PART E

SPECIFICATIONS

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

E1.1 The following Drawings are applicable to the Work:

Drawing No.	Drawing
D-1	
R-1	

E2. MATERIALS – BERTRAND ARENA – ICE SHED ROOF (SHINGLE AREA)

E2.1 DIMENSIONAL LUMBER

(a) This shall be construction grade spruce of the dimensions as outlined under the Description of Work in E6.

E2.2 INSULATION FASTENERS

(a) These shall be #12 Insul-Fix screws and 3” galvanized plates as manufactured by SFS Stadler or approved equal such as manufactured by Deck Fast.

E2.3 VAPOUR BARRIER

(a) This shall be 1 ply Soprema Lastobond PG or approved equal.

E2.4 ROOFING INSULATION

(a) 2” expanded Polystyrene Type II as manufactured by Plastifab Ltd. or Insulation Industries Ltd. Maximum sheet size shall be 4’x8’.

(b) 1” Rx polyisocyanurate insulation as manufactured by Exeltherm or ISO95+ as manufactured by Firestone or approved equal. Maximum sheet size shall be 4’x8’.

E2.5 POURABLE SEALER

(a) This shall be Lexcan 2 part Pourable Sealer or approved equal. This shall be used to fill all pitch boxes or as otherwise specified.

E2.6 MODIFIED BITUMEN MEMBRANE

(a) This shall be Soprema Unilay cap sheet used with Soprema Sopralene Flam Stick base sheet, Sopralene Flam 180 base sheet and Sopralene Flam 250 Gr. cap sheet or approved equal.

E2.7 MODIFIED PRIMER

(a) Soprema Elastocol 500 primer for use with the Soprema torch grade membrane and Elastocol 700 for use with the self adhesive membranes.

E2.8 CAULKING

(a) This shall be Tremco Vulkem 931 or approved equal.

E2.9 ALUMINUM PAINT

(a) This shall be Tremco Double Duty or approved equal.

E2.10 VENT STACKS

(a) These shall be Insulated Stack Jack Flashings (with metal cap not neoprene seal) SJ-21 as manufactured by Thaler. Vent flashings shall be fully insulated with injected polyurethane insulation. Order vent flashing to match roof slope.

E2.11 METAL FLASHING

(a) The base and cap flashings shall be a minimum of 24 gauge in thickness. Chimney storm collars and skirt flashing shall be a minimum of 22 gauge. Finishes are as outlined in the specifications.

E2.12 ACCESSORIES

(a) All nails, bolts, screws and other fasteners etc. shall all be as recommended by the manufacturer of the materials for which they shall be used.

E3. ROOF AREA A1 & E1

E3.1 DIMENSIONAL LUMBER

(a) This shall be construction grade spruce of the dimensions as outlined under the Description of Work in E6.

E3.2 PLYWOOD SHEATHING

(a) This shall be ½" construction D Grade spruce plywood.

(b) This shall be 5/8" O.S.B T&G.

E3.3 POURABLE SEALER

(a) This shall be Lexcan 2 part Pourable Sealer or approved equal. This shall be used to fill all pitch boxes or as otherwise specified.

E3.4 MODIFIED BITUMEN MEMBRANE

(a) This shall be the following:

E3.5 Membrane:

(a) Soprema Colvent 810 self adhering base sheet membrane with a Sopraply Cap-560 cap sheet (heavy traffic) or approved equal.

E3.6 Stripping:

(a) Soprema Sopraflash Flam Stick self adhering base sheet with a Sopraply Cap-550 cap sheet or approved equal.

E3.7 MODIFIED PRIMER

(a) Soprema Elastocol 700 for use with the self adhesive membranes.

E3.8 CAULKING

(a) This shall be Tremco Vulkem 931 or approved equal.

E3.9 ALUMINUM PAINT

(a) This shall be Tremco Double Duty or approved equal.

E3.10 VENT STACKS

(a) These shall be Insulated Stack Jack Flashings (with metal cap not neoprene seal) SJ-20 as manufactured by Thaler.

E3.11 METAL FLASHING

(a) The base and cap flashing shall be a minimum of 24 gauge in thickness. Finishes shall be chosen from the standard in stock range of Stelco 8000 series of colors.

E3.12 ACCESSORIES

(a) All nails, bolts, screws and other fasteners etc. shall all be as recommended by the manufacturer of the materials for which they are to be used.

E4. ROOF AREA D1

E4.1 DIMENSIONAL LUMBER

(a) This shall be construction grade spruce of the dimensions as outlined under the Description of Work in E6.

E4.2 PLYWOOD SHEATHING

(a) This shall be ½" construction D Grade spruce plywood.

E4.3 DRYWALL SHEATHING

(a) This shall be ½" roof grade drywall or better.

E4.4 DRYWALL & INSULATION FASTENERS

(a) These shall be #12 Insul-Fix screws and 3" galvanized plates as manufactured by SFS Stadler or approved equal such as manufactured by Deck Fast.

E4.5 VAPOUR BARRIER

(a) This shall be 1 ply Soprema Sopravap'r or approved equal.

E4.6 ROOFING INSULATION

(a) Expanded Polystyrene Type II with a minimum slope of 1/8" per foot and a minimum thickness of 2". This shall be as manufactured by Plastifab Ltd. or Insulation Industries Ltd. Slopes shall be as per the attached Drawings.

(b) 1 ½" Soprema Colgrip polyisocyanurate insulation.

E4.7 POURABLE SEALER

(a) This shall be Lexcan 2 part Pourable Sealer or approved equal. This shall be used to fill all pitch boxes or as otherwise specified.

E4.8 MODIFIED BITUMEN MEMBRANE

This shall be the following:

(a) Membrane:

Soprema Colvent 810 self adhering base sheet membrane with a Sopraply Cap-560 cap sheet (heavy traffic) or approved equal.

(b) Stripping:

Soprema Sopraflash Flam Stick self adhering base sheet with a Sopraply Cap-550 cap sheet or approved eqal.

E4.9 MODIFIED PRIMER

(a) Soprema Elastocol 700 for use with the self adhesive membranes.

E4.10 RUBBERIZED MASTIC

(a) This shall be Polyroof as manufactured by Tremco Ltd., or approved equal. All exposed rubberized asphalt shall be coated with aluminum paint.

E4.11 CAULKING

(a) This shall be Tremco Vulkem 931 or approved equal.

E4.12 ALUMINUM PAINT

(a) This shall be Tremco Double Duty or approved equal.

E4.13 VENT STACKS

(a) These shall be Insulated Stack Jack Flashings (with metal cap not neoprene seal) SJ-20 as manufactured by Thaler.

E4.14 METAL FLASHING

(a) Flashing shall be a minimum of 24 gauge in thickness. Finishes shall be chosen from the standard in stock range of Stelco 8000 series of colors.

E4.15 ACCESSORIES

(a) All nails, bolts, screws and other fasteners etc. shall all be as recommended by the manufacturer of the materials for which they are to be used.

E4.16 ELECTRICAL – FLASHING

(a) This shall be the Flash-Tite Wire and Cable Flashing as manufactured by Lexcor.

E4.17 SPLASH PADS

(a) Splash Pads shall be 51” natural #45-41001 as manufactured by Barkman Concrete Ltd.

E4.18 METAL SIDING

(a) This shall be Behlen Wide Span Grade 33 and shall be a minimum of 24 gauge in thickness. Finish shall be selected from the standard range of the Stelco 8000+ series of colors.

E5. ROOFING PROCEDURES – BERTRAND ARENA

E5.1 Protect all new Work and the existing building and its contents against inclement weather. Supply and install equipment and enclosures necessary to provide this protection from beginning to completion of the Work.

E5.2 Do not apply any roofing whatsoever during any inclement weather including when the temperature may fall lower than 10 degrees Celsius.

E5.3 Do not expose roofing materials, vulnerable to water or sun damage, in quantities greater than can be weatherproofed in one day. Use only clean and dry materials and apply only during weather that will not introduce moisture into the roof system. This would include days of excessively high relative humidity. Undertake only that amount of roofing that can be completed as specified in the same day or prior to inclement weather forcing a shutdown of the operations.

E5.4 Apply roofing over clean and dry surfaces and in accordance to C.R.C.A. and/or manufacturers guidelines and as amended herein.

E5.5 All materials on the roof shall be stored in such a manner as to prevent blow-offs during high winds.

E5.6 Protect the surrounding surfaces against damage from the roofing operations. Where hoisting is necessary protect the buildings by hanging tarpaulins. Should equipment be parked on the surrounding lawn, it shall be protected with ¾" plywood. Materials nor debris shall be stored or stock piled on adjoining roof areas that are not being replaced.

E5.7 Provide protection for the public using walkways, grounds, entrances, etc.c by using proper warning signs, hoarding, shelters, or barricades as agreed to by the contract Administrator.

E5.8 Where Work must or will continue over the finished roofing membrane, the Contractor will protect it with plywood sheathing.

E5.9 Removal of (opening up) existing roof membrane shall be done only after consultation with and agreement by the Contract Administrator. Remove only that portion that can be fully completed as specified within the same day work period.

E5.10 Employ qualified mechanical tradesmen to disconnect existing roof top units and to move the units to allow complete installation of roofing membrane, insulation and vapour barrier as specified herein. The Contractor shall be responsible for any required alterations, such as extending ducts or electrical, as is required to properly reconnect of the units. The Contractor shall be held responsible for any damage to the mechanical units from the roofing operations. Contact the Contract Administrator prior to any disconnections.

E5.11 Contractor shall notify the Contract Administrator and ensure he has proper time to appear on Site during application period. Failure to do so may result in the rejection of all Work completed prior to notifying the Contract Administrator.

E5.12 Contractor shall inspect all roof decking prior to installation of roofing system and report all defects or unsuitable conditions to the Contract Administrator and correct deficiencies as directed.

E5.13 The Site shall be inspected prior to commencement of Work to ensure no current anomalies are present such as lawn damage, asphalt on walls, broken windows, etc. All anomalies shall be reported to the Contract Administrator. They shall then be recorded and photographed by both parties at that time. Should no anomalies be reported prior to Work commencing it shall be assumed that none existed prior to commencement.

E5.14 Use only equipment in good working order. Locate equipment as instructed by the Contract Administrator.

E5.15 All applicable safety regulations as indicated by Manitoba Health and Safety must be strictly followed at all times.

E6. DESCRIPTION OF WORK – BERTRAND ARENA – ICE SHED (ARENA ROOF)

E6.1 The existing sheet metal flashing including the perimeter fascia metal, eave trough, and all related lumber blocking shall be removed and discarded from Site to an authorized nuisance grounds.

E6.2 The existing roof assembly (shingles) shall be removed to the deck and discarded from Site to an authorized nuisance grounds.

(a) **NOTE: ALL LOADS OF DEBRIS REMOVED FROM SITE SHALL BE PROPERLY TARPED.**

E6.3 Temporarily disconnect and remove mechanical units as required to allow roofing operations to continue. Ensure all units are in working condition prior to removal. Should the unit be malfunctioning advise the Contract Administrator prior to removal. If this is not done the Contractor may be held responsible for the repair of the unit. Use only qualified mechanical trades people for these operations.

(a) **NOTE: Engineer approval shall be obtained for any increase in dead load of the new roof onto the existing structure. Engineered drawings or letter are to be submitted to the Contract Administrator for approval prior to the project start.**

E6.4 Repair all deteriorated or otherwise damaged decking. Replacement of any decking shall be done with decking of the same type and style as that being replaced.

E6.5 Install the self adhering vapour barrier in strict accordance to manufacturers guidelines. It shall be folded 1” down the outside face of the perimeter edges to allow the roof membrane to tie into it. Fold it 1” down the inside face of curb openings to allow the curb vapour barrier liner to be tied into it.

E6.6 New perimeter blocking shall be installed at this time to maintain a height of 3” above the top of the new vapour barrier so as to accommodate the new 3” of insulation being installed. This shall be done with solid 2x4 spruce blocking. Leave temporary drain openings in the perimeter blocking.

E6.7 Fabricate and install new curbs for all chimneys, ventilators and other roof top equipment. This shall include the construction of new curbs for units or chimneys that do not currently have curbs in place. The lowest point of the curbs shall be a minimum of 8” above the top of the roof. Curbs shall be fabricated from solid lumber blocking set on edge. The inside of the curbs shall be lined with vapour barrier. Wrap the vapour barrier onto the top of the curbs and nail in place to prevent slippage. Prime all blocking prior to installation of self adhering membrane. This is to tie into the roof vapour barrier.

E6.8 A bead of mastic shall be applied around the base of all plumbing stacks so as to ensure a continuous seal to the vapour barrier. This shall be done at both the vapour barrier level and at the membrane. Install new riser extensions as required on any plumbing vents on the arena roof. The riser shall be securely clamped to the existing plumbing with a Fernco Coupler.

E6.9 Loose lay the 2” expanded polystyrene insulation overtop of the vapour barrier. Stagger the rows of insulation from one another.

E6.10 Loose lay the base layer of 1" polyisocyanurate insulation over the 2" insulation. Stagger the rows of insulation from one another. Offset this layer from the first layer.

E6.11 The minimum fastening required for insulation is a minimum of 5 screws and plates per 4'x4' sheet of insulation. The perimeter edges shall have the number of fasteners increased by 50% and the outside corners are to be increased by 75%. The perimeter edge distance is defined as the lesser of:

(a) 10% of the building width or,

(b) 40% of the eave height, with a minimum of 4'.

E6.12 Install a width of Sopralene Flam Stick along the eave of the roof and around all curbed openings. The underlying substrate is to be fully coated with the specified primer. The membrane shall extend a minimum of 18" onto the insulation surface. Carry the membrane to the bottom edge of the roof decking. Carry it up and onto the top of all curbs. Burn the poly film off all outside corners and apply corner gussets.

E6.13 Install a drip edge flashing along the perimeter edges of the roof. The flashing shall be secured in place with 2 rows of nails. The nails in each row shall be no more than 6" on centre and the two rows shall be offset from one another. Standard roofing nails shall be used. Seal the edge of the flashing with a 12" width of Sopralene Flam 180 base sheet membrane stripping.

E6.14 Set the base flanges of the Thaler Stackjacks in a bed of Soprocol Mastic and seal in with a single ply Sopralene Flam Stick. The ABS riser shall extend 1" above the top of the base. Insulate the area between the riser and the Stack Jack housing with batt insulation. A bead of sealant shall then be applied to the top lip of the riser and the top cap installed.

E6.15 Install the Unilay membrane in strict accordance to manufacturers guidelines. Secure to meet a 90 m.p.h. wind uplift. Torch adhere the side laps of the membrane as well as torch adhere the membrane to all underlying base sheet at curbs, walls, and perimeter edges of the roof and other roof projections.

E6.16 Torch apply the cap sheet stripping in strict accordance to the manufacturers guidelines. The stripping shall be terminated on the top of all curbs. The membrane shall be carried to the outside edge of roof edge drip flashing.

E6.17 Install the new flashing on all curbs, sleepers, parapets, and other items requiring metal flashing. This is to include for new storm collars and skirts for all chimneys. The edges of the skirt shall fold a minimum of 1" down the outside face of the curbs. Do not reinstall the existing chimney straps.

E6.18 Reinstall all roof top units. Extend all duct work, gas lines, and electrical as required to allow proper installation.

E6.19 Fabricate and install new eave trough and fascia fabricated from the specified sheet metal. The trough shall be a minimum of 6"x6". Install water deflectors at all beams to replace the existing deflectors. A sample length of trough and sample deflector shall be installed for approval by the Contract Administrator prior to all being installed. The trough shall be secured in place with 14 gauge aluminum straps spaced at 18" on centre. These are as supplied by Wilton Aluminum or approved equal. Install new scupper hoppers fabricated as detailed. Install in locations to be determined on Site by the Contract Administrator. Sheet metal down pipes shall be sized to accommodate the structural steel bottom sections as detailed.

E7. ROOF AREA A1 & E1

E7.1 The existing sheet metal flashing shall be removed and discarded from Site to an authorized nuisance grounds.

E7.2 The existing roof assembly including any lumber cant strip, shall be removed to the deck and discarded from Site to an authorized nuisance grounds.

(a) **NOTE: ALL LOADS OF DEBRIS REMOVED FROM SITE SHALL BE PROPERLY TARPED**

E7.3 Install the ½" plywood on the inside face and on top of all parapets as well as up the elevation change to the sloped roof. Securely fasten in place with 1 ½" x #8 deck screws. Install 5/8" T&G O.S.B. smooth side up over the existing deck and secure in place with 24-1 ½ x #8 deck screws per sheet.

E7.4 Adhere the modified bitumen base sheet to the deck. All application shall be as per Soprema guidelines. Mechanically fasten the perimeter edges and around all curbs using 2" Soprema plates and screws. The membrane stripping is to cover all plates.

E7.5 Install the self adhering modified bitumen base sheet stripping in strict accordance to manufacturers guidelines. All blocking shall first be coated with the appropriate primer. The stripping shall be terminated 1" down the outside face of the parapets and 12" up the adjoining walls. Corner gussets shall be installed on all inside and outside corners.

E7.6 Set the base flanges of the Thaler Stackjacks in a bed of mastic. Seal in with a single ply of torch applied base sheet membrane. The ABS riser shall extend ½" above the top of the base and a bead of sealant shall then be applied to the top lip of the riser and the top cap installed.

E7.7 Install new scupper hoppers fabricated as detailed. Install in locations to be determined on Site by the Contract Administrator. Sheet metal down pipes shall be sized to accommodate the structural steel bottom sections as detailed.

E7.8 Torch adhere the cap sheet to the base sheet once again ensuring no wrinkles are present and that a minimum of 1/8" asphalt flow is present along the edges of all laps. Excessive seepage is not acceptable.

E7.9 Torch apply the cap sheet stripping in strict accordance to the manufacturers guidelines. The stripping shall be carried to the outside face of the parapets and 12" up the chimney.

E7.10 Install the new cap flashing on all parapets in a manner as the enclosed details. Install a new chimney skirt flashing and storm collar.

E8. ROOF AREA D1

E8.1 The existing sheet metal flashing shall be removed and discarded from Site to an authorized nuisance grounds.

E8.2 The existing roof assembly including perimeter blocking shall be removed to the deck and discarded from Site to an authorized nuisance grounds. Any existing concrete block parapets with solid lumber blocking on top shall have additional lumber blocking installed on top to ensure a minimum height of 6" above the top of the new roofing.

E8.3 ALL loose vapour barrier shall be scraped from the deck and also discarded as above. The roof deck shall then be swept clean of all dirt and debris.

(a) **NOTE: ALL LOADS OF DEBRIS REMOVED FROM SITE SHALL BE PROPERLY TARPED**

E8.4 Install the ½" drywall using 20 deck screws per 4'x8' sheet. Install an 8" width of ½" plywood around the perimeter edges.

E8.5 Install the self adhering vapour barrier to the drywall substrate. Carry the vapour barrier to the outside face of the exterior walls. Carry the vapour barrier up all sleepers and curbs to ensure that the roof membrane will tie in to create an envelope.

E8.6 New parapets shall be constructed using 2x8 studs and plates with ½" plywood on both sides. The pony wall shall be fully insulated with batt insulation. The vapour barrier shall extend to the outside edge of the building. The parapets shall be securely fastened in place with 3" #12 wood screws at 16" on centre. The new parapets shall be installed flush with the outside face of the existing walls. Shim as required to provide continuous support on top of any masonry. The parapets shall be installed level vertically. The new parapets shall be a minimum of 6" above the top of the new roofing. (all parapets shall be of the same height) The new divider shall be fabricated from 2x6 lumber.

E8.7 Raise all curbs and sleepers with lumber of the same width as is currently in place to ensure they are a minimum of 8" above the top of the new roofing.

E8.8 Install plywood sheeting along the base of the adjoining south high wall. The sheeting shall extend 12" above the top of the new roofing. Install building wrap such as Tyvek over the wall in its entirety. Seal all laps with Tuck Tape. Extend any wall ducting as required to accommodate the new wall system. Install ½" x 1 ½" z bars horizontally across the adjoining south wall. Space at 48" on centre up the height of the wall. New siding complete with all applicable drip and other flashing shall then be installed upon completion of the installation of the new roofing. Siding is to be terminated about 8" to 10" up from the roof. The siding, Tyvek and z-bars shall be installed on the entire wall adjacent to areas C1 and D1.

E8.9 Loose lay the later of sloped foam insulation.

E8.10 Loose lay the Colgrip insulation. Offset the layers from one another.

E8.11 Mechanically fasten the insulation. This shall be a minimum of 5 screws and plates per 4'x4' sheet of insulation. The perimeter edges shall have the number of fasteners increased by 50% and the outside corners shall be increased by 75%. The perimeter edge distance is defined as the lesser of:

(a) 10% of the building width or,

(b) 40% of the eave height, with a minimum of 4'.

E8.12 Adhere the modified bitumen base sheet to the insulation. Ensure no wrinkles are present and that all side and end laps are properly sealed. Install screws and plates spaced 12" on centre around the perimeter edge of the roof as well as 12" on centre around all curbed openings, sleepers and other such projections. The membrane stripping is to cover all plates.

E8.13 Install the self adhering modified bitumen base sheet stripping in strict accordance to manufacturers guidelines. All blocking shall first be coated with the appropriate primer. The stripping shall be terminated 1" down the outside face of the parapets and 12" up the adjoining walls. Corner gussets shall be installed on all inside and outside corners.

E8.14 Install new scupper hoppers fabricated as detailed. Install in locations to be determined on Site by the Contract Administrator. Sheet metal down pipes shall be sized to accommodate the structural steel bottom sections as detailed.

E8.15 Set the base flanges of the Thaler Stackjacks in a bed of mastic. Seal in with a single ply of base sheet membrane. Burn the poly film off underlying membrane. The ABS riser shall extend ½" above the top of the base and a bead of sealant is to then be applied to the top lip of the riser and the top cap installed.

E8.16 Torch adhere the cap sheet to the base sheet once again ensuring no wrinkles are present and that a minimum of 1/8" asphalt flow is present along the edges of all laps. Excessive seepage is not acceptable.

E8.17 Torch apply the cap sheet stripping in strict accordance to the manufacturers guidelines. The stripping shall be carried to the outside face of the parapets and up and over all sleepers.

E8.18 Install the new cap flashing and metal siding on all parapets in a manner as the enclosed details. Install new cap flashing on all sleepers. Install a sheet metal hood to shed water off the chiller pipe chase.

E8.19 Reconnect and insulate all ducts. Coat with an appropriate fibrated emulsion. Coat all surfaces with aluminum paint.

E8.20 All vent curbs shall be filled with spray in place polyurethane foam insulation. The insulation shall be installed to the top of the curb so as to drain moisture out.

E8.21 Reinstall all roof top units. Extend all duct work, gas lines, and electrical as required to allow proper installation.