

YARDI SYSTEMS TENANT FIT-UP

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BUILDING CODE REVIEW

OVERVIEW

Based on Application of the 2010 National Building Code:

A) BUILDING FOOTPRINT AND FLOOR AREA

Building footprint	790 m2
Second Level	744m2

B) SIZE AND OCCUPANCY

The Office building is two stories in building height and is sprinklered.

- Building 3.2.2.61** Group D, up to 2 Stories, Sprinklered
- 1) A building classified as Group D is permitted to conform to Sentence (2) provided
 - a) except as permitted by Sentences 3.2.2.7(1) and 3.2.2.18(2), the building is sprinklered throughout, and
 - b) it is not more than 2 storeys in building height, and
 - c) it has a building area not more than
 - i) 4 800 m² if 1 storey in building height
 - ii) 2 400 m² if 2 storeys in building height.
 - 2) The building referred to in Sentence (1) is permitted to be of combustible construction or noncombustible construction used singly or in combination, and
 - a) floor assemblies shall be fire separations and, if of combustible construction, shall have a fire-resistance rating not less than 45 min, and
 - b) loadbearing walls, columns and arches supporting an assembly required to have a fire-resistance rating shall
 - i) have a fire-resistance rating not less than 45 min, or
 - ii) not of noncombustible construction

3.2.2.8(1) In a building in which the aggregate area of all major occupancies in a particular Group or Division is not more than 10% of the floor area of the storey in which they are located, these major occupancies need not be considered as major occupancies for the purposes of this Subsection, provided they are not classified as Group F, Division 1 or 2 occupancies.

D) FIREFIGHTING

- 3.2.5.4(1)** A building which is more than 3 storeys in building height or more than 600 m² in building area shall be provided with access routes for fire department vehicles
- a) to the building face having a principal entrance, and
 - b) to each building face having access openings for firefighting as required by Articles 3.2.5.1. and 3.2.5.2. (See Appendix A.)

- 3.2.5.5. Location of Access Routes**
- 1) Access routes required by Article 3.2.5.4. shall be located so that the principal entrance and every access opening required by Articles 3.2.5.1. and 3.2.5.2. are located not less than 3 m and not more than 15 m from the closest portion of the access route required for fire department use, measured horizontally from the face of the building.
 - 2) Access routes shall be provided to a building so that
 - a) for a building provided with a fire department connection, a fire department pumper vehicle can be located adjacent to the hydrants referred to in Article 3.2.5.15.,
 - b) for a building not provided with a fire department connection, a fire department pumper vehicle can be located so that the length of the access route from a hydrant to the vehicle plus the unobstructed path of travel for the firefighter from the vehicle to the building is not more than 90 m, and
 - c) the unobstructed path of travel for the firefighter from the vehicle to the building is not more than 45 m.
 - 3) The unobstructed path of travel for the firefighter required by Sentence (2) from the vehicle to the building shall be measured from the vehicle to the fire department connection provided for the building, except that if no fire department connection is provided, the path of travel shall be measured to the principal entrance of the building.

- 3.2.5.8(1)** A standpipe is not required.

C) FIRE ALARM & EMERGENCY LIGHTING

- 3.2.4.1(1)** A fire alarm system shall be installed in a building in which an automatic sprinkler system is installed.
- 3.2.7.1. Minimum Lighting Requirements**
- 1) An exit, a public corridor, or a corridor providing access to exit for the public or serving patients' sleeping rooms or classrooms shall be equipped to provide illumination to an average level not less than 50 lx at floor or tread level and at angles and intersections at changes of level where there are stairs or ramps. The minimum value of the illumination required by Sentence (1) shall be not less than 10 lx.
 - 2) The minimum value of the illumination required by Sentence (1) shall be not less than 10 lx.
- 3.2.7.3. Emergency Lighting**
- 1) Emergency lighting shall be provided to an average level of illumination not less than 10 lx at floor or tread level in
 - a) exits,
 - b) principal routes providing access to exit in open floor areas and in service rooms,
 - 3) The minimum value of the illumination required by Sentences (1) and (2) shall be not less than 1 lx.
- 3.2.7.4. Emergency Power for Lighting**
- 1) An emergency power supply shall be
 - a) provided to maintain the emergency lighting required by this Subsection from a power source such as batteries or generators that will continue to supply power in the event that the regular power supply to the building is interrupted, and
 - b) so designed and installed that upon failure of the regular power it will assume the electrical load automatically for a period of
 - iii) 30 min for a building of any other occupancy.
 (See Appendix A.)
 - 2) If self-contained emergency lighting units are used, they shall conform to CSA C22.2 No. 141, "Emergency Lighting Equipment."

F) FIRE SEPARATIONS

- 3.3.1.21.(3)** The fire separation required by Sentence (1) is not required to have a fire-resistance rating if the floor area in which the room or space is located is sprinklered throughout.
- 3.6.2.1.(1), (5), (6)** Services Rooms containing fuel-fired appliances and electrical equipment 1 hr
- 3.4.4.1.(1)** Exit Stair (Based on 3.2.2.61.) 45 min
- 3.5.3.1** Elevator Hoistway (Based on 3.2.2.61.) 45 min

E) EGRESS

- 3.3.1.5.(1)(d)** Maximum travel distance within room (sprinklered)
- | | |
|---|--------------------|
| i) One egress door from room | 25 m |
| ii) Maximum area per Table 3.3.1.5.B.: One egress door from all other rooms | 200 m ² |

- 3.3.1.13. Doors and Door Hardware**
- 1) Except as required by Article 3.3.3.4., a door that opens into or is located within a public corridor or other facility that provides access to exit from a suite shall
 - a) provide a clear opening of not less than 800 mm if there is only one door leaf,
 - b) in a doorway with multiple leaves, have the active leaf providing a clear opening of not less than 800 mm, and,
 - c) not open onto a step.
 - 2) A door in an access to exit shall be readily operable in travelling to an exit without requiring keys, special devices or specialized knowledge of the door opening mechanism, except that this requirement does not apply to a door serving a contained use area, or an impeded egress zone, provided the locking devices conform to Sentence (6).

- 3.3.1.6.(1), 3.4.2.5.(1)(b)** Maximum travel distance within room (2 or more egress doors)40 m

- 3.4.2.4. Travel Distance**
- 1) Except as permitted by Sentence (2), for the purposes of this Subsection, travel distance means the distance from any point in the floor area to an exit measured along the path of travel to the exit.
 - 2) The travel distance from a suite or a room not within a suite is permitted to be measured from an egress door of the suite or room to the nearest exit, provided
 - a) the suite or room is separated from the remainder of the floor area by a fire separation
 - i) which is not required to have a fire-resistance rating, in a floor area that is sprinklered throughout, and
 - ii) the egress door opens onto
 - i) an exterior passageway,
 - ii) a corridor used by the public that is separated from the remainder of the floor area in conformance with the requirements in Article 3.3.1.4. for the separation of public corridors, or
 - iii) a public corridor that is separated from the remainder of the floor area in conformance with Article 3.3.1.4. (See A-3.1.8.1.(1)(b) in Appendix A.)

E) WASHROOM & OCCUPANT LOAD

- T3.1.17.1** Based on areas and figures from table, worst case scenario occupant load is estimated at 33 persons
- T3.7.2.2.B** 1 water closet require for females; 1 water closet required for males

F) ACCESSIBILITY

- 3.8.2.3. Washrooms Required to be Barrier-Free** (See Appendix A.)
- 1) Except as permitted by Sentence (2), a washroom in a storey to which a barrier-free path of travel is required in accordance with Article 3.8.2.1., shall be barrier-free in accordance with the appropriate requirements in Articles 3.8.3.8. to 3.8.3.12.
 - 2) A washroom need not conform to the requirements of Sentence (1) provided
 - c) it is located in an individual suite that is
 - i) used for a business and personal services occupancy, a mercantile occupancy or an industrial occupancy,
 - ii) less than 500 m² in area, and
 - iii) completely separated from, and without access to, the remainder of the building.
 - 3) In a building in which water closets are required in accordance with Subsection 3.7.2., at least one barrier-free water closet shall be provided in the entrance storey, unless
 - a) a barrier-free path of travel is provided to barrier-free water closets elsewhere in the building
 - 4) If alterations are made to an existing building, universal toilet rooms conforming to Article 3.8.3.12. are permitted to be provided in lieu of facilities for persons with physical disabilities in washrooms used by the general public.

3.8.3.14. Counters

- 1) Every counter more than 2 m long, at which the public is served, shall have at least one barrier-free section not less than 760 mm long centred over a knee space conforming to Sentence (3). (See Appendix A.) (See also A-3.8.2.1. in Appendix A.)
- 2) A barrier-free counter surface shall be not more than 865 mm above the floor.
- 3) Except as permitted in Sentence (4), the knee space beneath a barrier-free counter intended to be used as a work surface shall be not less than
 - a) 760 mm wide,
 - b) 685 mm high, and
 - c) 485 mm deep.

G) FLAME SPREAD

- 3.1.13.2(1)** Except as otherwise required or permitted by this Subsection, the flame-spread rating of interior wall and ceiling finishes, including glazing and skylights shall be not more than 150 and shall conform to Table 3.1.13.2.
- | | | |
|----------------------------------|---------------|----|
| Exits | (sprinklered) | 25 |
| Lobbies described in 3.4.4.2.(2) | (sprinklered) | 25 |

J) DANGEROUS GOODS & PROCESSES

Dangerous goods must be stored in conformance with the National Fire Code.



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1 Issued for Tender 07 Aug 2015

■ NO. ■ DESCRIPTION ■ DATE:
■ REVISIONS:

PROJECT NAME:
YARDI SYSTEMS EXPANSION

516 WELLMAN CRES,
SASKATOON

PROJECT NUMBER: 15-048

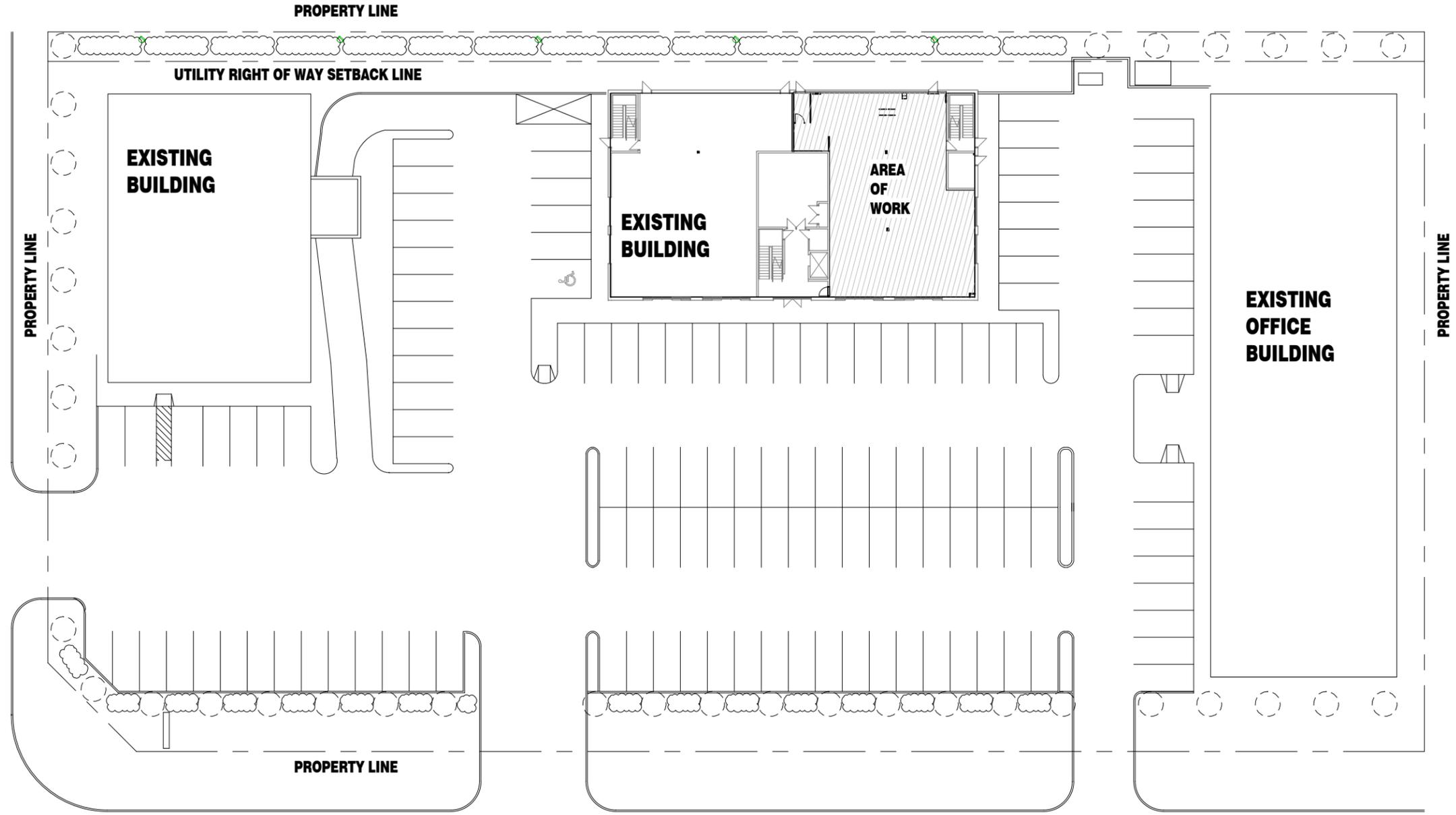
DRAWING NAME:
LIST OF DRAWING & BUILDING CODE REVIEW

DRAWN: NK
CHECKED: MKJ

A0.0

15 10 5 0 10 20 30 40 50 60

STONEBRIDGE BOULEVARD



WELLMAN CRESCENT

516 Wellman Cres.
Lot 2 / Blk 201
plan # : 102061651



1 SITE PLAN

1 : 500

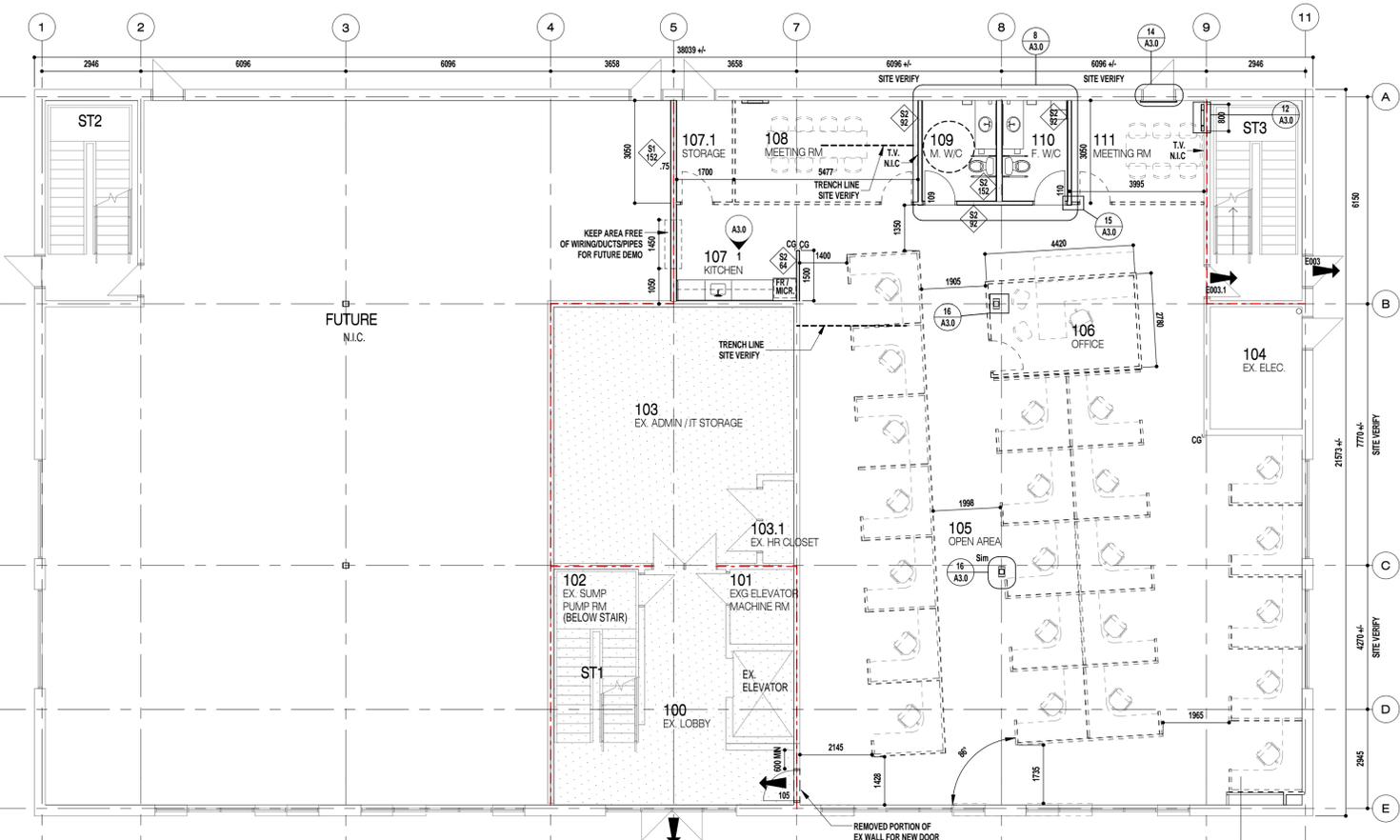


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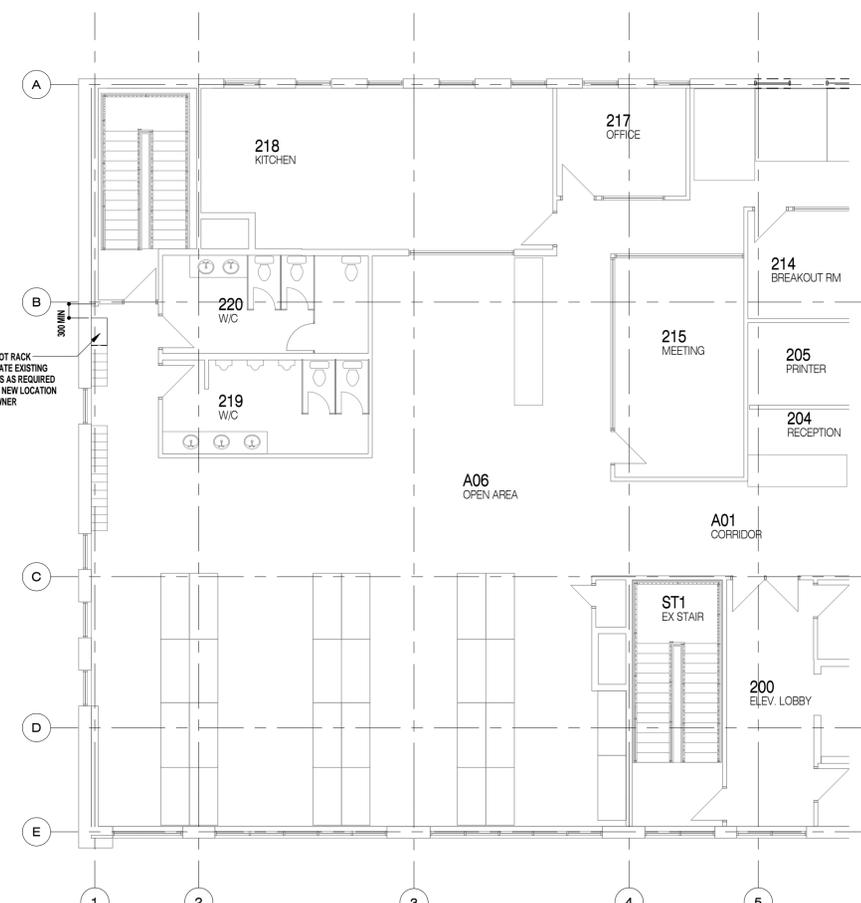
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1 FIRST FLOOR PLAN
1:100



2 FIRST FLOOR - REFLECTED CEILING PLAN
1:100



3 SECOND FLOOR PARTIAL FLOOR PLAN
1:100

WALL LEGEND

- EXISTING STUD WALL
- NEW STUD WALL
- FURNITURE WALL N.I.C.
- ELECTRICAL PANEL
- EXIT DOORS
- 45 MIN FIRE-RESISTANCE RATING
- CARD READER
- CORNER GUARD
- FURNITURE N.I.C.
- EXIST. DOOR
- NEW DOOR
- NEW DOOR N.I.C.
- EXIST. HATCH

WALL SYMBOL LEGEND

- WALL TYPE
- STEEL STUDS
- CONC BLOCK
- WALL TYPE THICKNESS EXAMPLES
- FIRE RESISTANCE RATING (HOURS)
- WALL SPECIFIC INFORMATION (ADDITIONAL WALL MATERIALS, ETC.)

LEGEND OF SYMBOLS:

- LIGHT FIXTURES - ELEC.
- EXHAUST FAN - MECH.
- SUPPLY AIR - MECH.
- RETURN AIR - MECH.
- SPRINKLERS - MECH.
- BULKHEAD (16 GB ON 152 STEEL STUDS, ALL SIDES) PROVIDE DIAGONAL STEEL STUD CROSS BRACING AS REQUIRED.

INTERIOR PARTITION LEGEND

- S1 16 FIRE-RATED GYPSUM BOARD STEEL STUDS @ 400 C/C ACUSTIC BATT INSULATION (TO SUIT STUD THICKNESS) 16 FIRE-RATED GYPSUM BOARD
- S2 16 GYPSUM BOARD STEEL STUDS @ 400 C/C ACUSTIC BATT INSULATION (TO SUIT STUD THICKNESS) 16 GYPSUM BOARD

GENERAL CONSTRUCTION NOTES

- WALLS INDICATED TO BE FIRE RATED SEPARATIONS ARE TO BE CONTINUOUS TO US OF RATED FLOOR ASSEMBLIES AND/OR ROOF DECK/SHEATHING.
- INSTALL FIRESTOPPING ALONG THE PERIMETER OF FIRE SEPARATIONS ALONG WITH PENETRATIONS OF THE FIRE SEPARATIONS (AT WALLS, FLOORS & SHUT SHAFTS)
- INTERIOR DIMENSIONS SHOWN ARE TO CENTRELINE OF STUDS AND TO THE FACE OF EXISTING WALLS (UNLESS NOTED OTHERWISE)
- WHERE FULL HEIGHT STEEL STUD PARTITIONS OCCUR DIRECTLY BELOW & PARALLEL TO BEAMS, PROVIDE SCRIBED DECK GAUGE CLOSURES TO FLUTES ON BOTH SIDES OF BEAM C/W BATT INSULATION FILL. SEAL CLOSURES FULL PERIMETER.
- WHERE DIFFERENT WALL TYPES LINE UP WITH EACH OTHER IN ONE PLANE, THE WALL STUDS SHALL BE INSTALLED SO THAT THE OUTSIDE SURFACE OF THE LAST LAYER OF GYPSUM BOARD IS FLUSH WITH EACH OTHER.
- COORDINATE 152mm STEEL STUD FRAMING LOCATIONS WITH REQUIRED PLUMBING STACK LOCATIONS, VALVES, CONTROL MANIFOLDS FOR IN-SLAB RADIANT HEATING AND RECESSED ELECTRICAL/MECHANICAL PANELS
- WALLS ARE TO EXTEND TO UNDERSIDE OF ROOF DECK/SHEATHING AND TO THE US FLOOR STRUCTURE, UNLESS NOTED OTHERWISE.
- ENSURE THE PERIMETERS OF INTERIOR WALL TYPES WITH INSULATION, ARE CAULKED AND SEALED WITH ACUSTICAL SEALANT, ALL PENETRATIONS THROUGH THE WALLS ARE TO BE CAULKED AND SEALED.
- WHERE STEEL STUD PARTITIONS ABUT RATED FLOOR ASSEMBLIES AND/OR ROOF DECK IN CONCEALED SPACES, CUT GYPSUM BOARD 16mm SHORT AND SEAL WITH ACUSTIC SEALANT.
- WHERE RECESSED FIRE EXTINGUISHER CABINETS, ELECTRICAL PANELS, ETC., OCCUR IN STUD PARTITIONS AT FIRE SEPARATIONS, LINE THE INSIDE OF THE OPENING WITH ONE OR TWO LAYERS 16mm FIRE RATED GYPSUM BOARD ON STUD GAUGE ANGLE FRAMING. (FURR WHERE REQUIRED)
- ENSURE THAT MECHANICAL & ELECTRICAL EQUIPMENT THAT REQUIRES SERVICING IS ACCESSIBLE AT COMPLETION OF CONSTRUCTION. (i.e. ABOVE SUSPENDED ACUSTIC TILE CEILINGS OR PROVIDE ACCESS PANELS IF NECESSARY).
- VERIFY LOCATION OF TRENCHING WITH ELEC LOCATION OF FLOOR BOX AND CONCRETE CONDITIONS ON SITE.
- ENSURE ADEQUATE WOOD BLOCKING IS INSTALLED IN STEEL STUD PARTITIONS TO SUPPORT ALL WALL MOUNTED ITEMS, INCLUDING BUT NOT LIMITED TO: MILLWORK, WASHROOM ACCESSORIES, MISCELLANEOUS SPECIALTY ITEMS, MECHANICAL, ELECTRICAL/AUDIO & VISUAL EQUIPMENT, AND CONFIRM ALL OWNER'S WALL MOUNTED EQUIPMENT.
- MAKE GOOD AREAS AFFECTED BY WORK OF THIS CONTRACT, INCLUDING AREAS AFFECTED BY STRUCTURAL, MECHANICAL & ELECTRICAL WORK. FURNITURE VENDOR TO COORDINATE DOOR HARDWARE FOR DOORS PART OF THE DEMOUNTABLE WALL SYSTEM WITH OWNER.

GENERAL CEILING NOTES

- REFER TO MECHANICAL DRAWINGS FOR DIFFUSERS, GRILLES, RADIANT PANELS, SPRINKLER HEADS AND OTHER RELATED MECHANICAL INFORMATION.
- REFER TO ELECTRICAL DRAWINGS FOR SMOKE & HEAT DETECTORS, EXIT LIGHTS, SUSPENDED & RECESSED LIGHT FIXTURES AND OTHER RELATED ELECTRICAL INFORMATION.
- GENERAL CONTRACTOR TO CONFIRM LOCATIONS OF ALL MECHANICAL & ELECTRICAL ITEMS SHOWN & NOT SHOWN ON ARCHITECTURAL DRAWINGS.
- CEILING HEIGHTS THAT ARE REQUIRED TO BE LOWER THAN WHAT IS INDICATED ON ARCHITECTURAL DRAWINGS AS PER SITE CONDITION ENCOUNTERED, SHOULD BE CONFIRMED WITH THE ARCHITECT PRIOR TO THE LOWERING OF THE CEILING HEIGHT.

NOTE: CEILING HEIGHTS TO BE AS HIGH AS POSSIBLE.

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NO.	DESCRIPTION	DATE

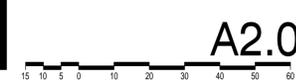
PROJECT NAME:
YARDI SYSTEMS EXPANSION

516 WELLMAN CRES,
SASKATOON

PROJECT NUMBER: 15-048

DRAWING NAME:
FLOOR PLANS & REFLECTED CEILING PLAN

DRAWN: NK
CHECKED: MKJ



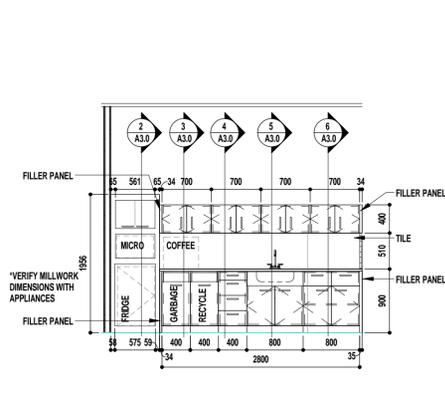
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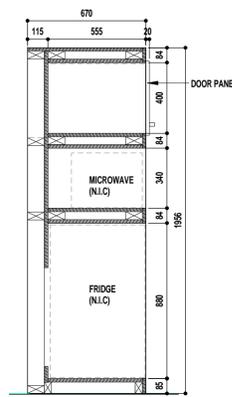
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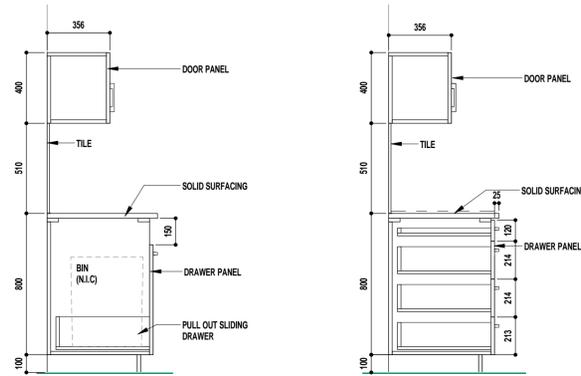
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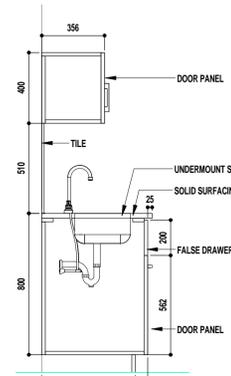
1 RM 107 KITCHEN ELEV.
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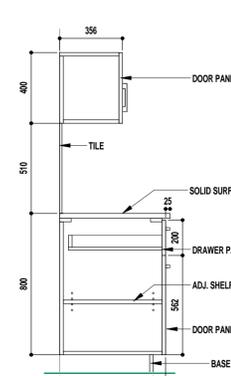
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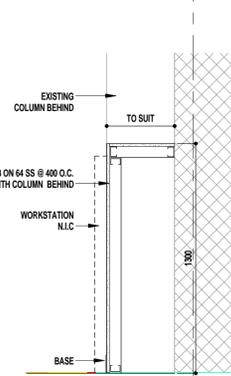
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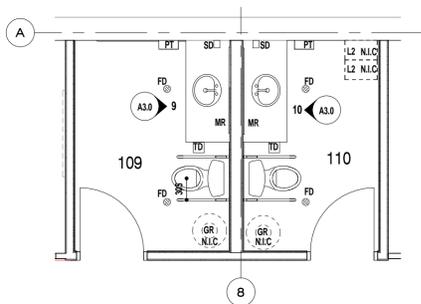
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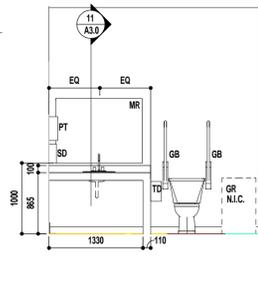
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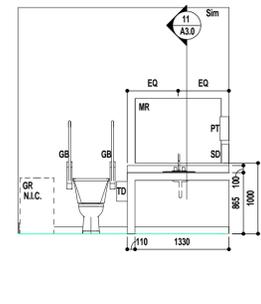
7 DETAIL @ BUILDOUT
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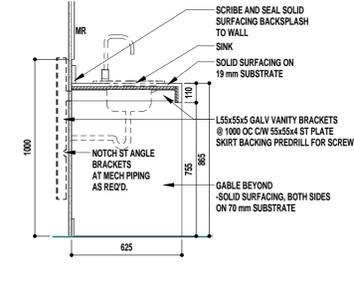
8 WASHROOM ENLARGED PLAN
1:50



9 WASHROOM 109 - SOUTH ELEVATION
1:50



10 WASHROOM 110 - NORTH ELEVATION
1:50



11 109/110 VANITY SECTION
1:20

Yardi Systems Tenant Improvement

Saskatoon, Sk
Project No. 15.048

Section 09 06 00
ROOM FINISH SCHEDULE

Page 1 of 19

ROOM FINISH LIST OF ABBREVIATIONS table with columns for material codes and descriptions.

COLOUR SCHEDULE

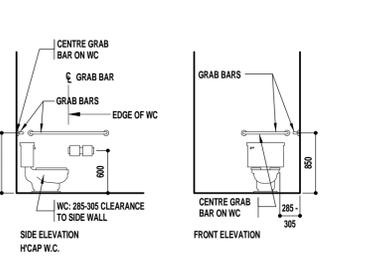
PRODUCT AND COLOUR SCHEDULE table with columns for material code, manufacturer, product, and color number.

WASHROOM ACCESSORIES

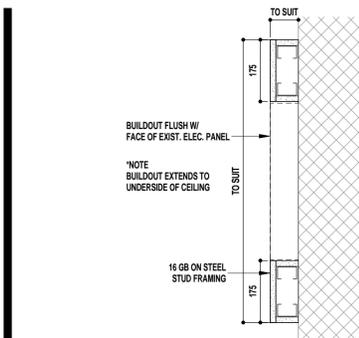
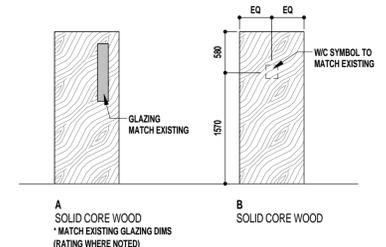
Table listing washroom accessories: GB (Fold Down Grab Bar), MR1 (Mirror), PT (Paper Towel Dispenser), SD (Soap Dispenser), TD (Toilet Tissue Dispenser).

WASHROOM ACCESSORY LEGEND:

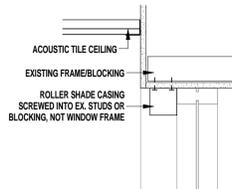
TOILET TISSUE DISPENSER MOUNT AT 600 TO CENTERLINE, AT EDGE OF W.C.
PAPER TOWEL DISPENSER MOUNT AT 1200 TO OPERATING / DISPENSING COMPONENT
SOAP DISPENSER MOUNT AT 1000 TO CENTERLINE
MIRROR MOUNT AT 1000 TO BOTTOM
FOLD DOWN GRAB BARS MOUNT AT 850 TO CENTERLINE
ROBE/COAT HOOKS (BARRIER FREE) MOUNT AT 1200 TO TOP



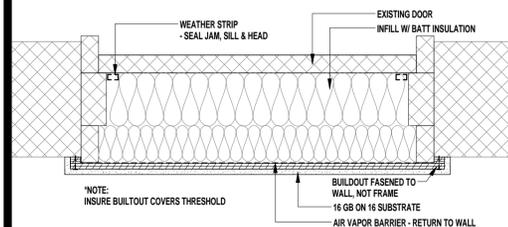
DOOR TYPES



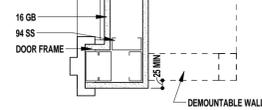
12 BUILDOUT @ ELEC. PANEL
1:10



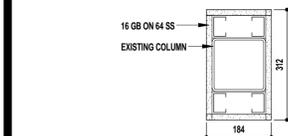
13 ROLLER SHADE DETAIL
1:10



14 BUILDOUT @ EXISTING EXT. DOOR
1:10



15 WALL CONNECTION DETAIL
1:10



16 COLUMN BUILDOUT DETAIL
1:10

Room Schedule table with columns for room no., room name, floor, base, north, east, south, west, ceiling, and height.

NOTES:
RM 107 KITCHEN
PLAM 1 ON UPPER AND LOWER CABINETS, PLAM 2 ON BUILDOUT ABOUT FRIDGE AND MICROWAVE ALL SIDES.
SS-1 ON COUNTER TOP, CT-1 AT BACKSPASH

Door Schedule table with columns for door no., from room, to room, door width, door height, door type, door colour, frame material, frame colour, hardware group, fire rating, and remarks.

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1 Issued for Tender 07 Aug 2015

NO. DESCRIPTION DATE

REVISIONS:

PROJECT NAME:
YARDI SYSTEMS EXPANSION

516 WELLMAN CRES, SASKATOON

PROJECT NUMBER: 15-048

DRAWING NAME:

ELEVATIONS & SCHEDULES

DRAWN: Author

CHECKED: Checker

A3.0

Section 01 10 00 – Summary of Work

Table with 2 columns: Item number and Description. Includes sections for Part 1 General, SECTION INCLUDES, RELATED SECTIONS, RELATED DOCUMENTS, WORDS AND TERMS, COMPLEMENTARY DOCUMENTS, CONTRACT METHOD, OWNER-SUPPLIED PRODUCTS, and CONTRACTOR USE OF PREMISES.

Section 01 19 00 Specifications and Documents

Table with 2 columns: Item number and Description. Includes sections for Part 1 General, SECTION INCLUDES, RELATED SECTIONS, RELATED DOCUMENTS, WORDS AND TERMS, COMPLEMENTARY DOCUMENTS, SPECIFICATION GRAMMAR, and CONTRACTOR USE OF PREMISES.

Section 01 31 01 Project Management

Table with 2 columns: Item number and Description. Includes sections for Part 1 General, SECTION INCLUDES, RELATED SECTIONS, COORDINATION, and MASTER PLAN.

Table with 2 columns: Item number and Description. Includes sections for Part 1 General, PROJECT MEETINGS, CONSTRUCTION ORGANIZATION AND START-UP, IN-SITE DOCUMENTS, SCHEDULES, PROJECT MEETING, SUBMITTALS, COMPLIANCE WITH DETAIL SCHEDULE, PROGRESS MONITORING AND REPORTING, CLOSURE PROCEDURES, EXECUTION, and MASTER PLAN.

Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart

Table with 2 columns: Item number and Description. Includes sections for Part 1 General, SECTION INCLUDES, RELATED SECTIONS, DEFINITIONS, REQUIREMENTS, SUBMITTALS, and MASTER PLAN.

Table with 2 columns: Item number and Description. Includes sections for Part 1 General, PROJECT SCHEDULE, PROJECT SCHEDULE REPORTING, PROJECT MEETINGS, EXECUTION, and SHOP DRAWINGS AND PRODUCT DATA.



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1 Issued for Tender 07 Aug 2015

NO. DESCRIPTION DATE REVISIONS

PROJECT NAME: YARDI SYSTEMS EXPANSION

516 WELLMAN CRES, SASKATOON

PROJECT NUMBER: 15-048

DRAWING NAME: SPECIFICATIONS

DRAWN: Author

CHECKED: Checker

15 10 5 0 10 20 30 40 50 60

A4.0



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Table of contents listing sections 1.5 through 1.11, including Electronic Submissions, Quality Assurance, Temporary Utilities, Construction Facilities, and Temporary Construction.

Table of contents listing sections 2.1 through 2.2, including Products, Temporary Utilities, Construction Facilities, and Temporary Construction.

Table of contents listing sections 3.1 through 3.15, including Temporary Utilities, Traffic Control and Procedures, Project Identification, and Common Product Requirements.

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PROJECT NAME: YARDI SYSTEMS EXPANSION

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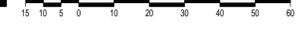
PROJECT NUMBER: 15-048

DRAWING NAME: SPECIFICATIONS

DRAWN: Author

CHECKED: Checker

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3 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.6 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 banded products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundle 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 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 Consultant.

8 Touch-up damaged factory finished surfaces to Consultant's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.7 TRANSPORTATION

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

1.8 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 Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant may establish course of action.

3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant to require removal and re-installation at no increase in Contract Price or Contract Time.

1.9 QUALITY OF WORK

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 Consultant if required Work, such as to make it impractical to produce required results.

2 Do not employ anyone unskilled in their required duties. Consultant reserves 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 Consultant, whose decision is final.

1.10 CO-ORDINATION

1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.11 CONCEALMENT

1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

2 Before installation, inform Consultant if there is interference. Install as directed by Consultant.

1.12 REMEDIAL WORK

1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate 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.

1.13 LOCATION OF FIXTURES

1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

2 Inform Consultant of conflicting installation. Install as directed.

1.14 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 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

4 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.

5 Keep exposed fastenings to a minimum, space evenly and install neatly.

6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.15 FASTENINGS - EQUIPMENT

1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

3 Bolts may not project more than one diameter beyond nuts.

4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.16 PROTECTION OF WORK IN PROGRESS

1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Consultant.

1.17 ACCEPTABLE PRODUCTS

1 Products for the purpose of this Contract means material, machinery, equipment and fixtures forming the work but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the work and normally referred to as construction machinery and equipment.

2 Products listed as acceptable in various sections of specifications are to be used as a guide and does not imply exclusion of unlisted products of equivalent type.

3 Acceptable products means that products named and specified by manufacturers reference meet the specification in all respects and are acceptable to the Consultant.

4 Products, other than those listed in the specifications as "acceptable products", must be same type as, be capable of performing same function as and meet or exceed standards of quality and performance of named products, and must not require revisions to Contract Documents nor to work of others, and must be submitted and accepted during bidding.

1.18 EXISTING UTILITIES

1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants.

2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2

2.1 Products

NOT USED

Part 3

3.1 Execution

NOT USED

Section 01 62 00 Product Exchange Procedures

Part 1

1.1 General

SECTION INCLUDES

1 Submittals.

1.2 RELATED SECTIONS

1 Section 01 21 00 - Allowances.

2 Section 01 23 10 - Alternatives.

3 Section 01 24 04 - Separates.

4 Section 01 61 00 - Common Product Requirements.

5 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3 SUBSTITUTIONS

1 Instructions to Bidders specify time restrictions for submitting requests for Substitutions during the bidding period to requirements specified in this section.

2 Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

Section 01 73 00 Execution

Part 1

1.1 General

SECTION INCLUDES

1 Submittal requirements associated with connecting to new and existing facilities.

2 Execution requirements for all Work.

1.2 RELATED SECTIONS

1 Section 01 70 00 - Examination and Preparation.

2 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3 TOLERANCES

1 Monitor fabrication and installation tolerance control of Products to produce acceptable Work.

2 Do not permit tolerances to accumulate beyond effective or practical limits.

3 Comply with manufacturers' tolerances. In case of conflict between manufacturers' tolerances and Contract Documents, request clarification from Consultant before proceeding.

4 Adjust Products to appropriate dimensions, position and confirm tolerance acceptability, before permanently securing Products in place.

1.4 EXECUTION

1 Execute cutting, fitting, and patching to complete the Work.

2 Perform all required excavation and fill to complete the Work.

3 Fit several parts together, to integrate with other Work.

4 Uncover Work to install ill-timed Work.

5 Remove and replace defective or non-conforming Work.

6 Remove samples of installed Work for testing, if not designated in the respective Section as remaining as part of the Work.

7 Provide openings in non-structural elements of Work for penetrations of mechanical, electrical, and associated Work. Limit opening dimensions to minimal sizes required, and performed in a neat and clean fashion.

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

9 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

10 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry or concrete work without prior approval.

11 Restore work with new products in accordance with requirements of Contract Documents.

12 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

13 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, for full thickness of the constructed element.

14 Re-finish surfaces to match adjacent finishes: For continuous surfaces re-finish to nearest intersection; for an assembly, re-finish entire unit.

15 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

Section 01 74 00 Cleaning

Part 1

1.1 General

SECTION INCLUDES

1 Progressive cleaning.

2 Cleaning prior to acceptance.

1.2 RELATED SECTIONS

1 Section 01 74 20 - Waste Management and Disposal.

2 This section describes requirements applicable to all Sections within Divisions 02 to 49.

Part 2

2.1 Products

CLEANING MATERIALS

Cleaning Agents and Materials: Low VOC content.

Part 3

3.1 Execution

PROJECT CLEANLINESS

1 Maintain Work in tidy condition, free from accumulation of waste products and debris.

2 Remove waste materials from site at regularly scheduled times. Do not burn waste materials on site.

3 Clear snow and ice from access to building, and remove from site, or as otherwise agreed between the Owner and Contractor.

4 Make arrangements with, and obtain permits from, authorities having jurisdiction for disposal of waste and debris.

5 Provide on-site waste disposal containers (minimum 2 cubic metres or larger) for collection of waste materials and debris. Remove disposal containers on a regular basis as required to avoid buildup of waste product on site.

6 Provide and use clearly marked separate bins for recycling. Refer to Section 01 74 20 - Construction/Demolition Waste Management And Disposal.

7 Remove waste material and debris from site and deposit in appropriate waste containers at end of each working day.

8 Dispose of waste materials and debris off site per requirements of Contract Documents.

9 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.

10 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

11 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

12 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

13 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

3.2 CLEANING PRIOR TO ACCEPTANCE

1 Prior to applying for Substantial Performance, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

3 Prior to final review, remove surplus products, tools, construction machinery and equipment.

4 Remove waste products and debris from site at regularly scheduled times. Do not burn waste materials on site.

5 Make arrangements with, and obtain permits from, authorities having jurisdiction for disposal of waste and debris.

6 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

7 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fittings, walls, floors, ceilings, glazing, interior stainless steel surfaces, milkwork and wood paneling surfaces.

8 Clean lighting reflectors, lenses, and other lighting surfaces.

9 Vacuum clean and dust building interiors, behind grilles, louvers and screens.

10 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.

11 Inspect finishes, fittings and equipment and ensure specified workmanship and operation.

12 Broom clean and wash exterior walks, steps and surfaces, rake clean other surfaces of grounds.

13 Remove dirt and other disfiguration from exterior surfaces.

14 Clean and sweep roofs, gutters, areaways, and sunken wells.

15 Sweep and wash clean paved areas.

16 Clean equipment and fixtures to a sanitary condition; clean or replace filters of mechanical equipment.

17 Clean roof surfaces, downspouts and drainage components.

18 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

19 Remove snow and ice from access to facilities.

20 Repeat cleaning subsequent to deficiency remediation.

3.3 FINAL PRODUCT CLEANING

1 Execute final cleaning prior to final project assessment.

2 Clean interior and exterior glass, surfaces exposed to view, remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

3 Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

4 Replace filters of operating equipment.

5 Clean site; sweep paved areas, rake clean landscaped surfaces.

6 Remove waste and surplus materials, rubbish, and construction facilities from the site.

Section 01 74 20 Waste Management and Disposal

Part 1

1.1 General

SECTION INCLUDES

1 Waste goals.

2 Third party responsibilities.

3 Disposal of waste.

1.2 RELATED SECTIONS

1 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3 DEFINITIONS

1 Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants or similar materials.

2 Construction and Demolition Waste: Solid wastes typically including but not limited to, building materials, packaging, trash, debris, and rubble resulting from construction, re-modelling, repair and demolition operations.

3 Hazardous: Exhibiting the characteristics of hazardous substances including, but not limited to, ignitability, corrosiveness, toxicity or reactivity.

4 Non-hazardous: Exhibiting none of the characteristics of hazardous substances, including, but not limited to, ignitability, corrosiveness, toxicity, or reactivity.

5 Non-toxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

6 Recyclable: The ability of a product or material to be recovered at the end of its life cycle and re-manufactured into a new product for reuse by others.

7 Recycle: To remove a waste material from the Project site to another site for re-manufacture into a new product for reuse by others.

8 Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

9 Return: To give back reusable items or unused products to vendors for credit.

10 Reuse: To reuse a construction waste material in some manner on the Project site.

11 Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.

12 Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

13 Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

14 Toxic: Poisonous to humans either immediately or after a long period of exposure.

15 Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

16 Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products over time through outgassing:

1 Solvents in paints and other coatings,

2 Wood preservatives, strippers and household cleaners,

3 Adhesives in particle board, fibreboard, and some plywood, and foam insulation.

4 When released, VOC's can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.

17 Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

18 Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material being landfilled.

1.4 OWNER WASTE MANAGEMENT GOALS

1 Owner has established this Project is to generate the least amount of waste possible. This requires that construction processes ensure as little waste as possible, either due to error, poor planning, breakage, mishandling, contamination, or other factors.

2 Owner recognizes that waste in any project is inevitable, but indicates that as much of the waste materials as economically feasible. Reused, salvage, or recycle as required.

3 Minimize waste disposal to landfills.

1.5 THIRD PARTY RESPONSIBILITY

1 Cooperate with all parties on site to implement a waste reduction plan.

1.6 STORAGE, HANDLING AND PROTECTION

1 Store materials to be reused, recycled and salvaged in locations as directed by Consultant.

2 Unless specified otherwise, materials for removal become Contractor's property.

3 Protect, stockpile, store and catalogue salvaged items.

4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

5 Protect structural components not removed for demolition from movement or damage.

6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Consultant.

7 Protect surface drainage, storm sewers, sanitary sewers, and utility services from damage and blockage.

1.7 SCHEDULING

1 Coordinate work with other activities at site to ensure timely and orderly progress of the work.

Part 2

2.1 Products

NOT USED

Part 3

3.1 Execution

PREPARATION

1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 SITE VISIT

1 Pre-bid site visit: Walk-through of project site prior to completion of bid submittal.

3.3 USE OF SITE AND FACILITIES

1 Execute work with least possible interference or disturbance to normal use of premises.

2 Provide temporary security measures as approved by Consultant.

3.4 WASTE MANAGEMENT PLAN IMPLEMENTATION

1 Manager: Designate an on-site party responsible for instructing workers and overseeing and documenting results of the Waste Management Plan for Project.

2 Distribution: Distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner, and the Consultant.

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

4 Separation facilities: Lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.

5 Hazardous wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations.

3.5 DISPOSAL OF WASTE

1 Burying of rubbish and waste materials is prohibited unless approved by authority having jurisdiction.

2 Disposal of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers is prohibited.

3.6 CLEANING

1 Remove tools and waste materials on completion of work, leave work area in clean and orderly condition.

2 Clean-up work area as work progresses.

3 Source separate materials to be reused/recycled into specified sort areas.

3.7 SPECIAL PROGRAMS

1 Be responsible for final implementation of programs involving tax credits or rebates or similar incentives related to recycling, if applicable to the Project.

2 Revenues or other savings obtained for recycling or returns to accrue to Contractor.

3 Obtain information packets relevant to all of the above listed programs prior to starting work on the Project, and confirm facility's ability to accept waste from Project.

4 Document work methods, recycled materials, alternate disposal methods that qualify for tax credits, rebates, and other savings under programs listed by authority having jurisdiction.

Section 01 75 19 Testing, Adjusting and Balancing

Part 1

1.1 General

SECTION INCLUDES

1 Adjusting products and equipment required by all specifications sections for this Project.

1.2 RELATED SECTIONS

1 Section 01 74 00 - Cleaning and Waste Processing.

2 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3 GENERAL

1 Contractor shall ensure testing, adjusting and balancing requirements are carried out as listed in individual Sections within Divisions 02 to 49.

2 Prior to start of balancing, ensure systems are:

1 piped, ducted, wired and wireless services and systems, including components and equipment forming part thereof,

2 manually and mechanically operated, including components and equipment forming any part,

3 testing, adjusting and balancing will not be started until after all static checks have been completed for the system being balanced and signed off on the commissioning report forms.

4 Contractor to ensure systems are operated at designated times, under conditions required for proper testing, adjusting, and balancing.

5 report any deficiencies or defects which may effect the balancing or noted during testing, adjusting and balancing, which cannot be promptly corrected.

Part 2

Products

NOT USED.

Part 3

3.1 Execution

PREPARATION

1 Prepare each system and item of equipment for testing, adjusting and balancing.

2 Verify that each system and equipment installation is complete and in functional operation.

3 Verify appropriate ambient conditions.

3.2 TESTING

1 Perform all testing required by Code and authorities having jurisdiction.

2 Perform all tests as detailed in individual Sections within Divisions 02 to 49.

3 Tests will be conducted to confirm compliance with requirements of Contract Documents.

4 Take corrective action as necessary.

3.3 ADJUSTING

1 Adjust operating Products and equipment to ensure smooth and unhindered operation and as detailed in individual Sections within Divisions 02 to 49 and in accordance with manufacturers requirements and Commissioning procedures.

2 Provide equipment required to ensure proper, efficient and safe operation of all equipment including belts and sheaves.

3.4 BALANCING

1 Cooperate with, and assist the balancing agent to ensure that the various parts of system are in a proper state of equilibrium.

Section 01 78 10 Closeout Submittals

Part 1

1.1 General

SECTION INCLUDES

1 Inspections and declarations.

2 Closeout submittals.

3 Operation and maintenance manual format.

4 Contents each volume.

5 Recording actual site conditions.

6 Record (as-built) documents and samples.

7 Record documents.

8 Final survey.

9 Warranties and bonds.

1.2 RELATED SECTIONS

1 Section 01 33 00 - Submittal Procedures.

2 Section 01 45 00 - Quality Control.

3 Section 01 79 00 - Demonstration and Training.

4 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3 INSPECTIONS AND DECLARATIONS

1 Contractor's Inspection: Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.

2 Request Consultant's Inspection.

2 Consultant's Inspection: Consultant and Contractor will perform inspection of Work to identify defects or deficiencies. Correct defective and deficient Work accordingly.

3 Completion: submit written certificate that following have been performed:

1 Work has been completed and inspected for compliance with Contract Documents.

2 Defects have been corrected and deficiencies have been completed.

3 Equipment and systems have been tested, adjusted and balanced and are fully operational.

4 Certificates required by authorities having jurisdiction have been submitted.

5 Operation of systems have been demonstrated to Owner's personnel.

6 Work is complete and ready for Final Inspection.

4 Final Inspection: when items noted above are completed, request final inspection of Work by Owner, Consultant and Contractor. If Work is deemed incomplete by Consultant, complete outstanding items and request reinspection.

5 Declaration of Substantial Performance: when Owner and Consultant consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for Substantial Performance of the Work.

6 Commencement of Warranty Periods: the date of Substantial Performance of the Work shall be the date for commencement of the warranty period.

7 Commencement of Lien Periods: the date of publication of the certificate of Substantial Performance of the Work shall be the date for commencement of the lien period, unless required otherwise by the lien legislation applicable at the Place of the Work.

8 Final Payment: When Owner and Consultant consider final deficiencies and defects have been corrected and it appears requirements of Contract have been completed, make application for final payment.

9 Payment of Hold-back: After issuance of certificate of Substantial Performance of the Work, submit an application for payment of hold-back amount.

1.4 CLOSEOUT SUBMITTALS

1 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

2 Copy will be returned after final inspection, with Consultant's comments.

3 Revise content of documents as required prior to final submittal.

4 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, one final copy of operating and maintenance manuals in Canadian English in electronic format. Submit one additional paper copy.

5 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

6 If requested, furnish evidence as to type, source and quality of products provided.

7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

8 Pay costs of transportation.

1.5 OPERATION AND MAINTENANCE MANUAL FORMAT

1 Organize data in the form of an instructional manual.

2 Refer to Mechanical Specifications for requirements of Mechanical operation and maintenance manuals. Mechanical operation and maintenance manuals shall include hard and digital copies of the mechanical drawings in accordance with items 1.5.9 and 1.5.10 of this section.

3 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm (8.5 x 11) inch with spine and face pockets.

4 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

5 Cover: Identify each binder with type or printed title 'Project Record Documents', list title of project and identify subject matter of contents.

6 Arrange content by systems, process flow, under Section Numbers and sequence of Table of Contents.

7 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

8 Text: Manufacturer's printed data, or typewritten data.

9 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

10 Provide 1:1 scaled CAD files in * .dwg AutoCAD Release 2007 format on CD-ROM.

1.6 CONTENTS - EACH VOLUME

1 Table of Contents: provide title of project:

1 date of submission;

2 names, addresses, and telephone numbers of Consultant and Contractor with name of responsible parties; and

3 schedule of products and systems, indexed to content of volume.

2 For each product or system, list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

3 Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00.

4 Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

5 Certificate of Acceptance: Relevant certificates issued by authorities having jurisdiction, including code compliance certificate, life safety systems performance certificate, concrete data into related consistent groupings. Identify contents of each binder on spine.

6 Training: Refer to Section 01 79 00.

1.7 RECORDING ACTUAL SITE CONDITIONS

1 Record information on set of black line opaque drawings, and within the Project Manual, provided by Owner.

2 Annotate with coloured felt tip marking pens, maintaining separate colours for each major system, for recording changed information.

3 Record information concurrently with construction progress. Do not conceal Work of the Project until required information is accurately recorded.

4 Contract drawings and shop drawings: legibly mark each item to record actual construction, including:

1 Measured depths of elements of foundation in relation to finish first floor datum.

2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

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1 Issued for Tender 01 Aug 2015

NO.	DESCRIPTION	DATE

REVISIONS:

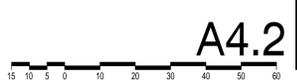
PROJECT NAME:
YARDI SYSTEMS EXPANSION

516 WELLMAN CRES,
SASKATOON

PROJECT NUMBER: 15-048

DRAWING NAME:
SPECIFICATIONS

DRAWN: Author
CHECKED: Checker





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1 Issued for Tender 07 Aug 2015

NO.	DESCRIPTION	DATE

REVISIONS:

PROJECT NAME:

YARDI SYSTEMS EXPANSION

516 WELLMAN CRES,
SASKATOON

PROJECT NUMBER: 15-048

DRAWING NAME:

SPECIFICATIONS

DRAWN: Author

CHECKED: Checker

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<p>6 ASTM B210M-12 - Aluminum and Aluminum-Alloy Drawn Seamless Tubes (Metric). B210-04 - Aluminum and Aluminum-Alloy Drawn Seamless Tubes.</p> <p>7 ASTM B211M-12e1 - Aluminum and Aluminum-Alloy Bar, Rod, and Wire (Metric). B211M-03 - Aluminum and Aluminum-Alloy Bar, Rod, and Wire.</p> <p>8 ASTM B221-12 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric). B221-06 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.</p> <p>9 ASTM B456-11e1 - Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.</p> <p>10 ASTM B483/B483M-03 - Aluminum and Aluminum-Alloy Drawn Tubes for General Purpose Applications.</p> <p>11 AWS (American Welding Society) D1.8/D1.8M-2007 - Structural Welding Code - Stainless Steel.</p> <p>12 CAN/CSSA-A123-2-03(R2008) - Anti-corrosive Structural Steel Alkyd Primer.</p> <p>13 CAN/CSSB-1.181-99 - Ready-Mixed, Organic Zinc-Rich Coating.</p> <p>14 CAN/CSA-G401-07 - Corrugated Steel Pipe Products.</p> <p>15 CAN/CSA-G40.20-04/G40.21-04 (R2009) - General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.</p> <p>16 CAN/CSA-G184-M92 (R2003) - Hot Dip Galvanizing of Irregularly Shaped Articles.</p> <p>17 CSA-W47.1-09 - Certification of Companies for Fusion Welding of Steel Structures.</p> <p>18 CSA-W47.2-11 - Certification of Companies for Fusion Welding of Aluminum.</p> <p>19 CSA-W48-06 (R2011) - Filler Metals and Allied Materials for Metal Arc Welding.</p> <p>20 CSA-W55.3-08 - Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.</p> <p>21 CAN/CSSB-1.181-99 - Ready-Mixed, Organic Zinc-Rich Coating.</p> <p>22 CSA-W59.2-M1991(R2008) - Welded Aluminum Construction.</p> <p>23 SSPC (The Society for Protective Coatings) (formerly SSPC - Steel Structures Painting Council) - Steel Structures Painting Manual.</p> <p>1.4 SUBMITTALS FOR REVIEW</p> <p>1 Section 01 33 00 - Submission procedures.</p> <p>2 Shop Drawings</p> <p>1 Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.</p> <p>2 Include erection drawings, elevations, and details where applicable.</p> <p>3 Indicate welded connections using standard welding symbols. Indicate net weld lengths.</p> <p>1.5 SUBMITTALS FOR INFORMATION</p> <p>1 Section 01 33 00 - Submission procedures.</p> <p>1.6 QUALITY ASSURANCE</p> <p>1 Products of This Section: Manufactured to ISO 9000 certification requirements.</p> <p>2 Welders/Certificats: Submit to Section 01 33 00 requirements, certifying welders employed on the Work, verifying qualification within the previous 12 months to CSA-W47.1 (steel), CSA-W47.2 (aluminum), CSA-W55.3, AWS D1.6/D1.6M.</p> <p>3 Welded Steel Construction: CSA-W59.</p> <p>4 Welded Aluminum Construction: CSA-W59.2.</p> <p>5 Welded Stainless Steel Construction: AWS D1.8/D1.6M.</p> <p>Part 2 PRODUCTS</p> <p>2.1 MATERIALS - STEEL</p> <p>1 Steel Sections and Plates: CAN/CSA-G40.20/G40.21, Grade 350W.</p> <p>2 Steel Pipe: ASTM A53A/A53M, Grade A Schedule 40, standard weight, black finish.</p> <p>3 Steel Tubing: ASTM A500A/A500M, Grade B, ASTM A501, black finish.</p> <p>4 Bolts, Nuts, and Washers: ASTM A307, galvanized to CSA-G184 for galvanized components.</p> <p>5 Welding Materials: Type required for materials being welded.</p> <p>6 Welding Filler Material: CSA-W48.</p> <p>7 Shop and Touch-Up Primer: CAN/CSSB-1.40.</p> <p>8 Touch-Up Primer for Galvanized Surfaces: CAN/CSSB-1.181 zinc rich.</p> <p>2.2 MATERIALS - ALUMINUM</p> <p>1 Extruded Aluminum: ASTM B221M/B221, alloy 6063, Temper T5.</p> <p>2 Aluminum-Alloy Drawn Seamless Tubes: ASTM B210M, Alloy 6063, Temper T6.</p> <p>3 Aluminum-Alloy Bars: ASTM B211M/B211, Alloy 6063, Temper T6.</p> <p>4 Bolts, Nuts, and Washers: Stainless steel.</p> <p>5 Welding Materials: Type required for materials being welded.</p> <p>2.3 MATERIALS - STAINLESS STEEL</p> <p>1 Stainless Steel Sheet: ASTM A240/A240M, Type 304 with AISI No. 4 finish.</p> <p>2 Welding Materials: Type required for materials being welded.</p> <p>2.4 FABRICATION</p> <p>1 Fit and shop assemble items in largest practical sections, for delivery to site.</p> <p>2 Fabricate items with joints tightly fitted and secured.</p> <p>3 Continuously seal joined members to be prime painted by intermittent welds and plastic filler.</p> <p>4 Continuously seal joined members to be galvanized, and joined members of aluminum or stainless steel construction by continuous welds.</p> <p>5 Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.</p> <p>6 Exposed Mechanical Fastenings: Flush countersunk screws or bolts, unobtrusively located, consistent with design of component, except where specifically noted otherwise.</p> <p>7 Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.</p> <p>2.5 FABRICATION TOLERANCES</p> <p>1 Squareness: 3 mm maximum difference in diagonal measurements.</p> <p>2 Maximum Offset Between Faces: 1.5 mm.</p> <p>3 Maximum Misalignment of Adjacent Members: 1.5 mm.</p> <p>4 Maximum Bow: 3 mm in 1.2 m.</p> <p>5 Maximum Deviation From Plane: 1.5 mm in 1.2 m.</p> <p>2.6 FINISHES - STEEL</p> <p>1 Prepare surfaces to be primed in accordance with SPCC SP 6. Prepare surfaces to be primed in accordance with SPCC SP3 where concealed in walls, above ceiling, and in elevator pits.</p> <p>2 Do not prime surfaces in direct contact with concrete or where field welding is required.</p> <p>3 Prime paint items with two coats.</p> <p>4 Structural Steel Members: Galvanize after fabrication to CAN/CSA-G184, uniform in thickness, coating, adherence and appearance. Provide minimum 800 g/sq m galvanized coating. Locate vent holes where not visible in final installation.</p> <p>5 Non-structural Items: Galvanize after fabrication to CAN/CSA-G184, uniform in thickness, coating, adherence and appearance. Provide minimum 380 g/sq m galvanized coating. Locate vent holes where not visible in final installation.</p> <p>6 Chrome Plating: ASTM B 465 Service Condition No. SC2 Moderate Service, nickel-chromium alloy, polished finish.</p> <p>2.7 FINISHES - ALUMINUM</p> <p>1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.</p> <p>2 Directional textured finish designation AA-33, Coarse Satin.</p> <p>2.8 FINISHES - STAINLESS STEEL</p> <p>1 Stainless Steel Finish: No. 4 brush.</p> <p>2 Grind and polish to uniform finish, with no visible welds and free of cross scratches.</p> <p>3 When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces clean.</p> <p>2.9 FINISHES - CHROMIUM</p> <p>1 Finish exposed surfaces of steel components to ASTM B456, Service Condition No. SC2, Moderate Service, polished finish.</p> <p>Part 3 EXECUTION</p> <p>3.1 EXAMINATION</p> <p>1 Section 01 70 00 - Verify existing conditions before starting work.</p> <p>2 Verify that field conditions are acceptable and are ready to receive work.</p> <p>3 Verify dimensions, tolerances, and method of attachment with other work.</p> <p>3.2 PREPARATION</p> <p>1 Clean and strip primed steel items to bare metal and aluminum where site welding is required.</p> <p>2 Supply steel items required to be cast into concrete or embedded in masonry with setting templates to appropriate sections.</p> <p>3.3 INSTALLATION</p> <p>1 Install items plumb and level, accurately fitted, free from distortion or defects.</p> <p>2 Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.</p> <p>3 Field weld components indicated on shop drawings.</p> <p>4 Perform field welding to CSA requirements.</p> <p>5 Obtain approval prior to site cutting or making adjustments not scheduled.</p> <p>6 After erection, remove weld spatter, continuously seal with plastic filler. Prime welds, abrasions, and surfaces not shop primed, galvanized, except surfaces to be in contact with concrete.</p> <p>3.4 ERECTION TOLERANCES</p> <p>1 Section 01 73 00 - Tolerances.</p> <p>2 Maximum Variation From Plumb: 6 mm per story, non-cumulative.</p> <p>3 Maximum Offset from True Alignment: 6 mm.</p> <p>4 Maximum Out-of-Position: 6 mm.</p> <p>3.5 SCHEDULES</p> <p>1 The following Schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled.</p> <p>2 Anchor Bolts: steel, galvanized finish.</p> <p>3 Vanity brackets: steel, galvanized finish, with galvanized finish.</p>	<p>1.6 CONDITIONS FOR DEMONSTRATIONS</p> <p>1 Equipment has been inspected and put into operation in accordance with applicable sections.</p> <p>2 Testing, adjusting, and balancing has been performed in accordance with the specifications, and equipment and systems are fully operational.</p> <p>3 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.</p> <p>Part 2 PRODUCTS</p> <p>2.1 NOT USED</p> <p>1 Not used.</p> <p>Part 3 EXECUTION</p> <p>3.1 PREPARATION</p> <p>1 Equipment and systems to be included in demonstration and instructions are available.</p> <p>2 Verify that designated personnel are present.</p> <p>3 Prepare agendas and outlines.</p> <p>4 Establish seminar organization.</p> <p>5 Explain component design and operational philosophy and strategy.</p> <p>6 Develop equipment presentations.</p> <p>7 Present system demonstrations.</p> <p>8 Accept and respond to seminar and demonstration questions with appropriate answers.</p> <p>3.2 PREPARATION OF AGENDAS AND OUTLINES</p> <p>1 Prepare agendas and outlines including the following:</p> <p>1 Equipment and systems to be included in seminar presentations.</p> <p>2 Name of companies and representatives presenting at seminars.</p> <p>3 Outline of each seminar's content.</p> <p>4 Time and date allocated to each system and item of equipment.</p> <p>5 Provide separate agenda for each system.</p> <p>3.3 SEMINAR ORGANIZATION</p> <p>1 Coordinate content and presentations for seminars.</p> <p>2 Coordinate individual presentations and ensure representatives scheduled to present at seminars are in attendance.</p> <p>3 Arrange for presentation leaders familiar with the design, operation, maintenance and troubleshooting of the equipment and systems. Where a single person is not familiar with all aspects of the equipment or system, arrange for specialists familiar with each aspect.</p> <p>4 Coordinate proposed dates for seminars with Owner and select mutually agreeable dates.</p> <p>3.4 EXPLANATION OF DESIGN STRATEGY</p> <p>1 Explain design philosophy of each system. Include following information:</p> <p>1 An overview of how system is intended to operate.</p> <p>2 Description of design parameters, constraints and operational requirements.</p> <p>3 Description of proposed operation strategies.</p> <p>4 Information to help in identifying and troubleshooting system problems.</p> <p>3.5 DEMONSTRATION AND INSTRUCTIONS</p> <p>1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at scheduled agreed upon times, at the equipment designated location.</p> <p>2 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.</p> <p>3 Instruct personnel on control and maintenance of sensory equipment and operational equipment associated with maintaining energy efficiency and longevity of service.</p> <p>4 Review contents of manual in detail to explain all aspects of operation and maintenance.</p> <p>5 Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions.</p> <p>3.6 TIME ALLOCATED FOR INSTRUCTION</p> <p>1 Ensure amount of time required for instruction of each item of equipment or system.</p> <p>Section 02 41 19 Selective Demolition</p> <p>Part 1 General</p> <p>1.1 SECTION INCLUDES</p> <p>1 Alteration project procedures.</p> <p>2 Removal of designated building equipment and fixtures.</p> <p>3 Removal of designated construction.</p> <p>4 Disposal of materials.</p> <p>5 Identification of utilities.</p> <p>1.2 RELATED SECTIONS</p> <p>1 Section 06 10 00 - Rough Carpentry; Re-furbishing and re-installing of removed materials.</p> <p>1.3 ALTERATION PROJECT PROCEDURES</p> <p>1 Materials: As specified in Product sections; match existing Products and work for patching and extending work.</p> <p>2 Employ skilled and experienced installer to perform alteration work.</p> <p>3 Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.</p> <p>4 Remove, cut, and patch Work in a manner to minimize damage and to provide means of restoring Products and finishes to original condition.</p> <p>5 Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with a neat transition to adjacent finishes.</p> <p>6 Where new Work abuts or aligns with existing, provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.</p> <p>7 When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Consultant for review.</p> <p>8 Where a change of plane of 6 mm or more occurs, submit recommendation for providing a smooth transition; to Consultant for review.</p> <p>9 Patch or replace portions of existing surfaces which are damaged, lifted, discoloured, or showing other imperfections.</p> <p>10 Finish surfaces as specified in individual Product sections.</p> <p>1.4 ADMINISTRATIVE REQUIREMENTS</p> <p>1 Sequencing: Sequence work to requirements of Section 01 00 00.</p> <p>2 Scheduling: Schedule work to requirements of Section 01 31 00.</p> <p>1 Schedule Work to coincide with new construction.</p> <p>2 Describe demolition removal procedures and schedule.</p> <p>3 Perform noisy, malodorous, dusty, or work to minimize disruptions to occupy.</p> <p>1.5 SUBMITTALS FOR REVIEW</p> <p>1 Section 01 33 00 - Submission procedures.</p> <p>2 Shop Drawings: Indicate demolition and removal sequence and location of salvageable items; location and construction of temporary work.</p> <p>1.6 CLOSEOUT SUBMITTALS</p> <p>1 Division 01: Submission procedures.</p> <p>2 Record Documentation: Accurately record actual locations of capped utilities, subsurface obstructions.</p> <p>1.7 REGULATORY REQUIREMENTS</p> <p>1 Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.</p> <p>2 Obtain required permits from authorities.</p> <p>3 Do not close or obstruct egress width to any building or site exit.</p> <p>4 Do not disable or disrupt building fire or life safety systems without three (3) days prior written notice to Owner.</p> <p>5 Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.</p> <p>1.8 EXAMINATION</p> <p>1 Examine building to identify contaminated and dangerous materials prior to performing demolition.</p> <p>1.9 PROJECT CONDITIONS</p> <p>1 Conduct demolition to minimize interference with adjacent and occupied building areas.</p> <p>2 Cease operations immediately if structure appears to be in danger and notify Consultant. Do not resume operations until directed.</p> <p>Part 2 PRODUCTS</p> <p>1 Not Used</p> <p>Part 3 EXECUTION</p> <p>3.1 PREPARATION</p> <p>1 Prepare, erect, and maintain temporary barriers.</p> <p>2 Erect and maintain weatherproof closures for exterior openings.</p> <p>3 Erect and maintain temporary partitions to prevent spread of dust, odours, and noise to permit continued Owner occupancy.</p> <p>4 Protect existing materials and systems which are not to be demolished.</p> <p>5 Prevent movement of structure; provide bracing and shoring.</p> <p>6 Notify affected utility companies before starting work and comply with their requirements.</p> <p>7 Mark location and termination of utilities.</p> <p>8 Provide appropriate temporary signage including signage for exit or building egress.</p> <p>3.2 DEMOLITION</p> <p>1 Disconnect, remove and identify designated utilities within demolition areas.</p> <p>2 Demolish in an orderly and careful manner. Protect existing supporting structural members and finishes.</p> <p>3 Remove contaminated or dangerous materials affected by work, including but not limited to asbestos, from site and dispose of in safe manner to minimize danger at site or any time during disposal.</p> <p>4 Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site. Dispose of demolished materials at an approved Saskatchewan Environmental Management approved landfill/disposal site.</p> <p>5 Salvage and store materials designated for re-installation.</p> <p>6 Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.</p> <p>7 Remove temporary Work.</p> <p>Section 05 50 00 Metal Fabrications</p> <p>Part 1 General</p> <p>1.1 SECTION INCLUDES</p> <p>1 Shop fabricated ferrous metal items.</p> <p>2 Shop fabricated aluminum items.</p> <p>3 Shop fabricated stainless steel items.</p> <p>1.2 RELATED SECTIONS</p> <p>1 Section 03 30 00 - Cast-In-Place Concrete: Placement of metal fabrications in concrete.</p> <p>2 Section 05 12 00 - Structural Steel: Structural steel column anchor bolts.</p> <p>3 Section 05 21 00 - Steel Joist Framing: Structural joist bearing plates, including anchorage.</p> <p>4 Section 05 31 13 - Steel Floor Decking: Bearing plates, angles and for metal deck bearing, including anchorage.</p> <p>5 Section 05 51 00 - Metal Stairs.</p> <p>6 Section 05 52 00 - Metal Railings.</p> <p>7 Section 08 70 05 - Cabinet and Miscellaneous Hardware.</p> <p>8 Section 09 91 99 - Painting: Paint finish.</p> <p>1.3 REFERENCES</p> <p>1 ASTM A53A/A53M-12 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.</p> <p>2 ASTM A240/A240M-12 - Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications.</p> <p>3 ASTM A307-10 - Carbon Steel Bolts and Studs, 80,000 PSI Tensile Strength.</p> <p>4 ASTM A500/A500M-10a - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.</p> <p>5 ASTM A501-07 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.</p>
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<p>3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.</p> <p>4 Field changes of dimension and detail.</p> <p>5 Changes made by change orders.</p> <p>6 Details not on original Contract Drawings.</p> <p>7 References to related shop drawings and modifications.</p> <p>8 Specifications: legibly mark each item to record actual construction, including:</p> <p>1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.</p> <p>2 Changes made by Addenda and change orders.</p> <p>3 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specification sections.</p> <p>1.8 RECORD (AS-BUILT) DOCUMENTS AND SAMPLES</p> <p>1 In addition to requirements in General Conditions, maintain at the site for Consultant one record copy of:</p> <p>1 Contract Drawings.</p> <p>2 Specifications.</p> <p>3 Addenda.</p> <p>4 Change Orders and other modifications to the Contract.</p> <p>5 Reviewed shop drawings, product data, and samples.</p> <p>6 Field test records.</p> <p>7 Inspection certificates.</p> <p>8 Manufacturer's certificates.</p> <p>2 Store as-built documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.</p> <p>3 Label as-built documents and file in accordance with section number listings in List of Contents of the Project Manual. Label each document "AS-BUILT DOCUMENTS" in neat, large, printed letters.</p> <p>4 Maintain as-built documents in clean, dry and legible condition. Do not use as-built documents for construction purposes.</p> <p>5 Keep as-built documents and samples available for inspection by Consultant.</p> <p>1.9 RECORD DOCUMENTS</p> <p>1 Prior to Substantial Performance of the Work, electronically transfer the marked up information from the as-built documents to a master set of drawing and specification files provided by the Consultant, as follows:</p> <p>1 Drawings: AutoCAD Release 2007.</p> <p>2 Specifications: Microsoft Word.</p> <p>2 Mark revised documents as "RECORD DOCUMENTS". Include all revisions, with special emphasis on mechanical, electrical, structural steel, and reinforced concrete.</p> <p>3 Employ a competent computer drafts person to indicate changes on the electronic set of record drawings. Provide updated record drawings in AutoCAD Release 2007.</p> <p>4 Employ a competent specification writer to indicate changes to the electronic set of record specifications. Provide updated record specifications in Microsoft Word on CD-ROM.</p> <p>5 Submit completed record documents to Consultant on a CD-ROM, accompanied by one (1) hard copy set.</p> <p>1.10 FINAL SURVEY</p> <p>1 Submit final site survey certificate in accordance with Section 01 70 00, certifying that elevations and locations of completed Work are in conformance, or non-conformance, with Contract Documents.</p> <p>2 Inaccurate or neglectful information shall become a liability of the Contractor.</p> <p>1.11 WARRANTIES AND BONDS</p> <p>1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.</p> <p>2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.</p> <p>3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) days after completion of the applicable item of work.</p> <p>4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.</p> <p>5 Verify that documents are in proper form, contain full information, and are notarized.</p> <p>6 Co-execute submittals when required.</p> <p>7 Retain warranties and bonds until time specified for submittals.</p> <p>8 Provide copies of extended manufacturer warranties for all products where extended warranties are specified.</p> <p>Section 01 78 40 Maintenance Requirements</p> <p>Part 1 General</p> <p>1.1 SECTION INCLUDES</p> <p>1 Equipment and systems.</p> <p>2 Materials and finishes.</p> <p>3 Spare parts.</p> <p>4 Maintenance manuals.</p> <p>5 Special tools.</p> <p>6 Storage, handling and protection.</p> <p>1.2 RELATED SECTIONS</p> <p>1 Section 01 45 00 - Quality Control.</p> <p>2 Section 01 91 00 - Commissioning.</p> <p>3 This section describes requirements applicable to all Sections within Divisions 02 to 49.</p> <p>1.3 EQUIPMENT AND SYSTEMS</p> <p>1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.</p> <p>2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.</p> <p>3 Include installed colour coded wiring diagrams.</p> <p>4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.</p> <p>5 Maintenance Requirements: include routine procedures and guide for troubleshooting; disassembly, repair, and reassembly instructions, and alignment, adjusting, balancing, and checking instructions.</p> <p>6 Provide servicing and lubrication schedule, and list of lubricants required.</p> <p>7 Include manufacturer's printed operation and maintenance instructions.</p> <p>8 Include sequence of operation by controls manufacturer.</p> <p>9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.</p> <p>10 Provide installed control diagrams by controls manufacturer.</p> <p>11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.</p> <p>12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.</p> <p>13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.</p> <p>14 Include test and balancing reports as specified in Section 01 45 00 and 01 91 00.</p> <p>15 Additional requirements: As specified in individual specification sections.</p> <p>Part 2 PRODUCTS</p> <p>2.1 BUILDING PRODUCTS, APPLIED MATERIALS, AND FINISHES: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.</p> <p>2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.</p> <p>3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.</p> <p>4 Building Envelope: include copies of drawings of building envelope components, illustrating the interface with similar or dissimilar items to provide an effective air, vapour and thermal barrier between indoor and outdoor environments. Include an outline of requirements for regular inspections and for regular maintenance to ensure that on-going performance of the building envelope will meet the initial building envelope criteria.</p> <p>5 Additional Requirements: as specified in individual specifications sections.</p> <p>2.2 SPARE PARTS</p> <p>1 Provide spare parts, in quantities specified in individual specification sections.</p> <p>2 Provide items of same manufacture and quality as items in Work.</p> <p>3 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.</p> <p>4 Obtain receipt for delivered products and submit prior to final payment.</p> <p>2.3 MAINTENANCE MATERIALS</p> <p>1 Provide maintenance and extra materials, in quantities specified in individual specification sections.</p> <p>2 Provide items of same manufacture and quality as items in Work.</p> <p>3 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.</p> <p>4 Obtain receipt for delivered products and submit prior to final payment.</p> <p>2.4 SPECIAL TOOLS</p> <p>1 Provide special tools, in quantities specified in individual specification sections.</p> <p>2 Provide items with tags identifying their associated function and equipment.</p> <p>3 Receive and catalogue all items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.</p> <p>Part 3 EXECUTION</p> <p>3.1 DELIVER TO SITE</p> <p>1 Deliver to location as directed; place and store.</p> <p>3.2 STORAGE, HANDLING AND PROTECTION</p> <p>1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.</p> <p>2 Store in original and undamaged condition with manufacturer's seal and labels intact.</p> <p>3 Store components subject to damage from weather in weatherproof enclosures.</p> <p>4 Store paints and freezeable materials in a heated and ventilated room.</p> <p>5 Remove and replace damaged products at own expense and to satisfaction of Consultant.</p> <p>Section 01 79 00 Demonstration and Training</p> <p>Part 1 General</p> <p>1.1 SECTION INCLUDES</p> <p>1 Procedures for demonstration and instruction of Products, equipment and systems to Owner's personnel.</p> <p>2 Seminars and demonstrations.</p> <p>1.2 RELATED SECTIONS</p> <p>1 Section 01 91 00 - Commissioning.</p> <p>2 This section describes requirements applicable to all Sections within Divisions 02 to 49.</p> <p>1.3 DESCRIPTION</p> <p>1 Demonstrate scheduled operation and maintenance of equipment, building envelope and systems to Owner's personnel two weeks prior to date of final inspection substantial performance interim completion.</p> <p>2 Owner will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon times.</p> <p>1.4 COMPONENT DEMONSTRATION</p> <p>1 Manufacturer to provide authorized representative to demonstrate operation of equipment and systems.</p> <p>2 Instruct Owner's personnel, and provide written report that demonstration and instructions have been completed.</p> <p>1.5 SUBMITTALS</p> <p>1 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Consultant's approval.</p> <p>2 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.</p> <p>3 Give time and date of each demonstration, with list of persons present.</p>	<p>Section 02 41 19 Selective Demolition</p> <p>Part 1 General</p> <p>1.1 SECTION INCLUDES</p> <p>1 Alteration project procedures.</p> <p>2 Removal of designated building equipment and fixtures.</p> <p>3 Removal of designated construction.</p> <p>4 Disposal of materials.</p> <p>5 Identification of utilities.</p> <p>1.2 RELATED SECTIONS</p> <p>1 Section 06 10 00 - Rough Carpentry; Re-furbishing and re-installing of removed materials.</p> <p>1.3 ALTERATION PROJECT PROCEDURES</p> <p>1 Materials: As specified in Product sections; match existing Products and work for patching and extending work.</p> <p>2 Employ skilled and experienced installer to perform alteration work.</p> <p>3 Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.</p> <p>4 Remove, cut, and patch Work in a manner to minimize damage and to provide means of restoring Products and finishes to original condition.</p> <p>5 Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with a neat transition to adjacent finishes.</p> <p>6 Where new Work abuts or aligns with existing, provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.</p> <p>7 When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Consultant for review.</p> <p>8 Where a change of plane of 6 mm or more occurs, submit recommendation for providing a smooth transition; to Consultant for review.</p> <p>9 Patch or replace portions of existing surfaces which are damaged, lifted, discoloured, or showing other imperfections.</p> <p>10 Finish surfaces as specified in individual Product sections.</p> <p>1.4 ADMINISTRATIVE REQUIREMENTS</p> <p>1 Sequencing: Sequence work to requirements of Section 01 00 00.</p> <p>2 Scheduling: Schedule work to requirements of Section 01 31 00.</p> <p>1 Schedule Work to coincide with new construction.</p> <p>2 Describe demolition removal procedures and schedule.</p> <p>3 Perform noisy, malodorous, dusty, or work to minimize disruptions to occupy.</p> <p>1.5 SUBMITTALS FOR REVIEW</p> <p>1 Section 01 33 00 - Submission procedures.</p> <p>2 Shop Drawings: Indicate demolition and removal sequence and location of salvageable items; location and construction of temporary work.</p> <p>1.6 CLOSEOUT SUBMITTALS</p> <p>1 Division 01: Submission procedures.</p> <p>2 Record Documentation: Accurately record actual locations of capped utilities, subsurface obstructions.</p> <p>1.7 REGULATORY REQUIREMENTS</p> <p>1 Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.</p> <p>2 Obtain required permits from authorities.</p> <p>3 Do not close or obstruct egress width to any building or site exit.</p> <p>4 Do not disable or disrupt building fire or life safety systems without three (3) days prior written notice to Owner.</p> <p>5 Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.</p> <p>1.8 EXAMINATION</p> <p>1 Examine building to identify contaminated and dangerous materials prior to performing demolition.</p> <p>1.9 PROJECT CONDITIONS</p> <p>1 Conduct demolition to minimize interference with adjacent and occupied building areas.</p> <p>2 Cease operations immediately if structure appears to be in danger and notify Consultant. Do not resume operations until directed.</p> <p>Part 2 PRODUCTS</p> <p>1 Not Used</p> <p>Part 3 EXECUTION</p> <p>3.1 PREPARATION</p> <p>1 Prepare, erect, and maintain temporary barriers.</p> <p>2 Erect and maintain weatherproof closures for exterior openings.</p> <p>3 Erect and maintain temporary partitions to prevent spread of dust, odours, and noise to permit continued Owner occupancy.</p> <p>4 Protect existing materials and systems which are not to be demolished.</p> <p>5 Prevent movement of structure; provide bracing and shoring.</p> <p>6 Notify affected utility companies before starting work and comply with their requirements.</p> <p>7 Mark location and termination of utilities.</p> <p>8 Provide appropriate temporary signage including signage for exit or building egress.</p> <p>3.2 DEMOLITION</p> <p>1 Disconnect, remove and identify designated utilities within demolition areas.</p> <p>2 Demolish in an orderly and careful manner. Protect existing supporting structural members and finishes.</p> <p>3 Remove contaminated or dangerous materials affected by work, including but not limited to asbestos, from site and dispose of in safe manner to minimize danger at site or any time during disposal.</p> <p>4 Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site. Dispose of demolished materials at an approved Saskatchewan Environmental Management approved landfill/disposal site.</p> <p>5 Salvage and store materials designated for re-installation.</p> <p>6 Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.</p> <p>7 Remove temporary Work.</p> <p>Section 05 50 00 Metal Fabrications</p> <p>Part 1 General</p> <p>1.1 SECTION INCLUDES</p> <p>1 Shop fabricated ferrous metal items.</p> <p>2 Shop fabricated aluminum items.</p> <p>3 Shop fabricated stainless steel items.</p> <p>1.2 RELATED SECTIONS</p> <p>1 Section 03 30 00 - Cast-In-Place Concrete: Placement of metal fabrications in concrete.</p> <p>2 Section 05 12 00 - Structural Steel: Structural steel column anchor bolts.</p> <p>3 Section 05 21 00 - Steel Joist Framing: Structural joist bearing plates, including anchorage.</p> <p>4 Section 05 31 13 - Steel Floor Decking: Bearing plates, angles and for metal deck bearing, including anchorage.</p> <p>5 Section 05 51 00 - Metal Stairs.</p> <p>6 Section 05 52 00 - Metal Railings.</p> <p>7 Section 08 70 05 - Cabinet and Miscellaneous Hardware.</p> <p>8 Section 09 91 99 - Painting: Paint finish.</p> <p>1.3 REFERENCES</p> <p>1 ASTM A53A/A53M-12 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.</p> <p>2 ASTM A240/A240M-12 - Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications.</p> <p>3 ASTM A307-10 - Carbon Steel Bolts and Studs, 80,000 PSI Tensile Strength.</p> <p>4 ASTM A500/A500M-10a - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.</p> <p>5 ASTM A501-07 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.</p>
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6 CSA O121-08, Douglas Fir Plywood.
7 CSA O141-05, Softwood Lumber.
8 CSA O151-04, Canadian Softwood Plywood.
9 CAN/CSA-O325.0-92(R2003), Construction Sheathing.
10 CSA O437 Series-93(R2006), Standards on OSB and Waferboard.

4 National Lumber Grades Authority (NLGA)
1 Standard Grading Rules for Canadian Lumber 2003 (effective March 1, 2007).

5 Truss Design and Procedures for Light Metal Connected Wood Trusses, Truss Plate Institute of Canada.

1.3 SUBMITTALS
1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.

1.4 QUALITY ASSURANCE
1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA standards.

1.5 DELIVERY, STORAGE, AND HANDLING
1 Waste Management and Disposal:
1 Separate waste materials for reuse and recycling in accordance with Section 01 74 20 - Construction/Demolition Waste Management and Disposal.

Part 2
2.1 PRODUCTS
FRAMING AND STRUCTURAL MATERIALS
1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% (S-dry) or less in accordance with following standards:
1 CSA O141.
2 NLGA Standard Grading Rules for Canadian Lumber.
2 Glued end-jointed (finger-jointed) lumber is not acceptable.
3 Structural Composite Lumber (SCL) in accordance with ASTM D5458.
4 Framing and board lumber: in accordance with NBC, except as follows:
1 Stud framing: SPF species, NLGA #2 or better grade.
2 Furring, blocking, nailing strips, grounds, rough bucks, curbs, fascia backing and sleepers:
1 Board sizes: "Standard" or better grade.
2 Dimension sizes: "Standard" light framing or better grade.
3 Post and timbers sizes: "Standard" or better grade.

2.2 PANEL MATERIALS
1 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.0.
2 Douglas fir plywood (DFP): to CSA O121, standard construction.
3 Canadian softwood plywood (CSP): to CSA O151, standard construction.
4 Mat-formed structural panelboards (OSB wafer): to CSA-O437.0.

2.3 ACCESSORIES
1 Sealants: in accordance with Section 07 92 00 - Joint Sealants.
2 Subflooring adhesive: to CGSB-71.26, cartridge loaded.
3 General purpose adhesive: to CSA O112 Series.
4 Nails, spikes and staples: to CSA B111.
5 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
6 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

2.4 FASTENER FINISHES
1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior work, interior highly humid areas.
2 Stainless steel: use stainless steel 304 alloy for pressure-preservative treated lumber.

2.5 WOOD PRESERVATIVE
1 Factory Wood Preservative (Pressure Treatment): CSA-O80 Series, using waterborne preservative with 0.25 percentage retentage.

Part 3
3.1 PREPARATION
1 Store wood products.
3.2 INSTALLATION
1 Comply with requirements of NBC 2010 Part 9 supplemented by following paragraphs.
2 Install members true to line, levels and elevations, square and plumb.
3 Construct continuous members from pieces of longest practical length.
4 Install spanning members with "crown-edge" up.
5 Select exposed framing for appearance. Install lumber and panel materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.
6 Install subflooring and combined subfloor and underlay with panel end-joints located on solid bearing, staggered at least 800 mm.
1 In addition to mechanical fasteners, secure floor subflooring panels to floor joists using glue. Place continuous adhesive bead in accordance with manufacturer's instructions, single-bead on each joist and double-bead on joists where panel ends butt.
7 Install furring and blocking as required to space-out and support casework, cabinets, wall and ceiling finishes, facings, fascia, soffit, siding, electrical equipment mounting boards, and other work as required.
8 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing.
1 Align and plumb faces of furring and blocking to tolerance of 1:600.
9 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
10 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

3.3 ERECTION
1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
2 Countersink bolts where necessary to provide clearance for other work.

3.4 SCHEDULES
1 Studding: Structural Light Framing.
2 Electrical equipment mounting boards:
1 Plywood, DFP or CSP sanded grade, square edge 19 mm thick.
3 Blocking for support of cabinets, countertops and shelving: Light Framing.

Section 06 20 00 Finish Carpentry
Part 1
1.1 General
SECTION INCLUDES
1 Finish carpentry items.
2 Hardware and attachment accessories.

1.2 RELATED SECTIONS
1 Section 05 50 00 - Metal Fabrications.
2 Section 06 10 00 - Rough Carpentry: Grounds and support framing.
3 Section 06 62 00 - Simulated Stone Fabrications: Simulated Stone Countertops.
4 Section 08 70 05 - Cabinet and Miscellaneous Hardware.
5 Section 09 91 99 - Painting: Painting and finishing of finish carpentry items.

1.3 REFERENCES
1 American National Standards Institute (ANSI)
1 ANSI/NPA A208.1-2009, Particleboard.
2 ANSI A208.2-2009, Medium Density Fiberboard (MDF) for Interior Applications.
3 ANSI/HPVA HP-1-2009, Standard for Hardwood and Decorative Plywood.
2 American Society for Testing and Materials International (ASTM)
1 ASTM E1333-10, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
2 ASTM D2832-92(2011), Standard Guide for Determining Volatile and Nonvolatile Content of Paint and Related Coatings.
3 ASTM D5116-10, Standard Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
3 Architectural Woodwork Manufacturers Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI)
1 Architectural Woodwork Standards Edition 1 (2009).
4 Canadian General Standards Board (CGSB)
1 CAN/CGSB-11.3-M87, Hardboard.
2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
5 Canadian Standards Association (CSA International)
1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
2 CSA O112.4 Series-M1977(R2006), Standards for Wood Adhesives.
3 CSA O112.5-Series-M-1977(R2006), Urea Resin Adhesives for Wood (Room- and High-Temperature Curing).
4 CSA O112.7-Series M-1977(R2006), Resorcinol and Phenol-Resorcinol Resin Adhesives for Wood (Room- and Intermediate-Temperature Curing).
5 CSA O121-08, Douglas Fir Plywood.
6 CSA O141-05 (R2009), Softwood Lumber.
7 CSA O151-09, Canadian Softwood Plywood.
8 CSA O153-M1980 (R2008), Poplar Plywood.
6 National Electrical Manufacturers Association (NEMA)
1 ANSI/NEMA LD-3-2005, High-Pressure Decorative Laminates.
7 National Hardwood Lumber Association (NHLA)
1 Rules for the Measurement and Inspection of Hardwood and Cypress 1998.
8 National Lumber Grades Authority (NLGA)
1 Standard Grading Rules for Canadian Lumber 2005.

1.4 SUBMITTALS
1 Provide Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.
2 Provide shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
1 Indicate details of construction, profiles, jointing, fastening and other related details.
2 Indicate materials, thicknesses, finishes and hardware.
3 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.
3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
1 Provide duplicate samples of laminated plastic joints, edging, cutouts and postformed profiles.
4 Quality assurance submittals:
1 Manufacturer's Instructions: manufacturer's installation instructions.

1.5 QUALITY ASSURANCE
1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.
3 Mock-ups:
1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
1 Shop prepare one table and one handrail, complete with hardware, and install on project in designated location.
2 Allow 14 days for inspection of mock-up by Consultant before proceeding with this work.
3 When accepted, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of finished work.
4 Delivery, Storage, and Handling:
1 Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 - Common Product Requirements.
1 Protect millwork against dampness and damage during and after delivery.

2 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.

5 Waste Management and Disposal:
1 Separate waste materials for reuse and recycling in accordance with Section 01 74 20 - Waste Management and Disposal.

Part 2
2.1 PRODUCTS
MATERIALS
1 Softwood lumber: unless specified otherwise, S4S, moisture content 15 % or less in accordance with following standards:
1 CSA O141.
2 NLGA Standard Grading Rules for Canadian Lumber.
3 AWMAC custom grade, moisture content as specified.
2 Machine stress-rated lumber is acceptable for all purposes.
3 Hardwood lumber: moisture content 9 % or less in accordance with following standards:
1 National Hardwood Lumber Association (NHLA).
2 AWMAC custom grade, moisture content as specified.
4 Douglas fir plywood (DFP): to CSA O121, standard construction.
1 Urea-formaldehyde free.
5 Canadian softwood plywood (CSP): to CSA O151, standard construction.
1 Urea-formaldehyde free.
6 Hardwood plywood: HPVA HP-1.
1 Urea-formaldehyde free.
7 Poplar plywood (PP): to CSA O153, standard construction.
1 Urea-formaldehyde free.
8 Interior mat-formed wood particleboard: to ANSI A208.1.
1 Urea-formaldehyde free.
9 Birch plywood: to AWMAC Paint Grade.
1 Urea-formaldehyde free.
10 Fibreboard must contain less than 10 % roundwood by weight, using a weighted average over a three month period at manufacturing locations.
1 Dimension sizes: "Standard" light framing or better grade.
1 Urea-formaldehyde free.
11 Hardboard:
1 To CAN/CGSB-11.3.
2 Urea-formaldehyde free.
12 MDF (medium density fibreboard) core: to ANSI A208.2, Grade 150-MR10, 25 mm thick density 769 kg/m³.
1 Medium density fibreboard must:
1 Meet the performance requirements of ANSI A208.2.
2 Urea-formaldehyde free.
2 Acceptable material: Medex, as manufactured by Sierra Pine Composite Solutions, www.sierrapine.com.

13 HDF (high density fibreboard): to ANSI A208.2, 19 mm thick, core density 800 kg/m³, face density 960 kg/m³.
1 High density fibreboard must:
1 Meet the performance requirements of ANSI A208.2.
2 Urea-formaldehyde free.
2 Acceptable manufacturer: West Fraser Timber Co. Ltd.
14 Laminated plastic for flatwork: to NEMA LD3, Grade VGS, HGL, Type General Purpose.
15 Laminated plastic backing sheet: Grade BK, Type Backer, not less than 0.5 mm thick or same thickness as face laminate.
16 Laminated plastic liner sheet: Grade CLS, Type Cabinet Liner, 0.5 mm thick, matching cabinet interior colour.
17 Thermofused Melamine: to NEMA LD3 Grade VGL.
1 High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).
18 Nails and staples: to CSA B111.
19 Wood screws: stainless steel, steel plain, type and size to suit application.
20 Sealant: in accordance with Section 07 92 00 - Joint Sealants.
21 Laminated plastic adhesive:
1 Adhesive: urea resin adhesive to CSA O112.5, contact adhesive to CAN/CGSB-71.20, resorcinol resin adhesive to CSA O12.7, polyvinyl adhesive to CSA O112.4, two component epoxy thermosetting adhesive.
1 Adhesives urea-formaldehyde free.

2.2 Plastic Edge Trim: polyvinylchloride (PVC), extruded flat shaped, smooth finish, of width to match component thickness.

2.3 MANUFACTURED UNITS
1 Vanities:
1 Fabricate to AWMAC custom quality grade.
2 Douglas fir plywood, 25 mm thickness.
1 Do not use continuous substrate for horizontal components. Comply with solid surfacing manufacturer's criteria for support.
2 Solid surfacing: Section 06 62 00.

FABRICATION
1 Set nails and countersink screws apply stained plain wood filler to indentations, sand smooth and leave ready to receive finish.
2 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
3 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
4 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
5 Ensure adjacent parts of continuous laminate work match in colour and pattern.

6 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000 mm. Keep joints 600 mm from sink cutouts.
7 Form shape profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.
8 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
9 Apply laminate backing sheet to reverse side of core of plastic laminate work.
10 Apply laminated plastic liner sheet to interior of cabinetry.
11 Fit exposed sheet material edges with 3 mm thick plastic edging. Use one piece for full length.

Part 3
3.1 EXECUTION
1 Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
2 Install prefinished millwork at locations shown on drawings. Position accurately, level, plumb straight.
3 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.
4 Use draw bolts in countertop joints.
5 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
6 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant.
7 Apply water resistant building paper over wood framing members in contact with masonry or cementitious construction.
8 Fit hardware accurately and securely in accordance with manufacturer's written instructions.
9 Site apply laminated plastic to units as indicated. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where approved. Slightly bevel arises.
10 For site application, offset joints in plastic laminate facing from joints in core.
11 Install shelving on shelf brackets.
12 Install wood handrails in accordance with building code requirements.
13 Install intermediate closet rod and shelf supports where span exceeds 900 mm.
14 Install wall paneling with exposed fasteners.

CLEANING
1 Proceed in accordance with Section 01 74 00 - Cleaning.
2 Clean millwork and cabinet work inside cupboards and drawers and outside surfaces.
3 Remove excess glue from surfaces.

3.3 PROTECTION
1 Protect millwork and cabinet work from damage until final inspection.

Section 06 40 00 Architectural Woodwork
Part 1
1.1 General
SECTION INCLUDES
1 Custom shop fabricated cabinet units.
2 Countertops.
3 Hardware and attachment accessories.
4 Prefinished surfaces.
5 Preparation for installing services.

1.2 RELATED SECTIONS
1 Section 05 75 10 - Stainless Steel Countertops.
2 Section 06 10 00 - Rough Carpentry: Grounds and support framing.
3 Section 06 20 00 - Finish Carpentry: Grounds and support framing.
4 Section 06 47 00 - Plastic Laminate Finishing.
5 Section 08 70 05 - Cabinet and Miscellaneous Hardware.
6 Section 09 91 99 - Painting: Painting and finishing of finish carpentry items.

1.3 REFERENCES
1 American National Standards Institute (ANSI)
1 ANSI/NPA A208.1-2009, Particleboard.
2 ANSI/NPA A208.2-2009, Medium Density Fiberboard (MDF) for Interior Applications.
3 ANSI/HPVA HP-1-2009, Standard for Hardwood and Decorative Plywood.
2 American Society for Testing and Materials International (ASTM)
1 ASTM E1333-10, Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates From Wood Products Using a Large Chamber.
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1 Architectural Woodwork Standards Edition 1 (2009).
4 Canadian General Standards Board (CGSB)
1 CAN/CGSB-11.3-M87, Hardboard.
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5 Canadian Standards Association (CSA International)
1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
2 CSA O112.4 Series-M1977(R2006), Standards for Wood Adhesives.
3 CSA O112.5-Series-M-1977(R2006), Urea Resin Adhesives for Wood (Room- and High-Temperature Curing).
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5 CSA O121-08, Douglas Fir Plywood.

6 CSA O141-05 (R2009), Softwood Lumber.
7 CSA O151-09, Canadian Softwood Plywood.
8 CSA O153-M1980 (R2008), Poplar Plywood.
National Electrical Manufacturers Association (NEMA)
1 ANSI/NEMA LD-3-2005, High-Pressure Decorative Laminates.
7 National Hardwood Lumber Association (NHLA)
1 Rules for the Measurement and Inspection of Hardwood and Cypress 1998.
8 National Lumber Grades Authority (NLGA)
1 Standard Grading Rules for Canadian Lumber 2005.

1.4 SUBMITTALS
1 Provide Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.
2 Provide shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
1 Indicate details of construction, profiles, jointing, fastening and other related details.
2 Indicate materials, thicknesses, finishes and hardware.
3 Indicate locations of service outlets in casework, typical and special installation conditions, and connections, attachments, anchorage and location of exposed fastenings.
3 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.
1 Provide duplicate samples of laminated plastic joints, edging, cutouts and postformed profiles.
4 Quality assurance submittals:
1 Manufacturer's Instructions: manufacturer's installation instructions.

1.5 QUALITY ASSURANCE
1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.
3 Mock-ups:
1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
1 Shop prepare one base cabinet unit, wall cabinet, counter top, shelving unit, complete with hardware, and install on project in designated location.
2 Allow 14 days for inspection of mock-up by Consultant before proceeding with this work.
3 When accepted, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of finished work.
4 Delivery, Storage, and Handling:
1 Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 - Common Product Requirements.
1 Protect millwork against dampness and damage during and after delivery.
2 Store millwork in ventilated areas, protected from extreme changes of temperature or humidity.
5 Waste Management and Disposal:
1 Separate waste materials for reuse and recycling in accordance with Section 01 74 20 - Construction/Demolition Waste Management and Disposal.

Part 2
2.1 PRODUCTS
MATERIALS
1 Softwood lumber: unless specified otherwise, S4S, moisture content 15 % or less in accordance with following standards:
1 CSA O141.
2 NLGA Standard Grading Rules for Canadian Lumber.
3 AWMAC custom grade, moisture content as specified.
2 Machine stress-rated lumber is acceptable for all purposes.
3 Hardwood lumber: moisture content 9 % or less in accordance with following standards:
1 National Hardwood Lumber Association (NHLA).
2 AWMAC custom grade, moisture content as specified.
4 Douglas fir plywood (DFP): to CSA O121, standard construction.
1 Urea-formaldehyde free.
5 Canadian softwood plywood (CSP): to CSA O151, standard construction.
1 Urea-formaldehyde free.
6 Hardwood plywood: to ANSI/HPVA HP-1.
1 Urea-formaldehyde free.
7 Where combination core, meet or exceed performance property requirements of ANSI A208.1 or ANSI A208.2.
8 Poplar plywood (PP): to CSA O153, standard construction.
1 Urea-formaldehyde free.
9 Interior mat-formed wood particleboard: to ANSI A208.1.
1 Urea-formaldehyde free.
10 Birch plywood: to AWMAC Paint Grade.
1 Urea-formaldehyde free.
11 Fibreboard must contain less than 10 % roundwood by weight, using a weighted average over a three month period at manufacturing locations.
1 Urea-formaldehyde free.
12 Hardboard:
1 To CAN/CGSB-11.3.
2 Urea-formaldehyde free.
13 MDF (medium density fibreboard) core: to ANSI A208.2, Grade 150-MR10, 25 mm thick density 769 kg/m³.
1 Medium density fibreboard must:
1 Meet the performance requirements of ANSI A208.2.
2 Urea-formaldehyde free.
2 Acceptable material: Medex, as manufactured by Sierra Pine Composite Solutions, www.sierrapine.com.

14 Laminated plastic for flatwork: to NEMA LD3, Grade VGS, HGL, Type General Purpose.
15 Laminated plastic backing sheet: Grade BK, Type Backer, not less than 0.5 mm thick or same thickness as face laminate.
16 Laminated plastic liner sheet: Grade CLS, Type Cabinet Liner, 0.5 mm thick, matching cabinet interior colour.
17 Thermofused Melamine: to NEMA LD3 Grade VGL.
1 High wear resistant thermofused melamine: equal or exceed 400 cycles (Minimum standard for HPL abrasion test).
18 Nails and staples: to CSA B111.
19 Wood screws: stainless steel, steel plain, type and size to suit application.
20 Sealant: in accordance with Section 07 92 00 - Joint Sealants.
21 Laminated plastic adhesive:
1 Adhesive: urea resin adhesive to CSA O112.5, contact adhesive to CAN/CGSB-71.20, resorcinol resin adhesive to CSA O12.7, polyvinyl adhesive to CSA O112.4, two component epoxy thermosetting adhesive.
1 Adhesives urea-formaldehyde free.

2.2 Plastic Edge Trim: polyvinylchloride (PVC), extruded flat shaped, smooth finish, of width to match component thickness.

2.3 MANUFACTURED UNITS
1 Casework:
1 Fabricate caseworks to AWMAC custom quality grade, decorative laminate, HPDL, frameless, flush overlay.
2 Furring, blocking, nailing strips, grounds and rough bucks and sleepers.
1 Urea-formaldehyde free.
3 Framing: hardwood.
4 Case bodies (ends, divisions and bottoms).
5 Backs:
1 Particleboard, grade M3, Douglas fir plywood at sinks, 19 mm thick.
1 Particleboard, grade M3, 12.7 mm thick.
2 Hardboard, 6.4 mm thick.
6 Shelving:
1 Particleboard, grade M3, 19 mm thick.
7 Edge banding: provide 0.5 mm PVC edge banding (3.0 mm where exposed).

2 Drawers:
1 Fabricate drawers to AWMAC custom quality grade, decorative laminate, supplemented as follows:
2 Sides and Backs.
1 Hardwood plywood:
1 Thickness: 12.5 mm.
2 Number of plies: 7.
3 Face veneer: birch species, A grade.
4 Back veneer: birch species.
5 Core: veneer.
6 Bond: Type II.
7 Sanding: regular sanding.

3 Bottoms:
1 Particleboard, grade M3.

4 Fronts:
1 Particleboard, grade M3, 19 mm thick.
2 Edge banding: PVC, 3 mm thickness.

5 Hardware for pull-out garbage and recycle centre drawers: Section 08 70 05.

Casework Doors:
1 Fabricate doors to AWMAC custom quality grade, decorative laminate, supplemented as follows:
2 Particleboard, grade M3, 19 mm thick.
3 Edge banding: PVC, 3 mm thickness.

4 Solid Surface Countertops:
1 Fabricate to AWMAC custom quality grade supplemented as follows:
1 MDF, 25 mm thickness.
2 Particleboard, 25 mm thickness.
1 Do not use continuous substrate for horizontal components. Comply with Solid Surfacing manufacturer's criteria for support.
3 Solid Surfacing: Section 06 62 00.

5 Decorative Laminate Countertops:
1 Fabricate to AWMAC custom quality grade, supplemented as follows:
1 Particleboard, 25 mm thickness, Douglas fir at sink locations.
2 Plastic laminate grade HGL.
3 Edge banding, PVC, 3 mm thickness.

6 Fridge/Microwave Shelf:
1 Fabricate to AWMAC custom quality grade, supplemented as follows:
1 Particleboard, 25 mm thickness.
2 Plastic laminate grade HGL.
3 Doors: Particleboard, plastic laminate grade HPDL.

FABRICATION
1 Set nails and countersink screws apply stained plain wood filler to indentations, sand smooth and leave ready to receive finish.
2 Shop install cabinet hardware for doors, shelves and drawers. Recess shelf standards unless noted otherwise.
3 Shelving to cabinetwork to be adjustable unless otherwise noted.

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NO.	DESCRIPTION	DATE

REVISIONS:

PROJECT NAME: YARDI SYSTEMS EXPANSION

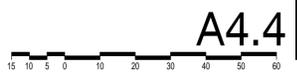
PROJECT NUMBER: 15-048

DRAWING NAME: SPECIFICATIONS

DRAWN: Author

CHECKED: Checker

516 WELLMAN CRES, SASKATOON





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NO.	DESCRIPTION	DATE

REVISIONS:

PROJECT NAME:

YARDI SYSTEMS EXPANSION

516 WELLMAN CRES,
SASKATOON

PROJECT NUMBER: 15-048

DRAWING NAME:

SPECIFICATIONS

DRAWN: Author

CHECKED: Checker

A4.5

15 0 5 10 20 30 40 50 60

6 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and minimum 50 mm from sidewalls of CAN/ULC-S804 Type A chimneys and CAN/CGA-B149.1 and CAN/CGA-B149.2 Type B and L vents.

7 Coordinate work of this section with construction of vapour retarder seal, air barrier seal specified in Sections 07 28 00 and 07 27 00.

Section 08 11 13 Standard Metal Doors and Frames

Part 1
1.1 **General**
SECTION INCLUDES
1 Non-rated and fire rated steel frames.
2 Interior glazed light frames.
RELATED SECTIONS
1 Section 08 16 - Flush Wood Doors: Doors installed in metal frames.
2 Section 08 71 00 - Door Hardware - General: Hardware and silencers.
3 Section 09 91 99 - Painting: Field painting of doors.
REFERENCES
1 ASTM A653/A653M-13 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2 CAN/ULC S104-10 - Fire Tests of Door Assemblies.
3 CAN/ULC S105-09 - Fire Door Frames Meeting the Performance Required by CAN4-S104.
4 CAN/ULC S702-14 - Thermal Insulation, Mineral Fibre, for Buildings.
5 CGSB-41-GP-19MA (1984) - Rigid Vinyl Extrusions for Windows and Doors.
6 CAN/CSA-G40.20-13/G40.21-13 - General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
7 CSA-M55-13 - Welded Steel Construction (Metal Arc Welding).
8 CSDMA (Canadian Steel Door Manufacturers Association)
1 Recommended Dimensional Standards for Commercial Steel Doors and Frames, 2006.
2 Selection and Usage Guide for Steel Doors and Frames, 2009.
9 DHI (Door Hardware Institute) - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
10 NFPA (Fire) 80 - Standard for Fire Doors and Other Opening Protectives, 2013 Edition.
11 ULC/ORD - C263-1-99 - Sprinkler Protected Window Systems.
ADMINISTRATIVE REQUIREMENTS
1 Section 01 31 01: Project management and coordination procedures.
2 Coordination.
1 Coordinate with other work having a direct bearing on work of this section.
2 Coordinate the work with frame opening construction, door, and hardware installation.
3 Sequencing: Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.
SUBMITTALS FOR REVIEW
1 Section 01 33 00: Submission procedures.
2 Product Data: Indicate door and frame configurations and finishes, location of cut-outs for hardware reinforcement.
3 Shop Drawings:
1 Indicate frame elevations, reinforcement, anchor types and spacing, location of cut-outs for hardware, and finish.
2 Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, louvers, and finishes.
SUBMITTALS FOR INFORMATION
1 Section 01 33 00: Submission procedures.
2 Manufacturer's Installation Instructions: Indicate special installation instructions.
3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.
CLOSEOUT SUBMITTALS
1 Section 01 78 10: Submission procedures.
QUALITY ASSURANCE
1 Products of This Section: Manufactured to ISO 9000 certification requirements.
2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
REGULATORY REQUIREMENTS
1 Fire Rated Door and Frame Construction: Labeled and listed to CAN-S104.
2 Installed Door and Frame Assembly: Conform to NFPA 80 for fire rated class as scheduled.
DELIVERY, STORAGE, AND PROTECTION
1 Section 01 61 00: Transport, handle, store, and protect products.
2 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage.
3 Store in vertical position, spaced with blocking to permit air circulation between components.
4 Store materials on planks or dunnage, out of water and covered to protect from damage.
5 Clean and touch up scratches or disfigurement caused by shipping or handling with zinc-rich primer.

Part 2
2.1 **MANUFACTURERS**
1 S.W. Fleming Ltd.
2 Other acceptable manufacturers offering functionally and aesthetically equivalent products.
3 Assa Abloy; Baron.
4 Shanahan's Manufacturing Ltd.
5 Substitutions: Refer to Section 01 62 00.
MATERIALS
1 Sheet Steel: Galvanized steel to ASTM A653/A653M, commercial grade (CS), Type B, coating designation ZF120 for exterior doors and frames, coating designation ZF120 for interior doors and frames.
2 Reinforcement Channel: To CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653/A653M, ZF75.
PRIMERS
1 Rust inhibitive touch-up only.

2.2 **ACCESSORIES**
1 Door Silencers: Single stud rubber/neoprene.
2 Bituminous Coating: Fibred asphalt emulsion.
3 Glass: As specified in Section 08 80 50.
FABRICATION - FRAMES
1 Interior Frames: 1.6 mm thick base metal thickness.
2 Door Frames and Window Assemblies: Welded type construction.
3 Transom Frames: Welded type construction.
4 Sidelight Assemblies: Welded type construction.
5 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier. Provide mortar guard boxes.
6 Prepare frames for scheduled electric strikes.
7 Prepare frames for silencers. Provide three (3) single silencers for single doors and mullions of double doors on strike side.
8 Provide two (2) single silencers on frame head at double doors without mullions.
9 Attach fire rated label to each fire rated door unit.

2.3 **EXECUTION**
EXAMINATION
1 Section 01 70 00: Verify existing conditions before starting work.
2 Verify that opening sizes and tolerances are acceptable; check floor area within path of door swing for flatness.
3 Verify doors and frames are correct size, swing, rating and opening number.
4 Remove temporary shipping spreaders.
INSTALLATION
1 Install doors and frames to CSDMA.
2 Install fire-rated doors and frames in accordance with NFPA 80, and local authority having jurisdiction.
3 Coordinate with gypsum board and metal stud wall construction for anchor placement.
4 Coordinate installation of glass and glazing.
5 Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.
6 Set frames plumb, square, level and at correct elevation.
7 Secure anchorages and connections to adjacent construction.
8 Brace frames rigidly in position while building-in. Install wood spreaders at third points of frame rebate height to maintain frame width. Provide vertical support at centre of head for openings exceeding 1200 mm in width.
9 Remove wood spreaders after frames have been built-in.
10 Make allowance for deflection to ensure structural loads are not transmitted to frame product.
11 Install doors, and hardware in accordance with hardware templates and manufacturer's instructions.
12 Adjust operable parts for correct clearances and function.
13 Install door silencers.
14 Finish paint as specified in Section 09 91 99.
15 Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.
16 Provide even margins between doors and jambs and doors and finished floor as follows:
1 Hinge side: 1.0 mm.
2 Latchside and head: 1.5 mm.
3 Finished floor, top of finish flooring: 10 mm.

2.4 **ERECTION TOLERANCES**
1 Section 01 73 00: Tolerances.
2 Maximum Diagonal Distortion: 1.5 mm measured with straight edges, crossed corner to corner.

Section 08 14 16 Flush Wood Doors

Part 1
1.1 **General**
SECTION INCLUDES
1 Flush wood doors; flush and configuration; fire rated, non-rated.
RELATED SECTIONS
1 Section 08 06 71 - Door Hardware Schedule.
2 Section 08 11 13 - Standard Metal Doors and Frames.
3 Section 08 71 00 - Door Hardware - General.
4 Section 08 80 50 - Glazing: Vision panels.
5 Section 09 91 99 - Painting: Site finishing of doors.
REFERENCES
1 AWWAC (Architectural Woodwork Standards), Edition 1.
2 CAN/ULC O132.2 Series 90 (R1988) - Wood Flush Doors.
3 CAN/ULC S104-10 - Fire Tests of Door Assemblies.
4 CHPVA (Canadian Hardwood Plywood and Veneer Association).
5 HPVA (Hardwood Plywood and Veneer Association).
ADMINISTRATIVE REQUIREMENTS
1 Section 01 31 01: Project management and coordination procedures.
2 Coordination.
1 Coordinate with other work having a direct bearing on work of this section.
2 Coordinate the work with door opening construction, door frame and door hardware installation.
SUBMITTALS FOR REVIEW
1 Section 01 33 00: Submission procedures.
2 Product Data: Indicate door and frame configurations and construction; veneer species, type and characteristics.
3 Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, identify cutouts for glazing.

3.3 **PROTECTION**
1 Cover finished laminated plastic veneered surfaces with heavy kraft paper or put in cartons during shipment. Protect installed laminated surfaces by approved means. Do not remove until immediately before final inspection.
CLEANING
1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
2 Perform care and cleaning with NEMA LD 3, Annex B.
3 Remove old primer, caulking, epoxy and filler materials; clean doors and frames.

Section 06 62 00 Simulated Stone Fabrications

Part 1
1.1 **General**
SECTION INCLUDES
1 Cast polymer washroom vanities.
2 Tub skirting and top edge.
RELATED SECTIONS
1 Section 06 20 00 - Finish Carpentry: Vanities for cast polymer countertop.
2 Section 06 40 00 - Architectural Woodwork: Cabinets for cast polymer countertop, and backsplash.
3 Section 07 92 00 - Joint Sealants: Perimeter sealant to adjacent construction.
4 Section 22 11 01 - Plumbing: Undermount sinks, plumbing trim.
SUBMITTALS FOR REVIEW
1 Section 01 33 00: Submission procedures.
2 Product Data: Indicate product description, fabrication information and compliance with specified performance requirements.
3 Shop Drawings: Indicate dimensions, thicknesses, required clearances, tolerances, materials, colours, finishes, fabrication details, field jointing, adjacent construction, design load parameters methods of support, integration of plumbing electrical components, and anchorages.
4 Samples: Submit two (2) samples representative of vanity top, 300 mm in size illustrating colour, texture, and finish.
SUBMITTALS FOR INFORMATION
1 Section 01 33 00: Submission procedures.
MAINTENANCE DATA:
1 Submit manufacturer's care and maintenance data, including care, repair and cleaning instructions.
2 Include instructions for stain removal, surface and gloss restoration.
INSTALLATION DATA: Manufacturer's special installation requirements.
CLOSEOUT SUBMITTALS
1 Section 01 78 10: Submission procedures.
MAINTENANCE MATERIAL SUBMITTALS
1 Extra Stock Materials: Provide two (2) containers of 1/2 L of polishing cream.
QUALITY ASSURANCE
1 Products of This Section: Manufactured to ISO 9000 certification requirements.
2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
ADMINISTRATIVE REQUIREMENTS
1 Section 01 31 01: Project management and coordination procedures.
2 Coordination:
1 Coordinate with other work having a direct bearing on work of this section.
3 Sequencing: Sequence Work to permit installation of adjacent affected construction, plumbing rough-in.

Part 2
2.1 **MANUFACTURERS**
1 Formica, Inc., Product Designer Series.
MATERIALS
1 Resin: Acrylic type, with integral colouring, stain resistant to domestic chemicals and cleaners.
2 Solid polymer components: Homogenous thermoset polymer consisting of acrylic/polyester resin with alumina trihydrate fillers, 19 mm panel thickness, low emitting.
3 Polishing Cream: Compatible polishing cream to achieve specified sheen to gel coat.
4 Adhesive: Manufacturer's standard.
2.3 **ACCESSORIES**
1 Joint Treatment: Manufacturer's standard adhesive.
2 Sealant: Mildew resistant, as specified in Section 07 92 00.
3 Lavatory Mounting Hardware: Manufacturer's standard for undermount lavatories.
FABRICATION
1 Fabricate components in shop to greatest extent practical, to size and configurations indicated.
2 Form joints using manufacturer's standard joint adhesive without voids and inconspicuous in appearance.
3 Attach reinforcing strip of like material under each joint on horizontal surfaces and unsupported vertical surfaces, minimum of 100 mm wide.
4 Provide holes and cutouts for plumbing and bath accessories as indicated.
5 Rout and finish component and cutout edges to smooth, uniform finish.
6 Fabricate components by mould to achieve shape and configuration.
7 Fabricate edges flat with 1.5 mm radiused corners.
2.5 **FINISH**
1 Colour: colour as selected.
2 Finish: Provide surfaces with uniform satin finish.

Part 3
3.1 **EXECUTION**
EXAMINATION
1 Section 01 70 00: Verify existing conditions before starting work.
2 Verify that field measurements are as indicated on shop drawings.
3 Verify that joint preparation and affected dimensions are acceptable.
3.2 **PREPARATION**
1 Prepare anchoring devices for installation and embedding.
2 Provide templates and rough-in measurements.
3.3 **INSTALLATION**
1 Install components in accordance with shop drawings and manufacturer's written instructions.
2 Align work plumb and level.
3 Rigidly anchor to substrate to prevent misalignment.
4 Adhere applied splashes.
3.4 **ERECTION TOLERANCES**
1 Section 01 45 00: Quality Control.
2 Maximum Variation from True Dimension: 3 mm.
3 Maximum Offset from True Position: 3 mm.
3.5 **CLEANING**
1 Section 01 74 00: Cleaning installed work.
2 Clean and polish fabrication surfaces in accordance with manufacturer's written instructions.
3.6 **PROTECTION OF FINISHED WORK**
1 Section 01 78 40: Protecting installed work.
2 Do not permit construction near unprotected surfaces.

Section 07 21 16 Blanket Insulation

Part 1
1.1 **General**
SECTION INCLUDES
1 Blanket insulation for filling perimeter window and door shim spaces.
2 Batt, Blanket insulation for acoustic purposes.
RELATED SECTIONS
1 Section 07 26 00 - Vapour Retarders.
2 Section 07 27 00 - Air Barriers: Air barrier materials to adjacent insulation.
3 Section 07 84 00 - Firestopping.
4 Section 09 21 16 - Gypsum Board Assemblies.
1.3 **REFERENCES**
1 ASTM C1320-10, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.
2 CAN/CGA-B149.1-10, Natural Gas and Propane Installation Code Handbook.
3 CAN/CGA-B149.2-10, Propane Storage and Handling Code.
4 CAN/ULC-S102-10, Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
5 CAN/ULC-S804-M91, Standard for Factory-Built Type A Chimneys.
6 CAN/ULC-S702-09-AM1, Thermal Insulation, Mineral Fibre, for Buildings.
7 UL 723, Tests for Surface Burning Characteristics of Building Materials.
SYSTEM DESCRIPTION
1 Materials of This Section: Provide continuity of thermal barrier at building enclosure elements.
2 Materials of This Section: Provide thermal protection to vapour retarder in conjunction with vapour retarder materials in Section 07 28 00.
3 Materials of This Section: Provide thermal protection to air seal materials at building enclosure elements in conjunction with air barrier materials in Section 07 27 00.
1.5 **ADMINISTRATIVE REQUIREMENTS**
1 Section 01 31 01: Project management and coordination procedures.
2 Coordination:
1 Coordinate with other work having a direct bearing on work of this section.
2 Coordinate the work with Section 07 26 00 for vapour retarder materials.
3 Coordinate the work with Section 07 27 00 for air seal materials.
1.6 **SUBMITTALS FOR INFORMATION**
1 Section 01 33 00: Submission procedures.
Part 2
2.1 **Products**
MATERIALS
1 Insulation: CAN/ULC-S702; preformed glass fibre, in batt form; friction fit, conforming to the following:
1 Thermal Resistance: RSI of 0.6 per 25 mm thickness.
2 Facing: Unfaced.
2 Flame/Smoke Properties: 25/50 in accordance with CAN/ULC-S102.
3 Staples: Steel wire, electroplated, type and size to suit application.
4 Tape: Polyethylene, Polyester self-adhering type, mesh reinforced, 50 mm wide.
Part 3
3.1 **Execution**
EXAMINATION
1 Section 01 70 00: Verify existing conditions before starting work.
2 Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.
3.2 **INSTALLATION**
1 Install insulation to maintain continuity of thermal protection to building elements and spaces and to ASTM C1320.
2 Install in walls, spaces without gaps or voids. Do not compress insulation.
3 Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
4 Seal all door and wall core materials and electrical services within the plane of insulation.
5 Insulate 4 feet from demountable walls outwards above ceiling tiles with 4" insulation batt.

4 Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes and other fixtures.
5 Shop assemble work for delivery to site in size easily handled and to ensure passage through building openings.
6 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
7 Ensure adjacent parts of continuous laminate work match in colour and pattern.
8 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 3000 mm. Keep joints 600 mm from sink cutouts.
9 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.
10 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
11 Apply laminate backing sheet to reverse side of core of plastic laminate work.
12 Apply laminated plastic liner sheet to interior of cabinetry.
13 Seal exposed substrate, including at cutouts.

Part 3
3.1 **Execution**
INSTALLATION
1 Do architectural woodwork to Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), except where specified otherwise.
2 Install millwork at locations shown on drawings. Position accurately, level, plumb straight.
3 Fasten and anchor millwork securely. Provide heavy duty fixture attachments for wall mounted cabinets.
4 Use draw bolts in countertop joints.
5 Scribe and cut as required to fit abutting walls and to fit properly into recesses and to accommodate piping, columns, fixtures, outlets or other projecting, intersecting or penetrating objects.
6 At junction of plastic laminate counter back splash and adjacent wall finish, apply small bead of sealant.
7 Apply water resistant building paper over wood framing members in contact with masonry or cementitious construction.
8 Fit hardware accurately and securely in accordance with manufacturer's written instructions.
9 Site apply laminated plastic to units as indicated. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where approved. Slightly bevel arises.
10 For site application, offset joints in plastic laminate facing from joints in core.
3.2 **CLEANING**
1 Proceed in accordance with Section 01 74 00 - Cleaning.
2 Clean millwork and cabinet work inside cupboards and drawers and outside surfaces.
3 Remove excess glue from surfaces.
3.3 **PROTECTION**
1 Protect millwork and cabinet work from damage until final inspection.

Section 06 47 00 Plastic Laminate Finishing

Part 1
1.1 **General**
REFERENCES
1 American National Standards Institute (ANSI)
1 ANSI A208.1-2009, Particleboard.
2 ANSI A208.2-2009, Medium Density Fibreboard (MDF) for Interior Applications.
2 American Society for Testing and Materials International, (ASTM)
1 ASTM D5116-06, Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
3 Canadian General Standards Board (CGSB)
1 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
4 Canadian Standards Association (CSA International)
1 CSA O112-M1977 (R2006), Standards for Wood Adhesives.
2 CSA O112.5-1.1-Series-M-1977 (R2006), Urea Resin Adhesives for Wood (Room- and High-Temperature Curing).
3 CSA O112.7-1.1-Series M-1977 (R2006), Resorcinol and Phenol-Resorcinol Resin Adhesives for Wood (Room- and Intermediate-Temperature Curing).
4 CAN/CSA O141-05, Softwood Lumber.
5 CSA O151-09, Canadian Softwood Plywood.
6 CSA O153-M1980 (R2008), Poplar Plywood.
5 National Electrical Manufacturers Association (NEMA)
1 NEMA LD3-2005, High Pressure Decorative Laminates.
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 for adhesives, solvents and cleaners.
2 Samples:
1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
2 Submit duplicate samples of joints, edging, cutouts and postformed profiles.
3 Manufacturer's Instructions:
1 Submit manufacturer's installation instructions.
4 Closeout Submittals:
1 Provide maintenance data for laminate work for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 **QUALITY ASSURANCE**
1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
2 Certificates: 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 Storage and Protection:
1 Deliver, handle, store and protect materials of this section in accordance with Section 01 61 00 - Common Product Requirements.
2 Maintain relative humidity between 25 and 60% at 22 degrees C during storage and installation.
1.5 **WASTE MANAGEMENT AND DISPOSAL**
1 Divert wood cut-offs from landfill by disposal into on-site wood recycling bin, at nearest wood recycling facility.
2 Divert reusable materials for reuse at nearest used building materials facility or similar type facility.
3 Divert unused caulking, sealants, surface coatings and adhesive materials from landfill through disposal at a special wastes depot.

Part 2
2.1 **Products**
MATERIALS
1 Laminated plastic for flatwork: to NEMA LD 3.
1 Type: General purpose.
2 Grade: VGS, HGL.
3 Colour: as selected.
4 Pattern: as selected.
5 Finish: as selected.
2 Laminated plastic for backing sheet: to NEMA LD 3.
1 Type: Backer.
2 Grade: BKH, BKM, BKV, BKL.
3 Size: same thickness as face laminate.
3 Laminated plastic for liner: to NEMA LD 3.
1 Type: Cabinet Liner.
2 Grade: CLS.
3 Size: 0.5 mm thick
4 Colour: match cabinet interior.
4 Plywood core: to CSA O151, CSA O153 solid two sides, 25 mm thick.
5 Particleboard core: to ANSI A208.1, Grade M3, sanded faces, of thickness indicated.
6 MDF (medium density fibreboard) core: to ANSI A208.2, Grade 150-MR10, 25 mm thick density 789 kg/m³.
1 Medium density fibreboard must:
1 Meet the performance requirements of ANSI A208.2.
2 Urea-formaldehyde free.
2 Acceptable material: Medex, as manufactured by Sierra Pine Composite Solutions, www.sierrapine.com

7 Laminated plastic adhesive: urea resin adhesive to CSA O112.5, contact adhesive to CAN/CGSB-71.20, resorcinol resin adhesive to CSA O112.7, polyvinyl adhesive to CSA O112.4, two component epoxy thermosetting adhesive.
8 Sealer: water resistant sealer or glue acceptable to laminate manufacturer.
9 Sealants: Section 07 92 00.
10 Draw bolts and splines: as recommended by fabricator.
2.2 **FABRICATION**
1 Comply with NEMA LD 3, Annex A.
2 Obtain governing dimensions before fabricating items which are to accommodate or abut appliances, equipment and other materials.
3 Ensure adjacent parts of continuous laminate work match in colour and pattern.
4 Veneer laminated plastic to core material in accordance with adhesive manufacturer's instructions. Ensure core and laminate profiles coincide to provide continuous support and bond over entire surface. Use continuous lengths up to 2400 mm 3000 mm. Keep joints 600 mm from sink cutouts.
5 Form shaped profiles and bends as indicated, using postforming grade laminate to laminate manufacturer's instructions.
6 Use straight self-edging laminate strip for flatwork to cover exposed edge of core material. Chamfer exposed edges uniformly at approximately 20 degrees. Do not mitre laminate edges.
7 Apply laminate backing sheet to reverse side of core of plastic laminate work.
8 Apply laminated plastic liner sheet to interior of cabinetry where indicated.

Part 3
3.1 **Execution**
MANUFACTURER'S INSTRUCTIONS
1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
3.2 **INSTALLATION**
1 Install work plumb, true and square, neatly scribed to adjoining surfaces.
2 Make allowances around perimeter where fixed objects pass through or project into laminated plastic work to permit normal movement without restriction.
3 Use draw bolts and splines in countertop joints. Maximum spacing 450 mm on centre, 75 mm from edge. Make flush hairline joints.
4 Provide cutouts for inserts, grilles, appliances, outlet boxes and other penetrations. Round internal corners, chamfer edges and seal exposed core.
5 At junction of laminated plastic counter back splash and adjacent wall finish, apply small bead of sealant.
6 Site apply laminated plastic to units as indicated. Adhere laminated plastic over entire surface. Make corners with hairline joints. Use full sized laminate sheets. Make joints only where approved. Slightly bevel arises.
7 For site application, offset joints in plastic laminate facing from joints in core.

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- 4 Samples:
 - .1 Submit two (2) samples of door construction, 150 mm in size cut from top corner of door.
 - .2 Submit two (2) samples of door veneer, 300 mm in size illustrating wood grain, pattern.
- 1.6 SUBMITTALS FOR INFORMATION
 - .1 Section 01 33 00 - Submission procedures.
 - .2 Installation Data: Manufacturer's special installation requirements.
- 1.7 CLOSEOUT SUBMITTALS
 - .1 Section 01 78 10 - Submission procedures.
- 1.8 QUALITY ASSURANCE
 - .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
 - .2 Perform work in accordance with AWWAC Quality Standards, Custom Grade.
 - .3 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience and a member in good standing with AWWAC.
- 1.9 REGULATORY REQUIREMENTS
 - .1 Fire Rated Door Assembly: Labelled and listed to CANULC-S104.
 - .2 Installed Fire Rated Door and Transom Panel Assembly: Conform to NFPA 80 for fire rated class as scheduled.
- 1.10 DELIVERY, STORAGE, AND PROTECTION
 - .1 Section 01 61 00 - Transport, handle, store, and protect products.
 - .2 Package, deliver and store doors in accordance with AWWAC.
- Part 2 Products
 - 2.1 MANUFACTURERS
 - .1 Lambton Doors, PLS-104 Embassy Walnut.
 - .2 Other acceptable manufacturers offering functionally and aesthetically equivalent products.
 - 1. Ballargeon Doors.
 - .3 Substitutions: No substitutions permitted.
 - 2.2 DOOR TYPES
 - .1 Flush Interior Doors: 44 mm thick, solid core construction, fire rated as indicated.
 - 2.3 DOOR AND TRANSOM PANEL CONSTRUCTION
 - .1 Core (Solid, Non-Rated): AWWAC Section 09, Particleboard
 - .2 Core (Solid, Fire Rated): AWWAC Section 09, in accordance with fire rating requirements.
 - 2.4 FLUSH DOOR FACING
 - .1 Veneer Facing (Flush Interior Doors): Hardwood; veneer grade: Select American black walnut AA grade, for transparent finish, plain (flat) cut, book matched grain, for transparent finish. Sketch match in rail and stile configuration at doors where glazing exceeds one half the door height.
 - 2.5 ADHESIVE
 - .1 Facing Adhesive: Type I - waterproof.
 - 2.6 ACCESSORIES
 - .1 Glazing Stops: Wood, of same species as door facing. Rolled steel shape for rated doors, mitred corners, prepared for countersink style screws.
 - 2.7 FABRICATION
 - .1 Fabricate non-rated doors in accordance with AWWAC Woodwork Standards requirements.
 - .2 Fabricate fire rated doors in accordance with AWWAC Woodwork Standards and to ULC, ITS - Intertek Testing Services requirements. Attach fire rating label to door.
 - .3 Provide lock blocks at lock edge, top of door for closer for hardware reinforcement.
 - .4 Vertical Exposed Edge of Stilts: In accordance with AWWAC Woodwork Standards Requirements of same species as veneer facing. Hardwood, transparent finish, Edge Type A.
 - .5 Fit door edge trim to edge of stilts after applying veneer facing.
 - .6 Bond edge banding to cores.
 - .7 Factory machine fire rated doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware. Provide solid blocking for through bolted hardware.
 - .8 Provide edge clearance in accordance with AWWAC, with maximum undercut at door bottom 10 mm.)
 - .9 Factory finish: UV Finishing System, no VOC.
- Part 3 Execution
 - 3.1 EXAMINATION
 - .1 Section 01 70 00 - Verify existing conditions before starting work.
 - .2 Verify that opening sizes and tolerances are acceptable.
 - .3 Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.
 - 3.2 INSTALLATION
 - .1 Install non-rated doors in accordance with AWWAC Woodwork Standards requirements.
 - .2 Install fire rated doors to NFPA 80.
 - .3 Trim non-rated door width by cutting equally on both jamb edges.
 - .4 Trim door height by cutting bottom edges to a maximum of 19 mm. Trim fire door height at bottom edge only, in accordance with fire rating requirements.
 - .5 Machine cut for hardware.
 - .6 Coordinate installation of doors with installation of frames specified in Section 08 11 13 and hardware specified in Section 08 71 00.
 - .7 Coordinate installation of glass and glazing.
 - 3.3 INSTALLATION TOLERANCES
 - .1 Section 01 73 00 - Tolerances.
 - .2 Conform to AWWAC requirements for fit and clearance tolerances.
 - .3 Maximum Diagonal Distortion (Warp): 3 mm measured with straight edge or taut string, corner to corner, over an imaginary 915 x 2130 mm surface area.
 - .4 Maximum Vertical Distortion (Bow): 3 mm measured with straight edge or taut string, top to bottom, over an imaginary 915 x 2130 mm surface area.
 - .5 Maximum Width Distortion (Cup): 3 mm measured with straight edge or taut string, edge to edge, over an imaginary 915 x 2130 mm surface area.
 - 3.4 ADJUSTING
 - .1 Adjust door for smooth and balanced door movement.
 - .2 Adjust closer for full closure.

Section 08 70 05 Cabinet and Miscellaneous Hardware

- Part 1 General
 - 1.1 SECTION INCLUDES
 - .1 Cabinet hardware
 - .2 Finish carpentry hardware.
 - .3 Miscellaneous hardware.
 - 1.2 RELATED SECTIONS
 - .1 Section 06 20 00 - Finish Carpentry.
 - .2 Section 06 40 00 - Architectural Woodwork.
 - 1.3 REFERENCES
 - .1 Architectural Woodwork Manufacturer's Association of Canada (AWMAC) and Architectural Woodwork Institute (AWI).
 - .2 Canadian General Standards Board (CGSB).
 - .3 CAN/CGSB-69.25-M90/ANSI/BHMA A156.9-1982, Cabinet Hardware
 - .4 CAN/CGSB-69.34-93/ANSI/BHMA A156.18-1987, Materials and Finishes.
 - 1.4 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 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .3 Hardware List:
 - .1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate specified hardware, including make, model, material, function, finish and other pertinent information.
 - .4 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
 - .5 Closeout Submittals:
 - .1 Provide maintenance data, parts list, and manufacturer's instructions for incorporation into maintenance manual specified in Section 01 78 10 - Closeout Submittals.
 - 1.5 QUALITY ASSURANCE
 - .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .2 Certificates: 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. Comply with Section 01 31 01.
 - 1.6 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 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
 - .2 Storage and Protection:
 - .1 Store cabinet hardware in locked, clean and dry area.
 - 1.7 WASTE MANAGEMENT AND DISPOSAL
 - .1 Separate and recycle waste materials in accordance with Section 01 74 20 - Construction/Demolition Waste Management and Disposal.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Dispose of corrugated cardboard, polystyrene, plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
 - Part 2 Products
 - 2.1 HARDWARE ITEMS
 - .1 Use one manufacturer's product for all similar items.
 - 2.2 CABINET HARDWARE
 - .1 Cabinet hardware: to CAN/CGSB-69.25, and AWWAC Custom grade, as listed below
 - 1. Hinges: concealed self closing hinge, 170° opening, finish to C26D, #71.8550, 193L810, by Blum Canada Ltd.
 - 2. Pulls: back mounted pull, #268096174, by Richeleu Hardware Ltd.
 - 3. Shelf rests: shelf rest installed in holes drilled, plastic, #BP34001060, support, #32005-30 retainer, by Richeleu Hardware Ltd.
 - 4. Drawer slides: side mounted drawer slides, full depth, 45 kg capacity, self closing, finished to C2G, #3832C-2G by Accuride International Inc.
 - 5. Data/Power Cable Grommets: Richeleu #16576 - 90 Black (165 mm x 76 mm).
 - 6. Pull-out Garbage and Recycle Centres: Bottom mounted drawer type with attachment for milwork fascia, metallic silver finish, includes plastic bin, capacity 49 Litres/68 kg, #51491550DM117 by Richeleu.
 - 2.3 MISCELLANEOUS HARDWARE
 - .1 Shelf brackets and standards: vertical slotted shelf standard, with shelf brackets, to suit shelf width, finished to ANO, #85 standards, #185 brackets, by Knape & Vogt Manufacturing Co.

- 2.4 Boot racks: wall mounted, four (4) folding shelves, powder coated finish, premium texture, colour 1002 Pewter.
- FASTENINGS
 - .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
 - .2 Exposed fastening devices to match finish of hardware.
 - .3 Use fasteners compatible with material through which they pass.
- Part 3 Execution
 - 3.1 MANUFACTURER'S INSTRUCTIONS
 - .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
 - 3.2 INSTALLATION
 - .1 Install hardware to standard hardware location dimensions in accordance with manufacturer's recommendations and to project design requirements.
 - .2 Recess adjustable shelf rests in cabinet sides and gables.
 - .3 Install shelf standards at 400 mm o.c.
 - .4 Install key control cabinet and establish key control set-up.
 - 3.3 ADJUSTING
 - .1 Adjust cabinet hardware for optimum, smooth operating condition.
 - .2 Lubricate hardware and other moving parts.
 - .3 Adjust cabinet door hardware to provide tight fit at contact points with frames.
 - 3.4 CLEANING
 - .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
 - .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
 - .3 Remove protective material from hardware items where present.
 - .4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
 - 3.5 DEMONSTRATION
 - .1 Maintenance Staff Briefing:
 - .1 Brief maintenance staff regarding:
 - .1 Proper care, cleaning, and general maintenance of projects complete hardware.
 - .2 Description, use, handling, and storage of keys.
 - .2 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

Section 08 71 00 Door Hardware

- Part 1 General
 - 1.1 SECTION INCLUDES
 - .1 Hardware for wood doors.
 - 1.2 RELATED SECTIONS
 - .1 Section 08 06 71 - Door Hardware Schedule.
 - .2 Section 08 14 18 - Flush Wood Doors.
 - .3 Section 08 70 05 - Cabinet and Miscellaneous Hardware.
 - 1.3 REFERENCES
 - .1 Canadian Steel Door and Frame Manufacturers' Association (CDSFMA).
 - .2 CDSFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.
 - .3 Canadian General Standards Board (CGSB):
 - 1. CAN/CGSB-89.17-M86/R1993, Bored and Preassembled Locks and Latches.
 - 2. CAN/CGSB-69.18-M90/ANSI/BHMA A156.1-1981, Butts and Hinges.
 - 3. CAN/CGSB-69.19-93/ANSI/BHMA A156.3-1984, Exit Devices.
 - 4. CAN/CGSB-69.20-M90/ANSI/BHMA A156.4-1986, Door Controls (Closers).
 - 5. CAN/CGSB-69.21-M90/ANSI/BHMA A156.5-1984, Auxiliary Locks and Associated Products.
 - 6. CAN/CGSB-69.22-M90/ANSI/BHMA A156.8-1986, Architectural Door Trim.
 - 7. CAN/CGSB-69.24-M90/ANSI/BHMA A156.8-1982, Door Controls - Overhead Holders.
 - 8. CAN/CGSB-69.28-M90/ANSI/BHMA A156.12-1986, Interconnected Locks and Latches.
 - 9. CAN/CGSB-69.29-93/ANSI/BHMA A156.13-1987, Mortise Locks and Latches.
 - 10. CAN/CGSB-69.30-93/ANSI/BHMA A156.14-1991, Sliding and Folding Door Hardware.
 - 11. CAN/CGSB-69.31-M90/ANSI/BHMA A156.15-1981, Closer/Holder Release Device.
 - 12. CAN/CGSB-69.32-M90/ANSI/BHMA A156.16-1981, Auxiliary Hardware.
 - 13. CAN/CGSB-69.33-M90/ANSI/BHMA A156.17-1987, Self-closing Hinges and Pivots.
 - 14. CAN/CGSB-69.34-93/ANSI/BHMA A156.18-1987, Materials and Finishes.
 - .4 Door and Hardware Institute (DHI)
 - 1. AHC and EHC certification programs.
 - 1.4 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 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
 - .3 After approval samples will be returned for incorporation in the Work.
 - .3 Hardware List:
 - .1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Procedures and Section 01 78 10 - Closeout Submittals.
 - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
 - .3 Provide elevation and point to point drawings for all doors with electronic hardware. Drawings are to be site specific.
 - .4 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
 - .5 Closeout Submittals:
 - .1 Provide operation and maintenance data for door closers, locksets, door holders electrified hardware and fire exit hardware for incorporation into manual specified in Section 01 78 10 - Closeout Submittals.

Section 08 71 43 Automatic Door Operators

- Part 1 General
 - 1.1 SECTION INCLUDES
 - .1 Electric operated swing door equipment.
 - .2 Control devices.
 - 1.2 RELATED SECTIONS
 - .1 Section 08 71 00 - Door Hardware: Cylinder locks, electric strikes.
 - .2 Electrical Sections - Fire Alarm: Electrical connection to activate door closers.
 - .3 Electrical Sections - Building Wire and Cable:
 - .1 Wiring and conduit from door operator to control switch.
 - .2 Wiring and conduit from control switch to power unit.
 - .3 Wiring and conduit from power unit to disconnect.
 - 1.3 REFERENCES
 - .1 ANSI/BHMA A156.10-2011 - Power Operated Pedestrian Doors.
 - .2 ANSI/BHMA A156.19-2013 - Power Assist and Low Energy Power Operated Doors.
 - .3 CSA-C22.1-15 - Canadian Electrical Code, Part I (23rd Edition), Safety Standard for Electrical Installations.
 - .4 CAN/CSA-C22.2 No. 100-14 - Motors and Generators.
 - .5 CAN/CSA-C22.2 No. 247-14 - Operators and Systems of Doors, Gates, Draperies and Louvres.
 - .6 UL 325-2013 - Door, Drapery, Gate, Louvre, and Window Operators and Systems.
 - 1.4 SYSTEM DESCRIPTION
 - .1 Automatic Door Equipment: Electrically operated with push plate and button control device.
 - .2 Door: Single swing, hinged operation.
 - .3 Provide for low effort manual open, close operation of door.
 - .4 Maximum Force for Manual Open: 67 N.
 - 1.5 PERFORMANCE REQUIREMENTS
 - .1 Automatic Door Equipment: Accommodate medium pedestrian traffic, and weight of doors.
 - .2 System Design: Operate, hold open, and close doors under design wind and suction loads calculated in accordance with applicable code.
 - .3 Operating Temperature Range: Minus 40 degrees C to plus 35 degrees C ambient.
 - .4 Operators: Fully adjustable for opening and closing speeds, checking speeds, hold open time
 - .5 Design power and low energy power operated doors to applicable requirements of ANSI/BHMA A156.19, limit opening force required to manually set door in motion to 90N.
 - 1.6 ADMINISTRATIVE REQUIREMENTS
 - .1 Section 01 31 01: Project management and coordination procedures.
 - .2 Coordination: Coordinate with other work having a direct bearing on work of this section.
 - .3 Sequencing: Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.
 - 1.7 SUBMITTALS FOR REVIEW
 - .1 Section 01 33 00 - Submission procedures.
 - .2 Product Data: Provide data on system components, sizes, features, and finishes.
 - .3 Shop Drawings:
 - .1 Indicate layout and dimensions; head, jamb, and sill conditions; elevations; components, anchorage, recesses, materials, and finishes; electrical characteristics and connection requirements.
 - .2 Identify installation tolerances required, assembly conditions, routing of service lines and conduit, and locations of operating components and boxes.
 - 1.8 SUBMITTALS FOR INFORMATION
 - .1 Section 01 33 00 - Submission procedures.
 - .2 Installation Data: Manufacturer's special installation requirements indicating special procedures, perimeter conditions requiring special attention, and manufacturer's hardware and component templates.
 - 1.9 CLOSEOUT SUBMITTALS
 - .1 Section 01 78 10 - Submission procedures.
 - .2 Maintenance Contracts: Provide service and maintenance of operating equipment for one year from Date of Substantial Completion.
 - .3 Operation and Maintenance Data: Include manufacturer's parts list and maintenance instructions for each type of hardware and operating component.
 - .4 Warranty Documentation: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
 - .5 Record Documentation: Record actual locations of concealed equipment, services, and conduit.
 - 1.10 MAINTENANCE MATERIAL SUBMITTALS
 - .1 Section 01 78 40: Maintenance extra material requirements.
 - .2 Tools: Provide wrenches and tools required for maintenance of equipment.
 - 1.11 QUALITY ASSURANCE
 - .1 Products of This Section: Manufactured to ISO 9000 certification requirements.
 - .2 Perform Work in accordance with CAN/CSA-C22.2 No. 247, UL 325, ANSI/BHMA A156.19.
 - .3 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
 - .4 Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by the manufacturer.
 - 1.12 REGULATORY REQUIREMENTS
 - .1 Conform to NBC to permit manual operation of emergency exit doors.
 - .2 Products Requiring Electrical Connection: Listed and classified by CSA UL testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.
 - 1.13 WARRANTY
 - .1 Section 01 78 10 - Warranties.
 - .2 Provide five (5) year manufacturer warranty for operating unit.
 - Part 2 Products
 - 2.1 MANUFACTURERS
 - .1 Nabco Entrances Ltd., Gyro Tech; Product:
 - 1. Exterior Doors: Dual Access GT System 500.
 - 2. Interior Front Vestibule Doors: Dual Access GT System 350.
 - .2 Interior Doors: Dual Access GT System 500.
 - .3 Other acceptable manufacturers offering functionally and aesthetically equivalent products, subject to compliance with requirements.
 - 1. Horton Automatics Ltd.; Product:
 - 1. Exterior Doors: Series 4000LE
 - 2. Interior Front Vestibule Doors: Series 4800LE
 - 3. Interior Doors: Series 4000LE
 - 2. Stanley Access Technologies LLC; Product:
 - 1. Exterior Doors: Magic Force

AT (SHA 641)

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1 Issued for Tender 07 Aug 2015

NO.	DESCRIPTION	DATE

PROJECT NAME: YARDI SYSTEMS EXPANSION

516 WELLMAN CRES, SASKATOON

PROJECT NUMBER: 15-048

DRAWING NAME: SPECIFICATIONS

DRAWN: Author

CHECKED: Checker

A4.6



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2 Interior Front Vestibule Doors: Magic Swing Concealed.
3 Interior Doors: Magic Force.
3 Besam; Product:
1 Exterior Doors: SW 200: surface mount.
2 Interior Front Vestibule Doors: SW 200: concealed mount.
3 Interior Doors: SW 200: surface mount.
3 Substitutions: Refer to Section 01 62 00.

2.2 POWER UNITS
1 Operation: Power open, spring close operation.
2 Electric Type: 0.093 kW, self-contained, gear driven.

2.3 AUTOMATIC OPERATOR
1 Exterior Doors: Surface mounted operator for accommodating door action.
2 Interior Doors: Overhead concealed mounted operator for accommodating door action.
3 Adjustable speed control for opening and closing cycles, checking and open time.
4 On-Off Hold Open: Toggle switch at inside head of doors.
5 Full length flush fit removable cover.

2.4 PUSH PLATE, BUTTON CONTROL DEVICE
1 Standard recessed 114 mm diameter wall mounted, narrow stile jamb mounted, freestanding bollard mounted, guide rail, mounted momentary contact type, handicap logo, stainless steel.

2.5 ELECTRICAL CHARACTERISTICS AND COMPONENTS
1 Electrical Characteristics:
1 0.093 kW, 5 amperes.
2 120 volts, single phase, 60 Hz.
3 15 amperes maximum circuit breaker size.
4 Refer to Section 26 05 80 - Equipment Wiring: Electrical connections.
2 Motor: CAN/CSA-C22.2 No. 100.
3 Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to CSA-C22.1.

2.6 FINISHES
1 Exposed Operator and Components: Finish to match door and door hardware finish.
2 Steel Clips, Supports and Steel Anchors: One (1) coat of steel primer.

Part 3 EXECUTION
3.1 EXAMINATION
1 Section 01 70 00: Verify existing conditions before starting work.
2 Verify that surfaces, openings and recesses are ready to receive work and dimensions are as indicated on shop drawings, instructed by the manufacturer.
3 Verify that electric power is available and of the correct characteristics.

3.2 INSTALLATION
1 Install equipment to manufacturer's written instructions.
2 Provide for thermal expansion and contraction of door and frame units and live and dead loads that may be transmitted to operating equipment.
3 Provide for dimensional distortion of components during operation.
4 Coordinate installation of components with related and adjacent work, level and plumb.

3.3 ADJUSTING
1 Adjust door equipment for correct function and smooth operation.

3.4 CLEANING
1 Section 01 74 00: Cleaning installed work.
2 Remove temporary protection, clean exposed surfaces.

3.5 DEMONSTRATION AND INSTRUCTIONS
1 Section 01 79 00: Demonstrating installed work.
2 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

Section 08 80 50 Glazing
Part 1 General
1.1 SECTION INCLUDES
1 Glass and glazing for rated doors.
2 Vinyl film.
3 Mirrors.
1.2 RELATED SECTIONS
1 Section 08 14 16 - Flush Wood Doors: Door vision panels.
1.3 REFERENCES
1 American Society for Testing and Materials (ASTM)
1 ASTM C1503-08(R2013), Standard Specification for Silvered Flat Glass.
2 Canadian General Standards Board (CGSB)
1 CAN/CGSB-12.11-M90, Wired Safety Glass.
1.4 SYSTEM DESCRIPTION
1 Performance Requirements:
1 Provide continuity of building enclosure vapour and air barrier using glass and glazing materials as follows:
1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.
2 Size glass to withstand dead loads and positive and negative live loads as measured in accordance with ANSI/ASTM E530.
1.5 SUBMITTALS
1 Product Data:
1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00.
2 Shop Drawings:
1 Submit shop drawings in accordance with Section 01 33 00.
3 Manufacturer's Instructions:
1 Submit manufacturer's installation instructions.
4 Closeout Submittals:
1 Provide maintenance data including cleaning instructions for incorporation into manual specified in Section 01 78 10.
1.6 QUALITY ASSURANCE
1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
2 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.
1.7 SITE CONDITIONS
1 Environmental Requirements:
1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.
2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.
1.8 WASTE MANAGEMENT AND DISPOSAL
1 Separate and recycle waste materials in accordance with Section 01 74 20 - Construction/Demolition Waste Management and Disposal.
2 Divert metal cut-offs from landfill by disposal into on-site Metal recycling bin, at nearest metal recycling facility.
3 Divert uninstalled materials for reuse at nearest used building materials facility or similar type facility.
4 Divert unused caulking and sealant materials from landfill through disposal at special wastes depot.
5 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.
6 Remove form site and dispose of packaging materials at appropriate recycling facilities.
7 Dispose of corrugated cardboard, polystyrene, plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
Part 2 Products
2.1 MATERIALS: FLAT GLASS
1 Wired glass: to CAN/CGSB-12.11, 6 mm thick
1 Type Polished both side (transparent).
2 Wire mesh styles square.
2 Mirror glass (Type MR-A): ASTM C5103, clear tempered safety type with copper and silver coating, organic overcoating, arised edges, minimum thickness 6 mm.
2.2 ACCESSORIES
1 Setting blocks: Neoprene, EPDM, Silicone, 80-90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area.
2 Spacer shims: Neoprene, Silicone, 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.
3 Glazing tape: Preformed butyl compared 10-15 Shore A durometer hardness to ASTM D2240; coiled on released paper, black colour.
4 Glazing splines: Resilient EPDM, extruded shape to suit glazing channel retaining slot, colour black.
5 Glazing clips: manufacturer's standard spec.
6 Vinyl film: Translucent low gloss cast film having the appearance of etched glass, with release liner, 3M Graphic Window Film, Pattern CGS 1370.
7 Mirror attachment accessories: Stainless steel "Vancouver Style" clips.
2.3 SEALANT MATERIALS
1 Sealant: Silicone one part, to CAN/CGSB-19.13, clear colour.
Part 3 Execution
3.1 MANUFACTURER'S INSTRUCTIONS
1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
3.2 EXAMINATION
1 Verify that openings for glazing are correctly sized and within tolerance.
2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.
3.3 PREPARATION
1 Clean contact surfaces with solvent and wipe dry.
3.4 INSTALLATION: INTERIOR
1 Perform work in accordance with Glass Association of North America - GANA Glazing Manual.
2 Install glazing resting on setting blocks.
3 Locate and secure glazing light.
4 Set plumb and level without visible distortion.
3.5 INSTALLATION: MIRROR - MECHANICAL METHOD
1 Set mirrors with clips, in accordance with hardware manufacturer's written instructions.
2 Place plumb and level without visible distortion.
3.6 PREPARATION
1 Clean contact surfaces with solvent and wipe dry.
2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.
3 Prime surfaces scheduled to receive sealant.

3.7 CLEANING
1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
2 Remove traces of primer, caulking.
3 Remove glazing materials from finish surfaces.
4 Remove labels after work is complete.
5 Clean glass using approved non-abrasive cleaner in accordance with manufacturer's instructions.
6 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.8 SCHEDULE
1 Inter glazing in fire rated doors: wired glass, 6 mm thickness.
2 Graphic Film Glazing on Owner Supplied demountable glazing panels, as indicated.

Section 09 21 16 Gypsum Board Assemblies
Part 1 General
1.1 DESCRIPTION
1 Gypsum board and joint treatment.
1.2 RELATED SECTIONS
1 Section 09 10 00 - Rough Carpentry
2 Section 09 91 99 - Painting
1.3 REFERENCES
1 Aluminum Association (AA)
1 Designation for Aluminum Finishes-1997.
2 American National Standard Institute (ANSI)
1 ANSI A108/A118/A136.1-2009, American Standard National Standards for the Installation of Ceramic Tile.
3 American Society for Testing and Materials International (ASTM)
1 ASTM C442/C442M-04e1, Specification for Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board.
2 ASTM C475/C475M-12, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
3 ASTM C557-03(2009)e1, Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
4 ASTM C645-11a, Specification for Non Structural Steel Framing Members.
5 ASTM C754-11, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
6 ASTM C840-11, Specification for Application and Finishing of Gypsum Board.
7 ASTM C1002-07, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
8 ASTM C1047-10a, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
9 ASTM C1177/C1177M-08 - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
10 ASTM C1178/C1178M-11, Specification for Glass Mat Water-Resistant Gypsum Backing Board.
11 ASTM C1325-08b, Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units.
12 ASTM C1280-12a, Application of Gypsum Sheathing.
13 ASTM C1396/C1396M-11, Specification for Gypsum Board.
4 Association of the Wall and Ceiling Industries International (AWCI)
5 Canadian General Standards Board (CGSB)
1 CAN/CGSB-51.34-M86 Amend, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
2 CAN/ULC-71.25-M88, Adhesive, for Bonding Drywall to Wood Framing and Metal Studs.
6 Underwriters' Laboratories of Canada (ULC)
1 CAN/ULC-S101-07, Methods of Fire Endurance Tests of Building Construction and Materials.
2 CAN/ULC-S102-10, Surface Burning Characteristics of Building Materials and Assemblies.
1.4 SUBMITTALS FOR INFORMATION
1 Section 01 33 00: Submission procedures.
2 Installation Data: Manufacturer's special installation requirements.
1.5 CLOSEOUT SUBMITTALS
1 Section 01 78 10: Submission procedures.
1.6 DELIVERY, STORAGE AND HANDLING
1 Deliver materials in original packages, containers or bundles bearing manufacturer's brand name and identification.
2 Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from construction operations and other causes.
3 Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being bent or damaged.
1.7 SITE ENVIRONMENTAL REQUIREMENTS
1 Maintain temperature minimum 10 degrees C, maximum 21 degrees C for 48 hours prior to and during application of gypsum boards and joint treatment, and for at least 48 hours after completion of joint treatment.
2 Apply board and joint treatment to dry, frost free surfaces.
3 Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.
1.8 WASTE MANAGEMENT AND DISPOSAL
1 Separate and recycle waste materials in accordance with Section 01 74 20 - Waste Management and Disposal.
2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
4 Divert unused gypsum from landfill to gypsum recycling facility for disposal approved by Consultant.
5 Divert unused metal materials from landfill to metal recycling facility approved by Consultant.
6 Divert unused wood materials from landfill to recycling, composting facility approved by Consultant.
7 Divert unused paint and caulking material from landfill to official hazardous material collections site approved by Consultant.
8 Do not dispose of unused paint and caulking materials into sewer systems, into lakes, streams, onto ground or in other locations where it will pose health or environmental hazard.
1.9 REGULATORY REQUIREMENTS
1 Conform to applicable code for fire rated assemblies as follows:
1 Fire Rated Partitions: listed assembly by ULC listed Design Authority, assembly in accordance with NBCC 2005, Appendix D.
2 Fire Rated Floors and Ceiling: listed assembly by ULC listed Design Authority, assembly in accordance with NBCC 2005, Appendix D.
3 Fire Rated Structural Column Framing: listed assembly by ULC, assembly in accordance with NBC 2005, Appendix D.
Part 2 Products
2.1 MATERIALS
1 Standard board: to ASTM C1396/C1396M regular, 12.7, 15.9 mm thick and Type X, 12.7, 15.9 mm thick, 1200 mm wide x maximum practical length, ends square cut, edges beveled.
2 Steel drill screws, to ASTM C1002.
3 Stud adhesive: to CAN/CSB-71.25, ASTM C557.
4 Laminating compound: as recommended by manufacturer, asbestos-free.
5 Casing beads, corner beads, control joints and edge trim: to ASTM C1047, zinc-coated by electrolytic process, 0.5 mm base thickness, perforated flanges one piece length per location.
6 Sealants: in accordance with Section 07 92 00 - Joint Sealing.
7 Joint compound: to ASTM C475, asbestos-free.
8 Textured finish materials: latex based texturing material, containing polystyrene aggregate Synko Snow-Tex manufactured by CGC Inc. Primer sealer and paint blend as recommended by textured finish manufacturer.
Part 3 Execution
3.1 ERECTION
1 Do application and finishing of gypsum board in accordance with ASTM C840 except where specified otherwise.
2 Apply single double layer gypsum board to wood, metal furring or framing using screw fasteners for first layer, laminating adhesive, screw fasteners for second layer. Maximum spacing of screws 300 mm on centre.
3 Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
4 Install work level to tolerance of 1.1200.
5 Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles.
6 Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
7 Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.
8 Install wall furring for gypsum board wall finishes in accordance with ASTM C840, except where specified otherwise.
9 Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals. Check clearances with equipment suppliers.
10 Furr duct shafts, beams, columns, pipes and exposed services where indicated.
11 Erect drywall resilient furring transversely across studs, spaced maximum 600 mm on centre and not more than 150 mm from ceiling/wall juncture. Secure to each support with 38 mm common nail, 25 mm drywall screw.
3.2 APPLICATION
1 Do not apply gypsum board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
2 Apply single double layer gypsum board to wood, metal furring or framing using screw fasteners for first layer, laminating adhesive, screw fasteners for second layer. Maximum spacing of screws 300 mm on centre.
1 Single-Layer Application:
1 Apply gypsum board on ceilings prior to application of walls in accordance with ASTM C840.
2 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
2 Double-Layer Application:
1 Install gypsum board for base layer and exposed gypsum board for face layer.
2 Apply base layer to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 mm.
3 Apply base layers at right angles to supports unless otherwise indicated.
4 Apply base layer on walls and face layers vertically with joints of base layer over supports and face layer joints offset at least 250 mm with base layer joints.
3 Apply 12 mm diameter bead of acoustic sealant continuously around periphery of each face of partitioning to seal gypsum board/structure junction where partitions abut fixed building components. Seal full perimeter of cut-outs around electrical boxes, ducts, in partitions where perimeter sealed with acoustic sealant.
4 Install ceiling boards in direction that will minimize number of end-butt joints. Stagger end joints at least 250 mm.
5 Install gypsum board on walls vertically to avoid end-butt joints. At stairwells and similar high walls, install boards horizontally with end joints staggered over studs, except where local codes or fire-rated assemblies require vertical application.
6 Install gypsum board with face side out.
7 Do not install damaged or damp boards.
8 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.
9 Install gypsum sheathing to ASTM 1280 and manufacturer's instructions.
3.3 INSTALLATION
1 Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm on centre.
2 Install casing beads around perimeter of suspended ceilings.
3 Install casing beads where gypsum board butts against surfaces having no trim concealing junction and where indicated. Seal joints with sealant.
4 Construct control joints of preformed units set in gypsum board facing and supported independently on both sides of joint.
5 Provide continuous polyethylene dust barrier behind and across control joints.
6 Locate control joints at approximate 10 m spacing on long corridor runs, at approximate 15 m spacing on ceilings.

7 Install control joints straight and true.
8 Install access doors to electrical and mechanical fixtures specified in respective sections.
1 Rigidly secure frames to furring or framing systems.
9 Finish face panel joints at interior angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
10 Gypsum Board Finish: finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board Finish:
1 Levels of finish:
1 Level 0: No taping, finishing or accessories required.
2 Level 1: Embed tape for joints and interior angles in joint compound. Surfaces to be free of excess joint compound; tool marks and ridges are acceptable.
3 Level 2: Embed tape for joints and interior angles in joint compound and apply one separate coat of joint compound over joints, angles, fastener heads and accessories; surfaces free of excess joint compound; tool marks and ridges are acceptable.
4 Level 3: Embed tape for joints and interior angles in joint compound and apply two separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
5 Level 4: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; surfaces smooth and free of tool marks and ridges.
6 Level 5: Embed tape for joints and interior angles in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads and accessories; apply a thin skim coat of joint compound to entire surface; surfaces smooth and free of tool marks and ridges.
11 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
12 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
13 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
14 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
15 Mix joint compound for skim coating slightly thinner than for joint taping.
16 Apply thin coat to entire surface using trowel or drywall broadknife to fill surface texture differences, variations or tool marks.
17 Allow skim coat to dry completely.
18 Remove ridges by light sanding or wiping with damp cloth.
19 Provide protection that ensures gypsum drywall work will remain without damage or deterioration at time of substantial completion.
20 Tape and fill joints and corners in cementitious backer board in accordance with manufacturer's written instructions.
21 Prime surfaces to receive finish texture in accordance with finish texture manufacturer's written instructions.
22 Blend finish texture coating with paint, and spray apply in accordance with manufacturer's written instructions.
3.4 SCHEDULES
1 Finish Level:
1 Level 2: to areas concealed above suspended ceilings.
2 Level 3: to under stair storage areas and mechanical rooms, to textured ceilings where identified in textured ceiling manufacturer's written instructions.
3 Level 4: to areas not noted as other level of finish.
4 Level 5: to areas receiving semi-gloss or gloss paints, or where severe lighting conditions occur.

Section 09 22 16 Non-Structural Metal Framing
Part 1 General
1.1 SECTION INCLUDES
1 Formed metal framing of studs and furring, at interior locations.
2 Framing accessories.
1.2 RELATED SECTIONS
1 Section 06 10 00 - Rough Carpentry: Wood blocking within stud framing.
2 Section 07 21 16 - Blanket Insulation: Insulation between framing members.
3 Section 07 92 00 - Joint Sealants.
4 Section 09 21 16 - Gypsum Board Assemblies.
1.3 REFERENCES
1 American Society for Testing and Materials International (ASTM)
1 ASTM C645-14, Specification for Non-Structural Steel Framing Members.
2 ASTM C754-11, Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
1.4 SUBMITTALS FOR INFORMATION
1 Section 01 33 00: Submission procedures.
2 Installation Data: Manufacturer's special installation requirements.
1.5 CLOSEOUT SUBMITTALS
1 Section 01 78 10: Submission procedures.
1.6 QUALITY ASSURANCE
1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
2 Certificates: 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.
1.7 WASTE MANAGEMENT AND DISPOSAL
1 Separate and recycle waste materials in accordance with Section 01 74 20 - Waste Management and Disposal.
2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site containers for recycling in accordance with Waste Management Plan.
4 Divert unused metal materials from landfill to metal recycling facility.
5 Divert unused gypsum materials from landfill to recycling facility.
Part 2 Products
2.1 MATERIALS
1 Non-load bearing channel stud framing: to ASTM C645, 41, 64, 92, 102, 152 mm stud size, roll formed from 0.53 mm thickness electro-galvanized steel sheet, for screw attachment of gypsum board. Knock-out service holes at 460 mm centres.
2 Use 1.5 mm thickness for all door jambs. Use 0.9 mm thickness hot dipped galvanized steel sheet studs where cementitious backer board is installed.
3 Floor and ceiling tracks: to ASTM C645, in widths to suit stud sizes, 32 mm flange height.
4 Metal channel stiffener: 13 x 38 mm size, 1.4 mm thick cold rolled steel, coated with rust inhibitive coating.
5 Acoustical sealant: Section 07 92 00.
6 Insulating strip: rubberized, moisture resistant 3 mm thick foam strip, 12 mm wide, with self sticking adhesive on one face, lengths as required.
Part 3 Execution
3.1 ERECTION
1 Erect framing in accordance with ASTM C-754, supplemented by the following:
2 Align partition tracks at floor and ceiling and secure at 600 mm on centre maximum.
3 Install damp proof course under stud shoe tracks of partitions on slabs on grade.
4 Place studs vertically at 406 mm on centre and not more than 50 mm from abutting walls, and at each side of openings and corners.
5 Position studs in tracks at floor and ceiling. Cross brace steel studs as required to provide rigid installation to manufacturer's instructions.
6 Erect metal studding to tolerance of 1.1000.
7 Attach studs to bottom track using screws, crimp method.
8 Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
9 Co-ordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other Sections.
10 Provide two studs extending from floor to ceiling at each side of openings wider than stud centres specified. Secure studs together, 50 mm apart using column clips or other approved means of fastening placed alongside frame anchor clips.
11 Install heavy gauge single jamb studs at openings.
12 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.
13 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
14 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.
15 Install steel studs or furring channel between studs for attaching electrical and other boxes.
16 Extend partitioning to ceiling height except where noted otherwise on drawings.
17 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use double track slip joint.
18 Install continuous insulating strips to isolate studs from uninsulated surfaces.
19 Install two continuous beads of acoustical sealant under studs and tracks around perimeter of sound control partitions.
3.2 CLEANING
1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
Section 09 51 29 Acoustical Ceilings
Part 1 General
1.1 SECTION INCLUDES
1 Acoustic units.
2 Perimeter trim.
3 Procurement: Refer to Owner's pricing requirements.
1.2 RELATED SECTIONS
1 Section 09 21 16 - Gypsum Board Assemblies: Gypsum board suspended ceiling system.
2 Division 21 - Wet Pipe Sprinkler System: Sprinkler heads in ceiling.
3 Division 23 - Diffusers, Registered Grilles: Air diffusion devices in ceiling.
4 Section 26 50 00 - Lighting: Light fixtures in ceiling.
5 Section 27 51 13 - Paging Systems: Speakers in ceiling.
6 Section 28 31 02 - Multiplex Fire Alarm Systems: Fire alarm components in ceiling.
1.3 REFERENCES
1 American Society for Testing and Materials International (ASTM)
1 ASTM C423-09a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
2 ASTM C635/C635M-07, Standard Specification for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
3 ASTM C636/C636M-08, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
4 ASTM E580/E580M-09a - Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels in Areas Subject to Earthquake Ground Motions.
5 ASTM E1477-96a(2006), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.

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1 Issued for Tender 07 Aug 2015

NO.	DESCRIPTION	DATE

PROJECT NAME :

YARDI SYSTEMS EXPANSION

516 WELLMAN CRES,
SASKATOON

PROJECT NUMBER :	15-048
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DRAWING NAME :

SPECIFICATIONS

DRAWN : Author

CHECKED : Checker

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2	Canadian General Standards Board (CGSB)
.1	CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.
.3	Underwriter's Laboratories of Canada (ULC)
1	CANULC-S102-2007, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
1.4	SUBMITTALS FOR INFORMATION
.1	Section 01 33 00: Submission procedures.
.2	Installation Data: Manufacturer's special installation requirements, including perimeter conditions requiring special attention.
1.5	CLOSEOUT SUBMITTALS
.1	Section 01 78 10: Submission procedures.
1.6	MAINTENANCE MATERIALS SUBMITTALS
.1	Section 01 78 40: Maintenance and extra material requirements.
.2	Extra Stock Materials: Provide 2% of total acoustic unit of extra tile panels metal pans to Owner.
1.7	DESIGN REQUIREMENTS
.1	Maximum deflection: 1/60th of span to ASTM C635 deflection test.
1.8	QUALITY ASSURANCE
.1	Products of This Section: Manufactured to ISO 9000 certificate requirements.
.2	Grid Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this Section with minimum three (3) years documented experience.
1.9	STORAGE AND HANDLING
.1	Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.
.2	Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.
1.10	REGULATORY REQUIREMENTS
.1	Conform to applicable code for combustibility requirements for materials.
1.11	ENVIRONMENTAL REQUIREMENTS
.1	Section 01 35 26: Environmental conditions affecting products on site.
.2	Maintain uniform temperature of minimum 16 degrees C and maximum humidity of 40% prior to during, and after acoustic unit installation.
Part 2	Products
2.1	MANUFACTURERS – ACOUSTICAL PANELS
.1	Acoustical units for suspended ceiling system: Armstrong World Industries, Product: Fine Fisured #1728.
.2	Procurement: CBRE FUSION Program.
.3	Substitutions: Not permitted.
2.2	ACOUSTICAL CEILING PANELS
.1	Acoustic units for suspended ceiling system: to CAN/CGSB-92.1.
.1	Type: mineral fibre.
.2	Class: A.
.3	Flame spread rating of 25 or less in accordance with CANULC-S102.
.4	Noise Reduction Coefficient (NRC) designation of minimum 0.55.
.5	Light Reflectance (LR) range of 0.80 to 0.85 to ASTM E1477.
.6	Edge type: square.
.7	Colour: white.
.8	Size: 610 x 610 x minimum 16 mm thick.
.9	Shape: flat.
2.3	ACOUSTICAL SUSPENSION
.1	Intermediate duty system to ASTM C635.
.2	Basic materials for suspension system: commercial quality cold rolled steel, zinc coated.
.3	Suspension system: non fire rated, two directional exposed tee bar grid.
.4	Exposed tee bar grid components: shop painted satin sheen, white colour. Components die cut. Main tee with double web, rectangular bulb and 24 mm rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection.
.5	Hanger wire: galvanized soft annealed steel wire, 3.6 mm diameter for access tile ceilings.
.6	Hanger inserts: purpose made.
.7	Accessories: splices, clips, wire ties, retainers and wall moulding flush, to complement suspension system components, as recommended by system manufacturer.
Part 3	Execution
3.1	INSTALLATION OF SUSPENSION SYSTEM
.1	Installation: in accordance with ASTM C635/C636M except where specified otherwise.
.2	Install system subject to seismic loading in accordance with ASTM E530/E530M.
.3	Do not erect ceiling suspension system until work above ceiling has been inspected by Consultant.
.4	Lay out system according to reflected ceiling plan.
.5	Install wall moulding to provide correct ceiling height.
.6	Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers.
.7	Interlock cross member to provide rigid assembly.
.8	Finished ceiling system to be square with adjoining walls and level within 1:1000.
3.2	INSTALLATION OF ACOUSTICAL PANELS
.1	Install acoustical panels and tiles in ceiling suspension system.
.2	Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.
.3	Install hold-down clips to retain panels tight to grid system within 6 metres of an exterior door.

Section 09 65 10 Resilient Flooring

Part 1	General
1.1	SECTION INCLUDES
.1	Resilient sheet flooring.
.2	Rubber tile flooring.
1.2	RELATED SECTIONS
.1	Section 03 34 50 – Concrete Floor Finishes: Floor, stair substrate surface.
.2	Section 06 10 00 – Rough Carpentry: Floor substrate surface.
.3	Section 06 20 00 – Finish Carpentry: baseboard, stair substrate surface.
1.3	REFERENCES
.1	ASTM F1303-04(2009) - Sheet Vinyl Floor Covering with Backing.
.2	ASTM F1344-12, Standard Specification for Rubber Floor Tile.
.3	ASTM F1700-13a, Standard Specification for Solid Vinyl Floor Tile.
.4	ASTM F1661-08(2012)e1 - Resilient Wall Base.
.5	ASTM F119-04(2013) - Vinyl Sheet Floor Covering Without Backing.
.6	ASTM F2034-08 – Sheet Linoleum Floor Covering.
.7	CAN/ULC-F2169-12 - Resilient Stair Treads.
.8	CANULC-S102.2-10 - Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies.
1.4	SUBMITTALS FOR REVIEW
.1	Section 01 33 00: Submission procedures.
.2	Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colours available.
.3	Shop Drawings: Indicate seaming plan, borders, and patterns.
.4	Samples:
.1	Submit two (2) samples, 600 x 600 mm in size illustrating colour and pattern for each floor material for each colour specified.
.2	Submit two (2) 500 mm long samples of base and stair material for each colour specified.
1.5	SUBMITTALS FOR INFORMATION
.1	Section 01 33 00: Submission procedures.
.2	Installation Data: Manufacturer's special installation requirements including special procedures, perimeter conditions requiring special attention, and seaming.
1.6	CLOSEOUT SUBMITTALS
.1	Section 01 78 10: Submission procedures.
.2	Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
1.7	MAINTENANCE MATERIAL SUBMITTALS
.1	Section 01 78 40: Maintenance and extra material requirements.
.2	Extra Stock Materials: Provide 2% of flooring, base, and stair materials of each material specified.
1.8	QUALITY ASSURANCE
.1	Products of This Section: Manufactured to ISO 9000 certification requirements.
.2	Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.
.3	Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience, approved by the manufacturer.
1.9	REGULATORY REQUIREMENTS
.1	Conform to applicable code for tactile/visual cueing.
1.10	DELIVERY, STORAGE, AND PROTECTION
.1	Section 01 61 00: Transport, handling, store, and protect products.
.2	Protect roll materials from damage by storing in accordance with manufacturer's instructions.
1.11	ENVIRONMENTAL REQUIREMENTS
.1	Section 01 35 26: Environmental conditions affecting products on site.
.2	Store materials for three days prior to installation in area of installation to achieve temperature stability.
.3	Maintain ambient temperature required by adhesive manufacturer three days prior to, during, and 24 hours after installation of materials.
Part 2	Products
2.1	MANUFACTURERS – TILE FLOORING
.1	Armstrong Floor Products; Style: Amtico Collection.
.2	Substitutions: Refer to Section 01 62 00.
2.2	MATERIALS – TILE FLOORING
.1	Vinyl Tile: ASTM F1700.
.1	Size: 305 mm x 305 mm.
.2	Thickness: 2.5 mm.
2.3	MATERIALS - BASE
.1	Base: ASTM F1661, Type TS vulcanized rubber, Type TP thermoplastic rubber, top set coved; premoulded end stops:
.1	Height: 100 mm.
.2	Thickness: 3 mm thick.
.3	Length: Roll.
.2	Base Accessories: Premoulded end stops of same material, size, and colour as base.

2.4	ACCESSORIES
.1	Floorfiller: white premix latex requiring water only to produce cementitious paste or two-part latex-type filler requiring no water, manufactured specifically for leveling floors, capable of being brought down to feather edge; type recommended by flooring and adhesive material manufacturer. Products containing gypsum are not acceptable.
.2	Primers and Adhesives: Waterproof, low VOC; types recommended by flooring manufacturer.
.3	Edge Strips: Metal.
.4	Sealer and Wax: Types recommended by flooring manufacturer.
Part 3	EXAMINATION
3.1	EXAMINATION
.1	Section 01 70 00: Verify existing conditions before starting work.
.2	Verify concrete floors are dry to a maximum moisture content of 7 percent, and exhibit negative alkalinity, carbonization, or dusting.
.3	Verify floor and lower wall surfaces are free of substances that may impair adhesion of new adhesive and finish materials.
3.2	PREPARATION
.1	Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
.2	Form taper where flooring of different thicknesses abut, for flush surface, with sub-floor filler.
.3	Prohibit traffic until filler is cured.
.4	Vacuum clean substrate.
3.3	INSTALLATION – TILE FLOORING
.1	Install tile flooring to manufacturer's instructions.
.2	Mix tile from container to ensure shade variations are consistent when tile is placed.
.3	Spread only enough adhesive to permit installation of materials before initial set.
.4	Set flooring in place, press with heavy roller to attain full adhesion.
.5	Flay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.
.6	Install tile in a basket weave pattern. Allow minimum 1/2 full size tile width at room or area perimeter.
.7	Terminate flooring at centreline of door openings where adjacent floor finish is dissimilar.
.8	Install resilient edge strips at unprotected or exposed edges, and where flooring terminates.
.9	Scribe flooring to walls, columns, cabinets, floor outlets and other appurtenances to produce tight joints.
3.4	INSTALLATION - BASE
.1	Fit joints tight and vertical. Maintain minimum measurement of 2400 mm between joints.
.2	Mitre internal corners. At external corners, 1/2 cut back of base strip to 2/3 of its thickness and fold. Extend minimum 300 mm beyond corners. At exposed ends, use premoulded tiles.
.3	Install base on solid backing. Bond tight to wall and floor surfaces.
.4	Scribe and fit to door frames and other interruptions.
.5	Continue at moveable cabinets.
.6	Install base on floor cabinets.
3.5	CLEANING
.1	Section 01 74 00: Cleaning installed work.
.2	Remove access adhesive from floor, base, and wall surfaces without damage.
.3	Clean, seal, floor and base surfaces in accordance with manufacturer's written instructions.
3.6	PROTECTION OF FINISHED WORK
.1	Section 01 78 40: Protecting installed work.
.2	Prohibit traffic on floor finish for 48 hours after installation.
Section 09 68 00 Carpeting	
Part 1	General
1.1	SECTION INCLUDES
.1	Carpet tile.
.2	Accessories.
.3	Procurement: Refer to Owner's pricing requirements.
1.2	RELATED SECTIONS
.1	Section 03 35 00 – Concrete Floor Finishing: Floor substrate surface.
1.3	REFERENCES
.1	American Association of Textile Chemists and Colorists (AATCC)
.1	AATCC 16-1998, Color Fastness to Light
.2	AATCC 134-2001, Electrostatic Propensity of Carpet.
.2	Canadian General Standards Board (CGSB)
.1	CAN/CGSB-25.20-95, Surface Sealer Floors.
.3	Carpet and Rug Institute (CRI)
.1	CR1-2008, Carpet Installation Standard.
.2	IAQ Carpet Testing Program.
1.4	SUBMITTALS
.1	Submit control submittals in accordance with Section 01 33 00 - Submittal Procedures.
.2	Submit proof that carpet has been tested and passed the Indoor Air Quality (IAQ) Carpet Testing Program requirements of the Carpet and Rug Institute (CRI) and the Canadian Carpet Institute (CCI).
.3	Submit report outlining proposed dust control measures.
.4	Submit carpet schedule using same room designations indicated on drawings.
.5	Submit carpet manufacturer's installation instructions: Indicate special procedures and perimeter conditions requiring special attention.
1.5	PRODUCT DATA
.1	Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
.2	Submit product data sheet for each carpet, undercushion, adhesive, carpet protection and subfloor patching compound.
.3	Submit WHMIS MSDS - Material Safety Data Sheets acceptable to Labour Canada and Health Canada for carpet adhesive and seam adhesive, indicate VOC content.
.4	Submit data on specified products, describing physical and performance characteristics, sizes, patterns, colours, and methods of installation.
1.6	SHOP DRAWINGS
.1	Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
.2	Indicate locations and lengths of seams for carpeted areas.
.3	Indicate direction, open edges, special patterns, and other details required by Consultant to clarify work.
.4	Submit drawings showing columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required as well as direction of carpet pile and pattern, location of edge moldings and edge bindings to Consultant for review prior to installation of carpet.
1.7	SAMPLES
.1	Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
.2	Submit duplicate 600 x 600 mm pieces of each type carpet tile specified, duplicate 225 x 225 mm pieces for each colour selected.
1.8	CLOSEOUT SUBMITTALS
.1	Submit operation and maintenance data for incorporation into manual specified in Section 01 78 10 - Closeout Submittals.
.2	Submit maintenance data: Include maintenance procedures, recommendations for maintenance materials and equipment, and suggested schedule for cleaning.
1.9	QUALIFICATIONS
.1	Installer Qualifications:
.1	Flooring contractor requirements.
.1	Specialty contractor normally engaged in this type of work, with prior experience in installation of these types of materials.
.2	Certified by carpet manufacturer prior to tender bid submission.
.3	Must not sub-contract labour without written approval of Consultant.
.2	Be responsible for proper product installation, including floor testing and preparation as specified and in accordance with carpet manufacturers written instructions.
1.10	REGULATORY REQUIREMENTS
.1	Indoor Air Quality: compliance with CRI/CCI Green Label Indoor Air Quality Program, CRI/CCI-IAQ requirements for maximum total volatile chemicals relative to air. Label each carpet product with CRI/CCI-IAQ label.
1.11	DELIVERY, STORAGE AND HANDLING
.1	Label packaged materials. For carpet tile products indicate nominal dimensions of tile and indicate installation direction.
.2	Store packaged materials in original containers or wrapping with manufacturer's seals and labels intact.
.3	Store carpeting and accessories in location as directed by Consultant. Store carpet and adhesive at minimum temperature of 18°C and relative humidity of maximum 65% for minimum of 48 hours before installation.
.4	Prevent damage to materials during handling and storage. Keep materials under cover and free from dampness.
.5	Store materials in area of installation for minimum period of 48 hours prior to installation.
.6	Moderate carpet: store on pallet form as supplied by Manufacturer. Do not stack pallets.
1.12	WASTE MANAGEMENT AND DISPOSAL
.1	Separate and recycle waste materials in accordance with Section 01 74 20 - Construction/Demolition Waste Management and Disposal, and with Waste Reduction Workplan.
.2	Remove from site and dispose of packaging materials at appropriate recycling facilities.
.3	Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.
.4	Vacuum used carpet before removal.
.5	Maintain possession of removed used carpet.
.6	Sort only clean, dry carpet materials for reclamation. Clean is defined as carpet free from demolition debris, asbestos contamination, garbage and tack strips.
.7	Immediately remove used carpet from site and transport to reclamation point.
.8	Carpet undercushion: provide recycling of carpet padding where locally available or as designated by carpet reclamation program.
1.13	ENVIRONMENTAL REQUIREMENTS
.1	Moisture: Ensure substrate is within moisture limits and alkalinity limits prescribed by manufacturer. Prepare moisture testing and provide report to Consultant.
.2	Temperature: Maintain ambient temperature of not less than 18 °C from 48 hours before installation to at least 48 hours after completion of work.
.3	Relative humidity: Maintain relative humidity between 10 and 65% RH for 48 hours before, during and 48 hours after installation.
.4	Safety: Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.
.5	Ventilation:
.1	Ventilate area of work by use of approved portable supply and exhaust fans.
.2	Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.
.3	Provide continuous ventilation during and after carpet application. Run ventilation system 24 hours per day during installation; provide continuous ventilation for 7 days after completion of carpet installation.
.6	Test existing floor leveling compound for presence of asbestos contamination. Notify Consultant for additional instructions where asbestos is discovered.
.7	Do not install carpet until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete.
1.14	EXTRA MATERIALS
.1	Provide extra materials of carpet, carpet base, and adhesives in accordance with Section 01 78 10 - Closeout Submittals.
.2	Provide five boxes of each patterned carpet tile and three boxes of each solid colour carpet or carpet tile.
.3	Extra materials to be from same production run as installed materials.
.4	Identify each package of carpet and each container of adhesive.

.5	Deliver to Owner and store where directed.
Part 2	Products
2.1	MANUFACTURERS
.1	Certified to Carpet and Rug Institute's and the Canadian Carpet Institute IAQ requirements.
2.2	MODULAR CARPET
.1	Material:
.1	Shaw Contract Group: Embark Tile 5T040.
.1	Procurement: CBRE FUSION Program.
.2	Patterns and colours from manufacturers range as selected.
.3	Carpet Tile Dimensions: 610 mm x 610 mm.
.4	Carpet:
.1	Certified to Carpet and Rug Institute's and the Canadian Carpet Institute's IAQ requirements.
.2	Substitutions: Not permitted.
2.3	SPECIAL REQUIREMENTS
.1	Permanent static control: to AATCC 134, 3500V maximum at 20%RH and 22°C.
.2	Anti-microbial.
.3	Stain resistant.
2.4	ACCESSORIES
.1	Adhesive:
.1	Pressure sensitive type: low VOC adhesive recommended by carpet manufacturer for direct glue down installation of modular carpet or specially backed carpets.
.1	Acceptable material: LoDots by Patcraft.
.2	Carpet protection: non-staining heavy duty kraft paper.
.3	Concrete floor sealer: to CAN/CGSB-25.20, Type 1.
.4	Subfloor patching compound: Portland cement base filler, mix with latex and water to form a cementitious paste. Products containing gypsum are not acceptable.
Part 3	Execution
3.1	SUB-FLOOR TREATMENT
.1	Inspect concrete to determine special care required to make it a suitable foundation for carpet. Fill and level cracks 3 mm wide or protrusions over 0.8 mm with appropriate and compatible latex, polymer fortified patching compound.
.2	Do not exceed manufacturer's recommendations for patch thickness.
.3	Large patch areas are to be primed with a compatible primer.
.4	Concrete substrates shall be cured, clean and dry.
.5	Concrete substrates shall be free of paint, dirt, grease, oil, curing or parting agents, and other contaminants, including sealers, that may interfere with the bonding of the adhesive.
.6	Wherever a powdery or porous concrete surface is encountered, a primer compatible with the adhesive shall be used to provide a suitable surface for glue-down installation.
3.2	PREPARATION
.1	Prepare floor surfaces in accordance with CRI Carpet Installation Standard for installation of commercial carpet.
.2	Pre-condition carpeting following manufacturer's printed instructions.
3.3	INSTALLATION
.1	Install in accordance with manufacturer's printed instructions and in accordance with Carpet and Rug Institute Carpet Installation Standard for installation of commercial carpet.
.2	Install carpet after finishing work is completed but before demountable office partitions and telephone and electrical pedestal outlets are installed.
.3	Finish installation to present smooth wearing surface free from conspicuous seams, burring and other faults.
.4	Use material from same dye lot. Ensure colour, pattern and texture match within any one visual area. Maintain constant pile direction.
.5	Adhesive seams and cross-joints at broadloom carpets. Seam edges must be sealed.
.6	Fit neatly around architectural, mechanical, electrical and telephone outlets, and furniture fittings, around perimeter of rooms into recesses, and around projections.
.7	Install carpeting to underfloor duct system and to access covers.
.8	Install carpeting in pan type floor access covers.
.9	Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
.10	Install carpet smooth and free of bubbles, puckers, and other defects.
.11	Where wall bases are scheduled, cut carpet tight to walls. Fit carpet tight to vertical interruptions, leaving no gaps. Top of base bound edge.
3.4	MODULAR CARPET
.1	Apply pressure sensitive release type adhesive and install modular carpet in accordance with manufacturer's written instructions.
.2	Lay modular carpet with butt seams, brick pattern.
.3	Roll modular carpet with appropriate roller for complete contact of carpet with mill-applied adhesive to sub-floor.
3.5	PROTECTION OF FINISHED WORK
.1	Vacuum carpets clean immediately after completion of installation. Protect traffic areas.
.2	Prohibit an carpet for a period of 24 hours until adhesive is cured.
.3	Install carpet protection to satisfaction of Consultant.
Section 09 91 99 Painting	
Part 1	General
1.1	SECTION INCLUDES
.1	Surface preparation and field application of paints and coatings.
1.2	RELATED SECTIONS
.1	Section 05 50 00 – Metal Fabrications.
.2	Section 28 05 01 - Electrical Identification.
1.3	REFERENCES
.1	Master Painters Institute (MPI)
.1	MPI Architectural Painting Specifications Manual.
.2	MPI - Maintenance Repainting Manual.
.2	Environmental Protection Agency (EPA)
.1	Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).
1.4	SUBMITTALS
.1	Submittals in accordance with Section 01 33 00 - Submittals.
.2	Product Data:
.1	Submit product data and instructions for each paint and coating product to be used.
.2	Submit product data for the use and application of paint thinner.
.3	Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
.4	Submit manufacturer's installation and application instructions.
1.5	STORAGE AND HANDLING
.1	Storage and Protection:
.1	Provide and maintain dry, temperature controlled, secure storage.
.2	Store materials and supplies away from heat generating devices.
.3	Store materials and equipment in well ventilated area within temperature as recommended by manufacturer.
1.6	SITE CONDITIONS
.1	Heating, Ventilation and Lighting:
.1	Ventilate enclosed spaces in accordance with Section 01 31 00 – Coordination.
.2	Provide minimum lighting level of 323 Lux on surfaces to be painted.
.2	Temperature, Humidity and Substrate Moisture Content Levels:
.1	Apply paint finishes when ambient air and substrate temperatures at location of installation can be satisfactorily maintained during application and drying process, within MPI and paint manufacturer's prescribed limits.
.2	Test concrete, masonry and plaster surfaces for alkalinity as required.
.3	Apply paint to adequately prepared surfaces, when moisture content is below paint manufacturer's prescribed limits.
.3	Additional application requirements:
.1	Apply paint finish in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.
.2	Apply paint in occupied facilities during silent hours only or to unoccupied rooms or areas, determined by Owner. Schedule operations to approval of the Owner such that painted surfaces will have dried and cured sufficiently before occupants are affected.
Part 2	Products
2.1	MATERIALS
.1	Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.
.2	Provide paint materials for wall systems from single manufacturer, except epoxy tile like finish and varnish finish may be from manufacturers other than the primary paint manufacturer.
.3	Conform to latest MPI requirements for all painting work including preparation and priming.
.4	Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual "Approved Product" listing.
.5	Provide product meeting MPI "Environmentally Friendly" E3 ratings based on VOC (EPA Method 24) content levels.
.6	Design materials, construction and performance specified are minimum acceptable standard of quality.
2.2	MIXING AND TINTING
.1	Perform colour tinting operations prior to delivery of paint to site, in accordance with manufacturer's written instructions. Obtain written approval from Consultant for tinting of painting materials.
.2	Use and add thinner in accordance with paint manufacturer's recommendations. Do not use kerosene or similar organic solvents to thin water-based paints.
.3	Thin paint for spraying in accordance with paint manufacturer's instructions.
.4	Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.
2.3	GLOSS/SHEEN RATINGS
.1	Paint gloss is defined as sheen rating of applied paint, in accordance with following values:
	Gloss @ 60 degrees Sheen @ 85 degrees
	Gloss Level 1 - Matte Finish (flat) Max. 5 Max. 10
	Gloss Level 2 - Velvet-Like Finish Max. 10 10 to 35
	Gloss Level 3 - Eggshell Finish 10 to 25 10 to 35
	Gloss Level 4 - Satin-Like Finish 20 to 35 min. 35
	Gloss Level 5 - Traditional Semi-Gloss Finish 35 to 70
	Gloss Level 6 - Traditional Gloss 70 to 85
	Gloss Level 7 - High Gloss Finish More than 85
.2	Gloss level ratings of painted surfaces as indicated.
2.4	INTERIOR PAINTING
.1	Concrete Vertical Surfaces:
.1	INT 3.1M/RIN 3.1L – Institutional low odour/low VOC gloss level 5 finish.
.2	Concrete Horizontal Surfaces: horizontal soffits.
.1	INT 3.1M/RIN 3.1L – Institutional low odour/low VOC gloss level 2 finish.



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1 Issued for Tender 07 Aug 2015

NO.	DESCRIPTION	DATE

PROJECT NAME:
YARDI SYSTEMS EXPANSION

516 WELLMAN CRES,
SASKATOON

PROJECT NUMBER: 15-048

DRAWING NAME:
SPECIFICATIONS

DRAWN BY: Author

CHECKED BY: Checker

A4.9

15 0 5 10 20 30 40 50 60

2.3 FABRICATION

- Provide manual shade chain drive window shade, of:
 - Tension activated lifting mechanism with multi-layer concentric constant tension.
 - Lifting mechanism with a memory tension lock.
 - Shade to not require re-tensioning after removal for cleaning.
 - Internally free-floating mechanism along grooved non-corrosive shaft, and reversible for future alterations and maintenance.
- Factory assemble in a one piece container, closed on all four sides, with top, back, sides and bottom return of plastic injected-molded end caps.
- Lifting mechanism to accommodate tension modules for maximum shade performance. Provide memory lock for tension modules to retain torque.
- Mounting detail: Between jamb wall mounted snap in mount.

Part 3

3.1 EXAMINATION

- Section 01 71 00: Verify existing conditions before starting work.
- Examine substrate and conditions for installation.
- Beginning of installation means acceptance of substrate and project conditions.

3.2 INSTALLATION

- Install units and their accessories to manufacturer's instructions.
- Securely screw end plugs to conceal exposed cut aluminum of exterior hem bar.
- Securely anchor units plumb and level, using hardware and accessories to provide smooth operation without binding.

3.3 INSTALLATION TOLERANCES

- Maximum variation of gap at window opening perimeter: 6 mm per 2.4 m (plus or minus 3 mm) of shade height.
- Maximum offset from level: 3 mm.
- Use manufacturer's edge clearance requirements for shades where the width-to-height ratio exceeds 1:3.

3.4 ADJUSTING

- Adjust units for smooth operation.
- Adjust shade and shade cloth to hang flat without waves, folds, or distortion.
- Replace any units or components which do not hang properly or operate smoothly.

3.5 CLEANING

- Section 01 74 00: Cleaning installed work.
- Touch up damaged finishes and repair minor damage in a manner to eliminate evidence of repair. Remove and replace work that cannot be satisfactorily repaired.
- Clean exposed surfaces and edges/ends, including metal and shade cloth, using non-abrasive materials and methods recommended by manufacturer. Remove and replace work which cannot be satisfactorily cleaned.

3.6 CLOSEOUT ACTIVITIES

- Demonstration: Demonstrate operation method and instruct Owner's personnel in the proper operation and maintenance of the window shade assembly.

Section 10 28 10 Toilet and Bath Accessories

Part 1 General

SECTION INCLUDES

- Toilet, bath and washroom accessories.
- Grab bars.
- Attachment hardware.

RELATED SECTIONS

- Section 06 10 00 – Rough Carpentry: In wall framing and plates, above ceiling framing for support of accessories.

REFERENCES

- American Society for Testing and Materials (ASTM)
 - ASTM A167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - ASTM B456-11e1 Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
 - ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- ASTM C1503-08 Standard Specification for Silvered Flat Glass Mirror.
- Canadian Standards Association (CSA)
 - CAN/CSA-B851-12, Accessible Design for the Built Environment, Includes Update No. 1(2007).
 - CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- Canadian General Standards Board
 - CGSB 31-GP-107MA-1990, Non-Inhibited Phosphoric Acid Base Metal Conditioner and Rust Remover.
 - CAN/CGSB 1.81-M90 CORR Air Drying and Baking Alkyd Primer for Vehicles and Equipment.
 - CAN/CGSB 1.88-92 Gloss Alkyd Enamel, Air Drying and Baking.

SHOP DRAWINGS

- Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- Indicate size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.

SAMPLES

- Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- Samples to be returned for inclusion into work.

CLOSEOUT SUBMITTALS

- Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

WASTE MANAGEMENT AND DISPOSAL

- Separate and recycle waste materials in accordance with Section 01 74 20 - Construction/Demolition Waste Management and Disposal.
- Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.

EXTRA MATERIALS

- Provide special tools required for accessing, assembly/disassembly or removal for toilet and bath accessories in accordance with requirements specified in Section 01 78 00 - Closeout Submittals.
- Deliver special tools to Consultant.

Part 2 Products

MATERIALS

- Sheet steel: to ASTM A653/A653M with ZFD01 designation zinc coating.
- Stainless steel sheet metal: to ASTM A167, Type 304, with satin finish.
- Stainless steel tubing: Type 304, commercial grade, seamless welded, 1.2 mm wall thickness.
- Fasteners: concealed screws and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use.
- Keys: locking items keyed alike.

COMPONENTS

- Toilet tissue dispenser: multi-roll type, surface mounted, stainless steel, satin finish, stainless steel dispensing system, capacity two double ply rolls, 133 mm diameter, drop down delivery.
 - Acceptable material: Bobrick B02888, Frost 165, Bradley 5402, American Specialties 20030.
- Paper towel dispenser: surface mounted stainless steel, satin finish, jumbo roll capacity.
 - Acceptable material: Frost 109-60S.
- Soap dispenser: wall mounted, stainless steel, satin finish, with clear indicator window.
 - Acceptable material: Bradley 6542.

FABRICATION

- Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.
- Wherever possible form exposed surfaces from one sheet of stock, free of joints.
- Brake form sheet metal work with 1.5 mm radius bends.
- Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
- Back paint components where contact is made with building finishes to prevent electrolysis.
- Hot dip galvanize concealed ferrous metal anchors and fastening devices to CSA G164.
- Shop assemble components and package complete with anchors and fittings.
- Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.
- Provide steel anchor plates and components for installation on studding and building framing.

2.4 FINISHES

- Chrome and nickel plating: to ASTM B456, satin finish.

2.5

- Baked enamel: condition metal by applying one coat of metal conditioner to CGSB 31-GP-107Ma, apply one coat Type 2 primer to CAN/CGSB-1.81 and bake, apply two coats Type 2 enamel to CAN/CGSB-1.88 and bake to hard, durable finish. Sand between final coats. Colour selected from standard range by Consultant.
- Manufacturer's or brand names on face of units not acceptable.

Part 3 Execution

INSTALLATION

- Install and secure accessories rigidly in place as follows:
 - Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
 - Hollow masonry units or existing plaster/drywall: use toggle bolts drilled into ceiling/wall cavity.
 - Solid masonry, marble, stone or concrete: use bolt with lead expansion sleeve set into drilled hole.
 - Toilet/shower compartments: use male/female through bolts.
- Install grab bars on built-in anchors provided by bar manufacturer.
- Use tamper proof screws/bolts for fasteners.
- Fill units with necessary supplies shortly before final acceptance of building.
- Install mirrors in accordance with manufacturer's installation instructions.

SCHEDULE

- Locate accessories where indicated.
- Toilet tissue dispenser: one at each toilet.
- Paper towel dispenser: one at each sink.
- Soap dispenser: one at each sink.

Section 12 24 00 Window Roller Shades

Part 1 General

SECTION INCLUDES

- Manual, chain-operated, horizontal window roller shades.

RELATED SECTIONS

- Section 04 27 13 – Composite Unit Masonry.
- Section 06 10 00 – Rough Carpentry.
- Section 08 44 13 – Glazed Aluminum Curtain Walls.
- Section 08 44 30 – Structural Sealant Glazed Assemblies.

SYSTEM DESCRIPTION

- Manual, chain-operated and electrically operated, horizontal window roller shades.
- Provide for infinite positioning of window shade.
- Noise reduction seals for sound isolation and absorption of mechanism noise.
- Shade Orientation: Shade cloth to roll at window side of roller.
- Degree of Openness: 5%, 0%.
- Provide for smooth and quiet operation.

SUBMITTALS FOR REVIEW

- Section 01 33 00: Submission procedures.
- Product Data: Provide manufacturer's data sheets describing components, accessories, dimensions, tolerances for window openings required, colours and textures.
- Shop Drawings: Indicate dimensions in relation to window jambs, operator details, top rail, conditions between adjacent blinds corner conditions anchorage details, hardware and accessories details, electrical operating mechanisms, connections and required clearances.
- Samples: Submit two (2) sets of 300 mm long samples of each visible-to-view component, indicating colour, surface texture and sheen.

WARRANTY

- Provide a five (5) year warranty to include coverage for failure to meet specified requirements.

Part 2 Products

MANUFACTURERS

- Hunter Douglas Canada LP, Product: Manually operated roller shades, Sheer Weave 4400 fabric.
- Substitutions: Refer to Section 01 62 00.

COMPONENTS

Horizontal Shade Band:

- Assembly: Fabric, external bottom bar, attachment of shade bands to roller tube.
- Fabric: 3% openness.
 - Yarn: 21 to 25% polyester, or 35% fibreglass, and 65 - 79% reinforced vinyl.
 - Colour: Alabaster.

Shade Roller Tube: Extruded aluminum, 32 to 50 mm diameter, with reinforced internal ribs to provide maximum span without tube deflection.

- Exterior Oval Hem Bar: tubular extruded aluminum, clear anodized finish, with recess to secure fabric, without visible seams.
- Internal Tensioner: Adjustable, to automatically control the amount of torque generated for constant smooth operation of the shade system, with automatic release during down-travel, and automatic engage during up-travel.
- Chain Drive: Heavy duty, commercial grade sprocket, a planetary gear assembly for increased performance, speed ratio, smoothness, and balance to the chain and shade assembly.
 - Operating Chain: No 10, heavy duty stainless steel or plated steel bead chain, 40 kg load test.
 - Chain Hanger: To fully secure shade to chain holder.
- Mounting Brackets: galvanized steel, snap on brackets for ceiling, wall, or recessed mount in ceiling.
- Closure Box: One piece extruded aluminum box, closed on all four sides, top, back, sides, and bottom return.
 - Closure Section: Square profile of 79 to 100 mm x 76 to 100 mm, clear anodized finish.
 - Internal groove to accommodate a self cleaning brush.
 - Gap brush on top back side of cassette to provide for a light seal.
 - Closure End Caps: ABS/Delrin plastic with four countersunk flat headed screw holes.

Part 3 Execution

GENERAL

- Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.
- Perform preparation and operations for interior painting in accordance with MPI - Architectural Painting Specifications Manual and MPI - Maintenance Repainting Manual except where specified otherwise.

EXAMINATION

- Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Consultant damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.
- Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.
- Where an assessed degree of existing surface degradation of DSD-1 to DSD-3 before preparation of surfaces for repainting is revealed to be DSD-4 after preparation, repair or replacement of such unforeseen defects discovered are to be corrected, as mutually agreed, before repainting is started.
- Where "special" repainting or recoating system applications (i.e. elastomeric coatings) or non-MPI listed products or systems are to be used, paint or coating manufacturer to provide as part of work, certification of surfaces and conditions for specific paint or coating system application.

3.3 PREPARATION

Protection

- Protect existing building surfaces and adjacent structures from paint splatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Consultant.
- Protect items that are permanently attached such as Fire Labels on doors and frames.
- Protect factory finished products and equipment.

Surface Preparation:

- Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed.
- Move and cover furniture and portable equipment as necessary to carry out painting operations. Secure as painting operations progress.
- Place "VET PAINT" signs in occupied areas as painting operations progress.

- Clean and prepare surfaces in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual specific requirements and coating manufacturer's recommendations, and detergent clean with trisodium phosphate (TSP) all surfaces prior to sanding and solvent clean metal doors and frames with Xylene or Toluene. Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.
- Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same primers as specified for exposed surfaces.
 - Apply vinyl sealer to MPI #36 over knots, pitch, sap and resinous areas.
 - Apply wood filler to nail holes and cracks.
 - Tint filler to match stains for stained woodwork.
- Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
- Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements.
- Touch up of shop primers with primer as specified.
- Do not apply paint until prepared surfaces have been accepted by Consultant.

EXISTING CONDITIONS

- Prior to commencing work, examine site conditions and existing interior substrates to be repainted. Report in writing to Construction Manager damages, defects, or unsatisfactory or unfavourable conditions or surfaces that will adversely affect this work.

3.4

- Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test" and report findings to Construction Manager. Maximum moisture content not to exceed specified limits.
- Do not commence until such adverse conditions and defects have been corrected and surfaces and conditions are acceptable to Consultant.
- Degree of surface deterioration (DSD) to be assessed using MPI Identifiers and Assessment criteria indicated in MPI Maintenance Repainting Manual. MPI DSD ratings and descriptions are as follows:

Condition	Description
DSD-0	Sound Surface (includes visual (aesthetic) defects that do not affect film's protective properties).
DSD-1	Slightly Deteriorated Surface (indicating fading; gloss reduction, slight surface contamination, minor pin holes/scratches).
DSD-2	Moderately Deteriorated Surface (small areas of peeling, flaking, slight cracking, and staining).
DSD-3	Severely Deteriorated Surface (heavy peeling, flaking, cracking, checking, scratches, scuffs, abrasion, small holes and gouges).
DSD-4	Substrate Damage (repair or replacement of surface required).

3.5 APPLICATION

- Method of application to be as approved by Consultant. Conform to manufacturer's application instructions unless specified otherwise.
- Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- Sand and dust between coats to remove visible defects.
- Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
- Finish inside of cupboards and cabinets as specified for outside surfaces.
- Finish closets and alcoves as specified for adjoining rooms.
- Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

MECHANICAL/ELECTRICAL EQUIPMENT

- Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.
- Boiler room, mechanical and electrical rooms: paint exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment.
- Other unfinished areas: leave exposed conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks.
- Touch up scratches and marks on factory painted finishes and equipment with paint as supplied by manufacturer of equipment.
- Do not paint over nameplates.
- Paint disconnect switches for fire alarm system and exit light systems in red enamel.
- Paint natural gas piping yellow.
- Paint inside of ductwork where visible behind grilles, registers and diffusers with primer and one coat of matt black paint.
- Paint fire protection piping.
- Paint both sides and edges of backboards for telephone and electrical equipment before installation. Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.
- Do not paint interior transformers and substation equipment.

3.7 SITE TOLERANCES

- Walls: no defects visible from a distance of 1000 mm at 90 degrees to surface.
- Ceilings: no defects visible from floor at 45 degrees to surface when viewed using final lighting source.
- Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area.

3.8 FIELD QUALITY CONTROL

- Inspection:
 - Advise Construction Manager when each surface and applied coating is ready for inspection. Do not proceed with subsequent coats until previous coat has been approved by Construction Manager.

3.9 CLEANING

- Proceed in accordance with Section 01 74 11 - Cleaning, supplemented as follows:
 - Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.
 - Keep work area free from unnecessary accumulation of tools, equipment, surplus materials and debris.
 - Remove combustible rubbish materials and empty paint cans and safely dispose of same in accordance with requirements of authorities having jurisdiction.
 - Clean equipment and dispose of wash water used for water borne materials, solvents used for oil based materials as well as other cleaning and protective materials (e.g. rags, drop cloths, and masking papers), paints, thinners, paint removers/stripers in accordance with safety requirements of authorities having jurisdiction and as noted herein.

3.10 RESTORATION

- Clean and re-install hardware items removed before undertaken painting operations.
- Remove protective coverings and warning signs as soon as practical after operations cease.
- Remove paint splashings on affected exposed surfaces. Remove smears and spatter immediately as operations progress, using compatible solvent.
- Protect freshly completed surfaces from paint droppings and dust to approval of Consultant. Avoid scuffing newly applied paint.
- Restore areas used for storage, cleaning, mixing and handling of paint to clean condition as approved by Consultant.

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