.
- .2 The Contractor shall confine their activities to the minimum area necessary for undertaking and completing the Work. Material and equipment storage areas shall be at locations acceptable to the Contract Administrator.
- .3 The Contractor's construction activities shall not encroach or enter onto private property without written consent from the owner of the property concerned. The Contractor shall provide the Contract Administrator with a copy of the written agreement with the property owner.

1.3 LAYDOWN AND STORAGE

- .1 All construction materials shall be stored at designated Site laydown and storage areas. Stored combustible materials shall be separated by clear space to prevent fire spread and allow access for manual fire fighting equipment, including fire hoses, extinguishers, hydrants, etc.
- .2 Designated areas shall be used for storage of flammable and combustible liquids and gases, which shall be properly equipped for grounding and bonding when refueling vehicles and equipment. Spills shall be contained as required by Provincial Regulations.
- .3 Pressurized dry chemical fire extinguishers of suitable capacity or equally effective extinguishers as per NFPA 10 shall be provided where:
 - .1 Flammable liquids are stored or handled.
 - .2 Temporary oil or gas fire equipment is used.
 - .3 Welding or flame cutting is performed.

1.4 TEMPORARY CONSTRUCTION MATERIALS

- .1 Tarpaulins and plastic coverings shall consist of fire retardant materials, which are UL or FM listed or approved, or which have passed the Large Scale Test specified in NFPA-701.

1.5 TOILETS AND WASHROOMS

- .1 Washroom facilities, as identified by the Contract Administrator, are available at the SEWPCC for the Contractor's use. Contractor is to ensure that the washrooms and access corridors are kept clean.

1.6 DISPOSAL OF WASTE MATERIALS

- .1 Spoiled and waste materials shall not be dumped, under any circumstances, in any locations other than those approved by the local authorities. Any cost for permits and fees for disposing of waste materials shall be at the Contractor's expense.
- .2 Disposal of all excavated and waste materials shall be in accordance with the requirements of the appropriate provincial regulatory agencies.
- .3 When working anywhere within the Works the Contractor shall at the end of each working day remove the rubbish and leave the Site in a clean and tidy state, to the satisfaction of the Contract Administrator. If this is not done, the City will clean the Site and charge the Contractor.

1.7 PARKING

- .1 The Contractor parking shall be as designated by the Contract Administrator. The parking shall be arranged and maintained so that it does not disrupt the plant's operation and access for the City's operations and maintenance staff.

1.8 USE OF PERMANENT WATER SUPPLY, HEAT, POWER LIGHT, AND TELEPHONE

- .1 The Contractor shall not make use of permanent water supply, heat, power, or telephone inside the SEWPCC without permission from the Contract Administrator.

1.9 SITE SECURITY

- .1 The exterior of the SEWPCC facility is not secure. The City does not normally provide security forces to the plant Site. Contractor is responsible for all material and equipment stored on the site.

1.10 SCAFFOLDING

- .1 Provide and maintain adequate scaffolding as required. Scaffolding is to be rigid, secure, and constructed to ensure adequate safety for workers. Erect without damage to the building or finishes.
- .2 Scaffolding in accordance with CAN/CSA-S269.2.

1.11 ACCESS TO WORK

- .1 Access to the facility will be during the period between 7:45 a.m. and 3:45 p.m., Monday to Friday, except holidays.
- .2 The Contract Administrator shall be informed at least 24 hours in advance where the Contractor intends to carry out Work outside normal working hours and no such Work

shall be done without the Contract Administrator's approval except when the Work is unavoidable or absolutely necessary for:

- .1 Preventing injury to any person or saving the life of any person; or
- .2 Preventing damage to property where the circumstances placing the property in danger could not reasonably have been foreseen and where the immediate carrying out of such Work is necessary in order to prevent damage to that property; in which case the Contractor shall immediately advise the Contract Administrator in writing that such Work outside the normal working hours is necessary and of the reasons for this. He shall also state the nature and extent of Work to be carried out.
- .3 The Contractor is to coordinate activities with City personnel and any other contractors that may be working concurrently on the Site.

1.12 WARNINGS AND TRAFFIC SIGNS

- .1 When Work is performed within public areas, provide and erect adequate warning signs as necessary to give proper warning. Place signs sufficiently in advance to enable public to respond to directions.

1.13 Provide and maintain signs and other devices required to indicate construction activities or other temporary or unusual conditions resulting from the Work.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.2 HOARDING

- .1 Provide hoarding and ventilation as required to perform the work.

1.3 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around open shafts, and open edges of floors.
- .2 Ensure that access to City of Winnipeg equipment is not impeded for SEWPCC maintenance or operations personnel, except as approved by the Contract Administrator.

1.4 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Be responsible for damage incurred due to lack of or improper protection.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Conform to reference standards, in whole or in part as specifically requested in specifications.
- .2 If there is question as to whether products or systems are in conformance with applicable standards, the Contract Administrator reserves the right to have such products or systems tested to prove or disprove conformance.
- .3 Cost for such testing will be born by the City in event of conformance with Contract Documents or by the Contractor in event of non-conformance.

1.2 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection. Should disputes arise as to quality or fitness of products, decision rests strictly with the Contract Administrator based upon requirements of Contract Documents.
- .3 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .4 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber, etc. on flat, solid supports and keep clear of ground. Slope to shed moisture.

- .7 Remove and replace damaged products at own expense and to satisfaction of the Contract Administrator.
- .8 Touch-up damaged factory finished surfaces to Contract Administrator's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.4 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.

1.5 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify the Contract Administrator in writing, of conflicts between specifications and manufacturer's instructions, so that the Contract Administrator will establish the course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Contract Administrator to require removal and re-installation at no increase in Contract Price or extension to the Substantial Performance date.

1.6 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.7 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.8 LOCATION OF FIXTURES

- .1 Inform the Contract Administrator of conflicting installation. Install as directed.

1.9 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

- .4 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .5 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.10 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of the Contract Administrator.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 WORKMANSHIP

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify the Contract Administrator if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. The Contract Administrator reserves the right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with the Contract Administrator, whose decision is final.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of the City or separate contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of the City or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.2 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.3 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

1.4 EXECUTION

- .1 Execute cutting, fitting, and patching to complete Work.
- .2 Fit several parts together, to integrate with other Work.

- .3 Remove and replace defective and non-conforming Work.
- .4 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .5 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .6 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .7 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .8 Restore work with new products in accordance with requirements of Contract Documents.
- .9 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .10 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material to the full thickness of the construction element.
- .11 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the City or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by the Contract Administrator. Do not burn waste materials on site.
- .3 Provide on-site containers for collection of waste materials and debris.
- .4 Dispose of waste materials and debris off site.
- .5 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .6 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .7 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .8 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .9 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Furnish evidence, if requested, for type, source and quality of products provided.
- .3 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .4 Pay costs of transportation.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 All codes and standards referenced in this section refer to the latest edition thereof.
- .2 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A53/A53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Steamless.
 - .2 ASTM A269, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A270 Specifications for Stainless Steel Bars and shapes .
 - .4 ASTM A307-02, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40 Anti-corrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-1.181 Ready-Mixed, Organic Zinc-Rich Coating.
- .4 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel.
 - .2 CAN/CSA-G164 Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CAN/CSA-S16.1, Limit States Design of Steel Structures.
 - .4 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding
 - .5 CSA W59 Welded Steel Construction (Metal Arc Welding).
 - .6 CSA 47.1 Classification of Companies for Fusion Welding of Steel

1.2 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For finishes, coatings, primers and paints.
- .2 Shop Drawings
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
 - .3 Include erection drawings, elevations, and details where applicable.
 - .4 Indicate welded connections using CISC standard welding symbols. Clearly indicate net weld lengths.

- .5 Shop drawings and design briefs are to be signed and sealed by a professional engineer registered in the Province of Manitoba.

1.3 QUALITY ASSURANCE

- .1 Test Reports: Submit Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Submit Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Storage and Protection:
 - .1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.
 - .2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

Part 2 Products

2.1 MATERIALS

- .1 Stainless steel plates, sheets and strips: to ASTM A167 Standard Specifications for Stainless and Heat-Resistant Chromium-Nickel Steel Plate, Sheet, and Strip.
- .2 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 350W.
- .3 Steel pipe: to ASTM A53/A53M.
- .4 Welding materials: to CSA W59.
- .5 Welding electrodes: to CSA W48 Series.
- .6 Bolts, Nuts and Washers : to ASTM A 320 Standard Specification for Alloy Steel and Stainless Steel Bolting Materials for Low temperature Service
- .7 Concrete Anchor Bolts, Nuts and Washers: Galvanized / 304 Stainless Steel Kwik Bolt 3 Expansion Anchor bolts and nuts, manufactured by Hilti (Canada) Ltd as indicated.
- .8 Stainless Steel Bolts : to ASTM F 738 Stainless Steel Metric Bolts, Screws and Studs.
- .9 Stainless Steel Nuts: to ASTM F594 Standard Specifications for Stainless Steel Nuts.

- .10 Stainless steel tubing: to ASTM A269, Type 302 Seamless welded with AISI No. 4 finish.
- .11 Grout: non-shrink, non-metallic cementitious, flowable.
 - .1 Acceptable manufacturers:
 - .1 SIKKA 212
 - .2 MASTERFLOW 713
 - .3 Or approved equal in accordance with B6.

2.2 FABRICATION

- .1 Verify all dimensions on site before preparing shop drawings or proceeding with shop work.
- .2 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .3 The general dimensions and details of the metal fabrications are shown on the drawings where practical. Such details and designs are suggested concepts of design.
- .4 Where possible, fit and shop assemble work in largest possible section, ready for erection.
- .5 All welds to be continuous for length of each joint. File or grind exposed welds smooth.
- .6 Seal ends of hollow shapes and pipes.
- .7 Stainless steel grain direction: one direction throughout.

2.3 COATING

- .1 Coat all surfaces with ARC S1 product as manufactured by Chesterton. Surface preparation and application to be performed as per manufacturer's product data sheet, Form 074709 Rev 9/06. Application to provide two coats, 12 to 15 mils per coat.
- .2 The coatings shall be applied by an applicator trained and qualified to apply ARC products.
 - .1 ARC product supplier identified qualified applicators are;
 - (a) Western Industrial Services Ltd
 - (b) Carlson Commercial & Industrial Services Ltd
 - (c) Central Sandblasting & Decorating Ltd

Part 3 Execution

3.1 ERECTION

- .1 Obtain Contract Administrator's permission prior to Site cutting or making adjustments which are not part of the scheduled Work.

- .2 Install work of this Section using skilled craftsmen and in accordance with manufacturer's recommendations where applicable.
- .3 Perform welding work in accordance with CSA W59 unless specified otherwise.
- .4 Welding work to be performed by a firm certified by the Canadian Welding Bureau to the requirements of CSA W47.1 in Division 1 or 2.
- .5 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .6 Provide suitable means of anchorage acceptable to Contract Administrator such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .7 Make provisions for erection stresses and temporary bracing. Keep work in alignment at all times.
- .8 Replace items damaged in course of installation.
- .9 Exposed fastening devices to match finish and be compatible with material through which they pass.

3.2 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 GENERAL

1.1 GENERAL CONDITIONS

- .1 In addition to the requirements of Division 01, this section shall apply to and govern all sections of Division 44.

1.2 SCOPE

- .1 The Process Mechanical Contractor shall supply all labour, materials, equipment and services required for complete safe installation of process mechanical work in accordance with the intent of this specification and as shown on the drawings.

1.3 WORK OF OTHER TRADES

- .1 Cooperate and coordinate the work specified in this section with the requirements of other units of work specified in other sections.
- .2 The process mechanical contractor shall rough in for and/or connect up all equipment requiring mechanical services, as shown on drawings or noted elsewhere in the Specifications.
- .3 Supply other trades with all necessary details, roughing-in drawings, wiring diagrams, etc. as required.
- .4 Check drawings of all trades to verify space and headroom limitations for work to be installed. Coordinate work with all trades and make changes to facilitate a satisfactory installation. Make no deviations, without prior approval of the Contract Administrator.

1.4 INTENT

- .1 Work shall be in accordance with the Drawings and Specifications and their intent, complete with all necessary components, including those not normally shown or called for, and ready for operation before acceptance.
- .2 Where contradictions in specifications and drawings are implied obtain ruling from the Contract Administrator. Where ruling is not obtained, include the item or arrangement of better quality, greater quantity, or higher cost in bid price.

1.5 REGULATORY AGENCIES

- .1 Promptly advise the Contract Administrator of any specified equipment, material, or installation of same which appears inadequate or unsuitable; in violation of laws, ordinances, rules or regulations of authorities having jurisdiction; of any necessary items of work omitted from the Contract Documents, or any discrepancies in the Specification.

- .2 Make timely application for all permits and certificates necessary to carry out the work. Supply and submit all drawings, application forms and fees payable to the relevant authorities.
- .3 On completion of the Work, submit a certificate of acceptance from inspection authority to the Contract Administrator.
- .4 The Regulations of the A.S.M.E. Code and the Local Labour Department shall cover the design, manufacture, installation, welding and tests of piping and other equipment as specified hereafter. The Contractor shall complete and provided to the Contract Administrator for review and certification, data reports for each pressure piping system.
- .5 Make reasonable changes and alterations required by inspection authority without additional cost.

1.6 SCAFFOLDING, RIGGING AND HOISTING

- .1 Provide scaffolding, rigging, hoisting and related installation services for work under this Division, except where otherwise specified. The scaffolding, rigging and hoisting provided shall meet the regulations of the Construction Safety Code.

1.7 STANDARDS

- .1 Within the text of these specifications, reference is made to the following standards:
 - .1 SAE - Society of Automotive Contract Administrators
 - .2 ASTM - American Society of Testing Materials
 - .3 CSA - Canadian Standards Association
 - .4 ASME - American Society of Mechanical Contract Administrators
 - .5 ANSI - American National Standards Institute
 - .6 ULC - Underwriters' Laboratories of Canada.
 - .7 EEMAC - Electrical Equipment Manufacturers' Association of Canada.
- .2 Materials to carry CSA approval and to conform with applicable standards.

1.8 DEFINITIONS

- .1 Unless specifically indicated or noted otherwise, the following words, used in this specification or on related drawings, shall have the following meanings:
 - .1 "Furnish" or "provide". To supply, install and connect up complete and ready for safe and regular operation.
 - .2 "Install". To erect, mount and connect up complete with all related accessories necessary or required for safe and regular operation.
 - .3 "Supply". To purchase, procure, acquire, deliver complete with all related accessories necessary or required.
 - .4 "Indicated" or "shown". As indicated or shown on the drawings.

.5 "Noted". As indicated or shown on the drawings.

.6 "Detailed". As indicated or shown on drawings.

1.9 INSPECTION

- .1 The Contract Administrator will complete periodic or specific visits to the site to observe work in progress. When specific or milestone visits are identified by the Contract Administrator as necessary, provide 48 hours notice or when the milestones are expected to be met.

1.10 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Prior to submitting shop drawings for the Contract Administrator's review, the Contractor shall review all shop drawings to confirm their meeting all requirements of the project, and mark and sign his approval on the drawings.
- .3 Each shop drawing must be certified by the manufacturer and, as such, shall indicate that all product engineering has been performed to ensure that product will meet the requirements of the intended installation.
- .4 Include all electrical wiring diagrams and installation drawings for electrically powered equipment.
- .5 Whenever documents are provided in S.I. units, all performance and dimensional data shall be submitted in S.I. units.

1.11 RECORD DRAWINGS

- .1 Refer to Division 01.
- .2 Record drawings to show all field modifications.
- .3 Obtain a separate set of drawings and mark all as-built information as work progresses. Show inverts of all underground services.

1.12 WORKMANSHIP

- .1 Workmanship shall be in accordance with well established practice and standards accepted and recognized by Design Authorities and the trade.
- .2 The Contract Administrator shall have the right to reject any item of work that does not conform to the Contract Documents and accepted standards of performance.
- .3 Employ only tradesmen holding valid Provincial Trade Qualification certificates. Tradesmen shall perform only work that their certificate permits. Certificates shall be available for inspection by the Contract Administrator.

1.13 PROTECTION OF WORK

- .1 Protect equipment and material stored or in place during construction from weather, moisture, dust and physical damage.
- .2 Any equipment that has operating parts, bearings or machined surfaces that show signs of rusting, pitting or physical damage will be rejected.
- .3 Refinish damaged or marred factory finishes to the satisfaction of the Contract Administrator.

1.14 DESIGN AUTHORITY'S APPROVAL

- .1 It is not incumbent upon the Contract Administrator to superintend the Work so as to relieve the Contractor of any responsibility.
- .2 Permission to proceed does not constitute approval of the Work, or portion thereof.
- .3 Approval of the Work shall be made only upon the successful conclusion of tests and satisfactory performance under design operating conditions.

1.15 OPERATING AND MAINTENANCE INSTRUCTION

- .1 Instruct City personnel on the system operating and maintenance procedures, using the assistance of specialist sub-trades and manufacturer's representatives, and provide manufacturer's explanatory literature. If proper instructions are not provided, in the Contract Administrator's opinion, instructions shall be provided or arranged and the costs involved shall be charged to the relevant section.
- .2 Deliver to the Contract Administrator prior to the scheduled takeover date, three (3) sets of all brochures and literature supplied by the manufacturers of each piece of equipment, bound into hardback binders with suitable identification on the cover. Information shall include, but not be limited to, the following:
 - .1 Complete list of all contractors with addresses and phone numbers.
 - .2 Complete list of mechanical equipment supplied and installed under each section, including description, make, type, size, capacity, serial number and list of repair and replacement parts, with names and addresses of suppliers.
 - .3 Correct installation procedure.
 - .4 Illustrated parts list for all equipment.
 - .5 Manufacturer's recommended operating and maintenance instructions.
 - .6 Final corrected shop drawings for all equipment.
 - .7 Separate lubrication schedule, including each piece of equipment and showing frequency of service and grade of oil or grease required. This schedule shall be inserted at the front of the manuals.
 - .8 Copy of flow diagrams for each system complete with valve schedule.

- .3 Include in the front of each manual, a maintenance schedule showing equipment name and location, type and frequency of required maintenance, with referral to manufacturer's maintenance sheet.

1.16 SPECIAL TOOLS

- .1 Provide one set of special tools required to service equipment as recommended by manufacturers and in accordance with Section 017800 - Closeout Submittals.

1.17 SUPPORTS AND BASES

- .1 Supply and erect all special structural work required for installation of process mechanical equipment.
- .2 Supply and install all anchor bolts and fasteners.

1.18 IDENTIFICATION

- .1 Ensure that equipment name plates, showing size, name of equipment, serial number and all other information usually provided, including name and address of manufacturer, are not painted over or removed, and where apparatus is insulated, provide adequate viewing openings.

1.19 INSTALLATION AND ERECTION

- .1 Information involving dimensions of building shall be taken from the appropriate drawings, and checked by site measurement. Refer to drawings of appropriate section for accurate information.
- .2 Drawings show general location and route to be followed by pipes, etc. Make necessary changes or additions to runs to accommodate site conditions. Location of pipes and other equipment shall be altered without charge, provided change is made before installation, and does not necessitate change in quantity of materials.
- .3 Install all piping and ductwork parallel to building walls and ceilings unless otherwise indicated.
- .4 Install all piping to for minimum interference to free use of space through which they pass. Consideration must also be given to accessibility for service and maintenance.
- .5 Check all levels shown before commencement of work to ensure adequate falls for graded pipes and report discrepancies immediately. Failure to so check and report does not relieve this section from responsibility for consequent extra expenditures.
- .6 Before installation of fixtures, fittings and equipment, consult detail drawings or obtain instructions for each location where details are not available.
- .7 Secure approval prior to cutting holes. Employ section whose work is involved, cut openings no larger than necessary and without damage to adjoining work, and provide for repair of all damage to match adjacent work. This Division is responsible for all required cutting and patching relating to work in this Division, unless specifically noted otherwise.

- .8 Prior to the cutting of any openings in walls, ensure that the wall does not serve a load bearing function. All openings in load bearing walls and other structural members shall be approved by the Contract Administrator.
- .9 Provide and set bolts, templates, sleeves and fixing materials for fastening work under this section securely to work provided under other sections, in advance of other work, where required.
- .10 Locate all openings in walls, partitions, beams, etc. required for installation of pipes and equipment, etc. specified in this Section of the specifications, and frame all openings as required.

Part 2 PRODUCTS

2.1 NOT USED

- .1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 All codes and standards referenced in this section refer to the latest edition thereof.
- .2 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A53/A53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Steamless.
 - .2 ASTM A269, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A270 Specifications for Stainless Steel Bars and shapes .
 - .4 ASTM A307-02, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.Products

1.2 MATERIALS

- .1 Pipe: Steel, Sch.40, ASTM A53, Grade B
- .2 Joints: welded, connections: flanged
- .3 Flanges, ASME B16.5, FF,150#, BW or SO,
- .4 Bolts ASTM A193 Grade B-7
- .5 Gaskets FF, 1/8" red rubber, 80 Shore A (ASTM D2240)
- .6 Fittings : Welded, ASME B16.9

1.3 FINISHES

- .1 Pipe hangers are to be hot dipped galvanized.
- .2 Piping and supports to be coated with ARC S1 product as manufactured by Chesterton. Surface preparation and application to be performed as per manufacturer's product data sheet, Form 074709 Rev 9/06. Application to provide two coats, 12 to 15 mils per coat.
 - .1 The coatings shall be applied by an applicator trained and qualified to apply ARC products.
 - .2 Qualified applicators identified by ARC product supplier are;
 - (a) Western Industrial Services Ltd
 - (b) Carlson Commercial & Industrial Services Ltd
 - (c) Central Sandblasting & Decorating Ltd
- .3 Do not coat stainless steel surfaces.

Part 2 Execution

2.1 CONNECTIONS TO EQUIPMENT

- .1 In accordance with manufacturer's instructions unless otherwise indicated.

2.2 CLEARANCES

- .1 Provide clearance around systems, equipment and components for observation of operation, inspection, servicing, maintenance and as recommended by manufacturer.
- .2 Provide space for disassembly, removal of equipment and components as recommended by manufacturer or as indicated (whichever is greater) without interrupting operation of other system, equipment, components.

2.3 DRAINS

- .1 Install piping with grade in direction of flow except as indicated.

2.4 DIELECTRIC COUPLINGS

- .1 General: Compatible with system, to suit pressure rating of system.
- .2 Locations: Where dissimilar metals are joined.
- .3 NPS 2 and under: isolating unions or bronze valves.
- .4 Over NPS 2: Isolating flanges.

2.5 PIPEWORK INSTALLATION

- .1 Protect openings against entry of foreign material.
- .2 Install to isolate equipment and allow removal without interrupting operation of other equipment or systems.
- .3 Assemble piping using fittings manufactured to ANSI standards.
- .4 Install exposed piping, equipment, rectangular cleanouts and similar items parallel or perpendicular to building lines.
- .5 Slope piping, except where indicated, in direction of flow for positive drainage and venting.
- .6 Ream pipes, remove scale and other foreign material before assembly.
- .7 Use eccentric reducers at pipe size changes to ensure positive drainage and venting, unless noted otherwise.
- .8 Provide for thermal expansion as indicated.

2.6 EXISTING SYSTEMS

- .1 Connect into existing piping systems at times approved by Contract Administrator.

- .2 Request written approval 10 days minimum, prior to commencement of work.
- .3 Be responsible for damage to existing plant by this work.
- .4 Ensure daily clean-up of existing areas.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American National Standards Institute/American Society of Mechanical Contract Administrators (ANSI/ASME)
 - .1 ANSI/ASME B31.1 - Power Piping.
 - .2 ANSI/ASME B31.3 - Process Piping
 - .3 ANSI/ASME Boiler and Pressure Vessel Code:
 - .1 Section I: Power Boilers.
 - .2 Section V: Nondestructive Examination.
 - .3 Section IX: Welding and Brazing Qualifications.
- .2 American National Standards Institute/American Water Works Association (ANSI/AWWA)
 - .1 ANSI/AWWA C206, Field Welding of Steel Water Pipe.
- .3 American Welding Society (AWS)
 - .1 AWS C1.1, Recommended Practices for Resistance Welding.
 - .2 AWS Z49.1, Safety Welding, Cutting and Allied Process.
 - .3 AWS W1, Welding Inspection Handbook.
 - .4 ANSI/AWS D10.4-86 (R2000) Austenitic Chromium-Nickel Stainless Steel Piping and Tubing, Recommended Practices for Welding
- .4 Canadian Standards Association (CSA International)
 - .1 CSA W48-06 - Filler Metals and Allied Materials for Metal Arc Welding.
 - .2 CSA B51, Boiler, Pressure Vessel and Pressure Piping Code.
 - .3 CSA-W117.2, Safety in Welding, Cutting and Allied Processes.
 - .4 CSA W178.1, Certification of Welding Inspection Organizations.
 - .5 CSA W178.2, Certification of Welding Inspectors.
- .5 Manitoba Department of Labour.

1.2 QUALIFICATIONS

- .1 Welders
 - .1 Welding qualifications in accordance with CSA B51.
 - .2 Use qualified and licensed welders possessing certificate for each procedure performed from authority having jurisdiction.
 - .3 Furnish welder's qualifications to Contract Administrator.
 - .4 Each welder to possess identification symbol issued by authority having jurisdiction.

- .2 Inspectors
 - .1 Inspectors qualified to CSA W178.2.

1.3 QUALITY ASSURANCE

- .1 Registration of welding procedures in accordance with CSA B51.
- .2 Copy of welding procedures available for inspection.
- .3 Safety in welding, cutting and allied processes in accordance with CSA-W117.2.

Part 2 Products

2.1 ELECTRODES

- .1 Electrodes: in accordance with ANSI/AWS D10.4.

Part 3 Execution

3.1 WORKMANSHIP

- .1 Welding: in accordance with ANSI/ASME B31.3, ANSI/ASME Boiler and Pressure Vessel Code, Sections I and IX and ANSI/AWWA C206, using procedures conforming to AWS, and applicable requirements of provincial authority having jurisdiction.

3.2 INSTALLATION REQUIREMENTS

- .1 Identify each weld with welder's identification symbol.
- .2 Backing rings:
 - .1 Where used, fit to minimize gaps between ring and pipe bore.
 - .2 Do not install at orifice flanges.
- .3 Fittings:
 - .1 NPS 2 and smaller: install welding type sockets.
 - .2 Branch connections: install welding tees or forged branch outlet fittings.

3.3 INSPECTION AND TESTS - GENERAL REQUIREMENTS

- .1 Review weld quality requirements and defect limits of applicable codes and standards with Contract Administrator before work is started.
- .2 Formulate "Inspection and Test Plan" in co-operation with Contract Administrator.
- .3 Do not conceal welds until they have been inspected, tested and approved by inspector.
- .4 Provide for inspector to visually inspect welds during early stages of welding procedures in accordance with Welding Inspection Handbook. Repair or replace defects as required by codes and as specified.

3.4 SPECIALIST EXAMINATIONS AND TESTS

- .1 General
 - .1 Perform examinations and tests by specialist qualified in accordance with CSA W178.1 and CSA W178.2 and approved by Contract Administrator.
 - .2 To ANSI/ASME Boiler and Pressure Vessels Code, Section V, CSA B51 and requirements of authority having jurisdiction.
 - .3 Inspect and test welds in accordance with "Inspection and Test Plan" by visual examination and non-destructive testing.
- .2 Visual examinations: include entire circumference of weld externally and wherever possible internally.
- .3 Failure of visual examinations:
 - .1 Upon failure of welds by visual examination, perform additional testing as directed by Contract Administrator of total of up to 10 % of welds, selected at random by Contract Administrator.
- .4 All prefabricated pipes (shop or field) and all field welds during installation shall be non-destructively examined and tested as follows with additional testing at the discretion of the Contract Administrator.
 - .1 For Butt Joints
 - 5% UT (ultrasonic) or RT (radiographic) and
 - 100% visual
 - .2 For Socket Joints:
 - 5% LT (liquid penetrant) or MT (magnetic particle) and
 - 100% visual

3.5 DEFECTS CAUSING REJECTION

- .1 As described in ANSI/ASME B31.1 and ANSI/ASME Boiler and Pressure Vessels Code.

3.6 REPAIR OF WELDS WHICH FAILED TESTS

- .1 Re-inspect and re-test repaired or re-worked welds at Contractor's expense.

3.7 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.

END OF SECTION