



Addendum # 2
**Bid Opportunity: 23-7360-RFT - Crestview Public
School Library, Gym, and Vestibules Renovation.
New Universal Washroom & Room Renumbering**
Closing Date: Friday, March 31, 2023, 2:00 PM

Question 1:

Please provide a specification for aluminum doors and windows.

Answer 1:

Refer to Specifications 08400 attached with this Addendum.

Question 2:

Please provide a specification for door hardware and automatic door operators.

Answer 2:

Refer to Specifications 08715 attached with this Addendum.

Question 3

Floor sockets (11500) - please provide quantity.

Answer 3:

14 sockets. Refer to the attached drawings "Crestview PS – Gym Layout" for additional information.

Question 4:

Removable and permanent wall padding are specified but types are not shown on plans.

Answer 4:

All required padding for this project will only be removable wall padding. No permanent wall padding will be required.

AMMENDMENT TO ARCHITECTURAL DRAWINGS

IN ARCHTECTORAL DRAWINGS where "Floor Plan Notes" is shown delete the following note:

"- PROVIDE NEW CONCRETE SLAB IN BOTH IN ENTIRE AREA OF WORK WITH GRANULAR BASE AND THICKENED SLAB WHERE NEW CONCRETE BLOCK WALLS WILL BE LOCATED."

And replace with:

- PROVIDE NEW CONCRETE SLAB WHERE EXISTING CONCRETE SLAB IS DISTURBED DUE TO DEMOLITION AND INSTALLATION OF NEW PIPING.
- ADD THICKENED SLAB WHERE NEW CONCRETE BLOCK WALLS WILL BE LOCATED. REFER TO STRUCTURAL DETAIL.

ADD to the Drawing Tender Set the PDF CRESTVIEW PS – GYM FLOOR LAYOUT attached to this Addendum for additional information on the Gym lines, sockets and finishes.

AMENDMENT TO ADDENDUM 1

SECTION 00 21 13 INSTRUCTIONS TO BIDDERS

Item 7: Anticipated Project Schedule. Tender Timetable

Closing Date and Time ...CHANGE CLOSING DATE for the Tender Form from March 30th to **March 31st 2023**. The time of closing remains 2:00:00 pm.

The new tender closing date is March 31st at 2:00 pm.

AMENDMENT TO ARCHITECTURAL SPECIFICATIONS

SECTION 11500 Athletic Equipment, ITEM 2 PRODUCTS, Sentence 2.1.4 ...

DELETE "PERMANENT WALL PADDING..." and all its references from the Specifications.

ADD SECTION 12522 Manually Operated and Motorized Rolling Shades attached to this Addendum to the Specification Set.

ADD Section 08400 Aluminum Entrance and Doors attached to this Addendum to the Specification Set.

ADD SECTION 08520 Aluminum Windows attached to this Addendum to the Specification Set.

ADD SECTION 08900 Aluminum Curtain Wall attached to this Addendum to the Specification Set.

END OF ADDENDUM 2

GENERAL

1. GENERAL REQUIREMENTS

1. Division One, General Requirements, is part of this Section and shall apply as if repeated here.

2. QUALIFICATIONS

1. Manufacturers approved for the work of this section are:
 1. Commdoor Aluminum
 2. Kawneer Company, Canada Limited.
 3. Alumicor
 4. Aerloc
 5. Old Castle Building Enelope
2. No other manufacturer or supplier, except those noted above, shall be used unless approved in writing by the Architect. Submit technical information not less than seven (7) days prior to tender closing to allow time to evaluate.
3. **It is the responsibility of the approved manufacturers to *meet or exceed and submit OBC SB-10 Energy Efficiency Compatibility Results.***

Note: The above mentioned submittal is to incorporate the specified sealed glazing unit and each opening component as a whole before the shop drawings are accepted or before any shop drawings are reviewed.

3. SHOP DRAWINGS

1. Submit shop drawings in accordance with Section 01300 – Submittals.
2. Submit shop drawings for the fabrication and installation of associated components of the work. Indicate anchors, joint system, expansion provisions, hardware, and other components not included in manufacturer's standard data. Include glazing details (where required).
3. Before shop drawings and fabrication are started, take critical measurements at the site to facilitate installation and fitting of work.
4. **Shop drawings that are submitted are to be in the units of the tendered drawings with critical on center mullion dimensions (dimension string from datum level to top of opening noting center of mullions) noted along with**

all other regular shop drawing dimensions, no exceptions. Both units (metric and imperial) are allowed. Openings are to be identified with the corresponding tags on the tendered drawings. (Coordinate with typical A8 drawing notes)

4. SUBMITTALS

1. Submit samples of sections and finishes for Architect's approval before fabrication.
2. Furnish templates, diagrams, and other data to fabricators and installers of related work, as needed for coordination installation.
3. Coordinate with Electrical Sections, Section 08700 - Finishing Hardware and security subcontractor for any electrical provisions required.

5. DESIGN

1. Design for wind and snow loads as set out by the Ontario Building Code, 2012 as currently amended for the building location. Copies of any and all structural calculations made in connection with the supplementary design and/or detailing of the work of this section shall be promptly furnished to the Architect if requested.
2. Submit with shop drawings certification that window and entrance design and construction will meet the specified requirements. Certification shall be in the form of test reports on similar units performed by an independent testing laboratory and shall meet approval of Architect before fabrication commences.

6. WARRANTY

1. The work and materials of this section shall be under warranty in accordance with CCDC Document 2 - 2020 but for a period of five years and ten (10) years for hermetically sealed units from the date of Architect's Certificate of Substantial Completion.

2. PRODUCTS

1. MATERIALS

1. Aluminum: Extruded Members: 6063-T54 alloy and temper.

2. Fasteners, Screws & Bolts: 300 Stainless Steel or 400 series stainless steel cadmium plated and of sufficient size and quantity to perform their intended function.
 3. Glazing Tape: Tremco 440 tape with built-in shim and as recommended by window manufacturer.
 4. Weathering and Glazing Gaskets: Extruded black closed cell or dense elastomer of durometer appropriate to the functions.
 5. Spacer Shims: oil resistant rubber or plastic acceptable to glass manufacturer, channel shaped and approximately 4" long (100 mm).
 6. Silicone Sealant: Dow Corning #795 or as per manufacturers recommendations exceeding CAN2-19.13-M82 Class 40 requirements.
 7. Isolating Coating: Black alkali resistant bitumastic enamel.
 8. Spray-On Insulation: Supply and install by this section as per Section 07215 – Spray-on Insulation.
 9. Miscellaneous: Supply all covers, copings, special flashings, filler pieces, termination pieces, caps closures and expansion joint covers as required and as indicated on drawings.
 10. Glass for Aluminum Doors: as per 08800 Glass and Glazing Section.
 11. Glass for Exterior Aluminum Entrance Framing: as per Section 08800 - Glass and Glazing.
 12. Glass for Interior Aluminum Screens: as per Section 08800 - Glass and Glazing.
2. FABRICATION
1. General
 1. Construct aluminum assemblies of extruded sections to size and profile shown on Drawings.
 2. Build units square, true, accurate to size, free from distortions, waves, twists, buckles or other defects detrimental to performance or appearance.

3. Units too large for handling or shipping shall be prefabricated in shop, disassembled and marked for shipping and field assembly.
4. Use concealed fastenings. No exposed screws shall show in the finished work unless approved by the Architect. Such screws shall be countersunk and finish match surfaces in which they occur.
5. Joints shall be accurately cut and fitted to result in a tightly closed joint.

3. DOORS, ENTRANCE SCREENS, EXTERIOR WINDOWS INTERIOR SCREENS

1. Frames

1. "Kawneer Trifab 451UT, Center, Interior Glazed" thermally broken framing at exterior windows and exterior entrance screens where the door system is stand alone.
2. "Kawneer Trifab 451, Center, Interior Glazed" framing at interior entrance screens where the door system is stand alone. Refer to drawings for locations required
3. For products listed above, coordinate with manufacturer and drawings for side light base heights (dimension to match doors) with associated aluminum sill flashing, metal liner, insulation and aluminum panels where indicated on drawings.

2. Conform to CAN3-A440-M90 performance standards Air Leakage to meet the Fixed rating, and Type A3, Water Leakage Type B5 and Wind Resistance Type C7.

3. Doors

1. Exterior entrance / vestibule doors to be insulated **"Kawneer 560 InsulClad"** with insulated double glazing. Clear anodized finish. (Coordinate with door schedules on Drawings)

2. Interior entrance / vestibule doors to be **“Kawneer 500 Wide Stile”** typical with single tempered glazing. Clear anodized finish. (Coordinate with door schedules on Drawings)
 3. Interior entrance to library door to be **“Kawneer 190 Narrow Stile”**. Clear anodized finish. (Coordinate with door schedule on Drawings).
 3. Interior screen doors to be coordinated with screen schedules and associated door type schedules.
 3. Coordinate with door schedules for heads and stiles sizing and base height. Adjacent screens / curtain wall bases to be 100mm base height typical.
 4. Provide concealed rod exit device at all full glazed doors that require panic devices, coordinate with door schedules for sizing.
 5. The core shall be foamed-in-place urethane foam at density of 5.0 lb./cu.ft. (64 kg.m³). Provide insulated aluminum panel where indicated on drawings.
 6. Stiles shall have a wall thickness of .125". (3.2 mm). Glazing mouldings shall be .050" thick (12.7 mm).
 7. Use snap-in type square glazing stops with neoprene bulb type glazing. Do not use exposed screws to secure stops. Use lock-in, tamperproof type stops.
 8. Equip door leaf with an adjustable mechanism in top rail near the lock stile, to provide for minor clearance adjustments after installation.
4. Door Hardware
1. Equip all aluminum doors with continuous weather stripping with adjustable weather stripping at the base; and thresholds, max. ½" (12.7mm)ht.. Closer cover to match door finish colour.
 2. Equip all aluminum doors with full height (continuous) heavy-duty stainless steel hinge.

3. All other hardware including concealed closers, exposed closers, locksets, exit device, push/pulls, overhead stops, handicap automatic door openers to be supplied under Hardware Allowance Section 08700 – Finishing Hardware and installed under Section 06200 – Finish Carpentry.

5. Finish

1. Prepare and fabricate components as required before finishing.
2. Finish to be Black anodized typical.
3. Metals other than aluminum shall match colour finishes.

6. Closures, Flashings and Miscellaneous Covers

1. Provide .125" (3 mm) thick aluminum closures and caps where required.

7. Operating Vents:

1. Hinged awning style limited opening to max. 4" (100mm). Provide 1 pair of heavy duty Anderburg or Senator friction arms at all openings & 2 pair where opening is 500mm & wider. Polished US - #4 cam handle (for operation locate handle so that screen does not need to be removed to operate the vent). Finish to be black anodized typical and duranar colour where indicated on drawings.

8. Insect Screens:

1. Sized to match operator. Glass fibre mesh in aluminum frame with extruded polymer removable spline.

3. EXECUTION

1. INSTALLATION

1. Secure work adequately and accurately to the structure in required position and in manner not restricting thermal movement. Work shall be plumb, square and level, free of twist, warp or other superimposed loads. Provide shims as required.
2. All metal to metal joints shall be sealed to provide a weathertight assembly in accordance with manufacturer's instructions.

3. Use concealed fixings where possible, where not possible use flat head screws in countersunk holes. Exposed bolt or nut heads not permitted. Match exposed fastenings with surfaces on which they occur.
4. Isolate all aluminum coming in contact with unlike materials with heavy shop coating of black alkali resistant bitumastic enamel to prevent electrolytic or chemical reaction.
5. Fill voids between aluminum extrusions and wall surfaces at exterior doors and entrance framing with foam spray applied insulation where required to prevent movement or infiltration of air. Supply and install spray-on insulation as per Section 07215 – Spray-on Insulation.
6. Supply and install all caps and closures where required to create a complete installation and as indicated on the Drawings.

2. CAULKING

1. Caulking between aluminum and aluminum; aluminum and glass to conform to this section. Caulking to perimeter drywall masonry and concrete all by this section as per Section 07900 – Sealants.
2. Caulking by this Section shall be installed as per Section 07900 – Sealants.

3. GLAZING

1. Glaze windows in accordance with CAN3-A440-M90.
2. Set glazing tape against permanent stops, allow 1/8" for cap bead, set horizontal strips first using full width pieces of tape, then set vertical pieces. Butt tape at corners, do not lap tape or run continuous at corners.
3. Set glass on setting blocks, number as recommended by glass manufacturer. Set glass with draw lines horizontal.
4. Apply heel bead on interior, using sealant. Place spacer shims, set glazing tape against glass and install stops.
5. Apply cap bead to fill void on exterior. Tool sealant with a slight bevel, sloped away from the glass to create a water shed.
6. Mark each light with a large white cross to indicate the presence of glass.
7. Replace under this section defective, damaged or broken glass due to

faulty setting, handling or storage.

8. Neoprene bulb type glazing in accordance with manufacturer's instructions.

4. ADJUST AND CLEAN

1. Adjust all hinges, closers and weather stripping for optimum condition. Lubricate operating equipment.
2. Clean surfaces promptly after installation, exercising care to avoid damage of the protective coating (if any).
3. Advise the contractor of protective treatment and other precautions required through the remainder of the construction period, to ensure that doors will be without damage or deterioration (other than normal weathering) at the time of acceptance.
4. Aluminum shall be isolated from concrete, mortar, plaster and dissimilar metal with bituminous paint. Windows shall be protected from other building materials during and after insulation until acceptance by the General Contractor. Thereafter, it shall be the responsibility of the General Contractor to maintain protection and provide final cleaning.

END OF SECTION

PART 1 GENERAL

1. GENERAL REQUIREMENTS

1. Division One, General Requirements, is part of this Section and shall apply as if repeated here.

QUALIFICATIONS

2. Manufacturers approved for the work of this Section are:
 1. Kawneer Company Limited, Canada
 2. Alumaticor
3. Only those manufacturers listed above shall be used.
4. It is the responsibility of the approved manufacturers to meet or exceed and submit OBC SB-10 Energy Efficiency Compatibility Results.

Note: The above-mentioned submittal is to incorporate the specified sealed glazing unit and each opening component as a whole before the shop drawings are accepted or before any shop drawings are reviewed.

2. SHOP DRAWINGS

1. Submit shop drawings in electronic PDF format in accordance with GC 3.10 of CCDC Document 2- 2008.
2. Submit shop drawings for the fabrication and installation of associated components of the work. Indicate anchors, joint system, expansion provisions, hardware, and other components not included in manufacturer's standard data. Include glazing details (where required).
3. Before shop drawings and fabrication are started, take critical measurements at the site to facilitate installation and fitting of work.
4. Note that shop drawings for translucent glazing units to be part of this section.
5. Submit with shop drawings certification that window design and construction will meet the specified requirements. Certification shall be in the form of test reports on similar units performed by an independent testing laboratory and shall meet approval of Architect before fabrication commences.
6. Shop drawings that are submitted are to be in the units of the tendered drawings with critical on centre mullion dimensions (dimension string from

datum level to top of opening noting centre of mullions) noted along with all other regular shop drawing dimensions, no exceptions. Both units (metric and imperial) are allowed. Openings are to be identified with the corresponding tags on the tendered drawings.
(Coordinate with typical A8 drawing notes)

3. SUBMITTALS

1. Submit samples of window, glazing, fasteners, caulking and finishes / colours for Architect's approval before fabrication.
2. Furnish templates, diagrams, and other data to fabricators and installers of related work, as needed for coordination installation.
3. Coordinate with Division 16, Section 08700 Finish Hardware and security subcontractor for any electrical provisions required.

4. WARRANTY

1. The work and materials of this Section shall be under Warranty in accordance with GC 12.3 of CCDC Document 2 - 2008 but for a period of five (5) years from the date of Architect's Certificate of Substantial Completion. Hermetically sealed glazing units shall be guaranteed for a period of ten (10) years.
2. Warranty shall include: Warranty against excessive colour changes or surface deterioration of aluminum finishes; complete weather tightness of the curtain wall and aluminum panel system against unreasonable intensity and frequency, or both, of sound by the curtain wall and aluminum panel system installation or its anchorage system or loosening or deforming of any members of the installation.

5. PROTECTION

1. Mark each light with a large cross to indicate presence of glass (colour that stands out to the visible eye). Use material that will leave no residue after removal.
2. Replace under the work of this section defective, damaged, or broken glass due to fault setting, handling or storage.

6. OPERATION AND MAINTENANCE DATA

1. Upon completion of installation, supply standard parts service kit and service manual. Arrange with, and demonstrate to building maintenance staff window operation, sash removal, cleaning, re-glazing, and general maintenance procedures.

7. DESIGN

1. Conform to latest issue of CAN/CSA-A440 performance standards Air Leakage-Type A3, Water Leakage Type B7, Wind Resistance-Type C5 and a Condensation Resistance Factor - I factor 67.
2. Design for wind and snow loads as set out by the Ontario Building Code, 2012, as currently amended, for the building location. Copies of any and all structural calculations made in connection with the supplementary design and/or detailing of the work of this section shall be promptly furnished to the Architect if requested.
3. Supply all connections, brackets, angles and fasteners to tie curtain wall to main structure, floors, columns and beams.
4. Supply all covers, copings, special flashings, filler pieces, termination pieces, caps closures, expansion joint covers and metal bellows, as required and as indicated on drawings including interior side where indicated on drawing.

8. STANDARDS

1. **Kawneer AA5450** Thermally Broken, aluminum framed, mechanically operating, single hung window system.
 1. Sash Operation: Bottom lite, vertical slide up, fixed top lite.
 2. Sash hardware:
 - (a) Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, or other corrosion-resistant material compatible with aluminum; designed to smoothly operate, tightly close, and securely lock aluminum windows, and sized to accommodate sash weight and dimensions.
 - (b) Handle: continuous integral bottom sash lift handle.
 - (c) Sash Lock: sweep lock and keeper on meeting rails. One or two per sash as required by size. Brushed nickel finish
 - (d) Limit Device: Sash stop limit device; for bottom sash located at jamb; two per sash. Limit maximum opening to 100mm (4").
 - (e) Insect Screening Mesh: extruded aluminum frames containing 14 x 18 mesh aluminum screen cloth, retained in place by turn clip type fixings. Provide insect screens for all operable sashes. Screen mounting shall be exterior.
 3. Aluminum Insulated Spandrel Panels:
 - (a) Aluminum sheet panels and copings:
 - (1) Minimum wall thickness: 3 mm (0.125").
 - (2) Surface flatness: 0.38 mm (0.015") maximum deviation

when measured with 150 mm (6") rule.

(3) Squareness: 0.05 mm (0.002") maximum for each 25.4 mm (1") of length at panel edge.

(4) Finish: Anodized aluminum to match window frame

(b) Sheet metal backpans and air barriers: 0.91 mm (0.036") (20 gauge) thickness, galvanized sheet steel to ASTM A653/A653M-11, Designation G90/Z275.

(1) Fasteners: Corrosion resistant, zinc plated, covered and sealed to sheet metal with silicone sealant.

(c) Insulation attachment: Galvanized stick-pins, welded to sheet metal backpans, located at maximum spacing of 300 mm (12") o/c and within 150 mm (6") from edge of insulation boards. Seal welds with 1 coat zinc-rich coating.

(d) Insulation: ASTM C612-10, Type IVB, non-combustible to CAN/ULC-S114-05, 5 kPa compressive strength at 10% compression.

(1) Acceptable Products:

(i) Owens Corning 'Fiberglas Type 703'.

(ii) Johns Manville 'MinWool Curtainwall'.

(iii) Roxul 'CurtainRock'.

PART 2 PRODUCTS

1. MATERIALS

1. Aluminum: Extruded aluminum alloy members 6063 T5 alloy, minimum 1.6 mm (0.62") thick. Sheet which is not to be exposed shall be Utility Grade.
2. Aluminum Flashing: Supply 0.125" (3.2 mm) thick aluminum to profiles as indicated on drawings.
3. Aluminum Sills: Model #451T-037 aluminum sills shall be complete with Kawneer typical sill anchors, joint covers, match Kawneer 526-008, chairs, anchoring devices and jamb drip deflectors. Extruded sills to have profile with minimum 1/8" (3 mm) thickness and depth of sill as required. Sills shall be in longest possible lengths, joints only at mullions.

NOTE: Aluminum sills to be provided at bottom of all windows and curtain wall locations as detailed.

4. Vision Glass: as per 08800 Glass and Glazing Section.
5. Glazing Tape: Tremco 440 tape with built in shim as recommended by manufacturer, colour selected by Architect.
6. Spacer Shim: oil resistant rubber or plastic acceptable to glass

manufacturer, channel shaped and each approximately 4" (100 mm) long.

7. Thermal Break: virgin polyvinyl chloride.
8. Isolating Coating: Black alkali resistant bitumastic enamel.
9. Sealant Bond Breaker: Open cell foam backer rod sized to suit.
10. Silicone Sealant: Dow Corning #795 or as per manufacturer's recommendations exceeding CAN2-19.13-M87 Class 40 requirements. Min 2 colours as selected by Architect.
11. Sealant at Perimeter Masonry Openings: 3-part Tremco Dymeric 240 sealant in accordance with Caulking - Section 07900 (Type A sealant). Minimum 2 colours as selected by Architect.
12. Fasteners, Screws and Bolts: Stainless steel 300 Series or stainless steel 400 Series cadmium plated of sufficient size and quality to perform their intended function.
13. All other materials shall conform to NAAMM Standard SW-1-68T.

9. FABRICATION

1. General

1. Construct aluminum assemblies of extruded section to size and profile shown on drawings.
2. Build units, square, true, accurate to size, free from distortions, waves, twists, buckles or other defects detrimental to performance or appearance.
3. Units too large for handling or shipping shall be prefabricated in factory, disassembled and marked for shipping and field assembly.
4. Use concealed fastenings. No exposed screws shall show in the finished work where finished product is exposed to view, unless approved by the Architect. Such screws shall be countersunk and finished to match surfaces in which they occur.
5. Fabricate windows as follows:
 1. Cope and butt all joints in main frame, neatly in weather tight manner and secure by means of screws anchored into integral screw ports.

2. Deburr and make smooth all sharp milled edges and corners of frames.
3. Provide sill members with minimum 7 degree slope. Aluminum sills shall be complete with required anchors, joint covers, and drip deflectors. Extruded sill to profile shown in longest possible lengths. Provide upturn drip - deflectors at ends of sill.
4. Provide sill weep system which will facilitate drainage of water accumulating in sill area while preventing passage of air, dirt and insects to interior.
5. Fabricate and anchor frames using specific screw fasteners without violating the thermal break. Exposed fasteners or pop rivets are not acceptable.
6. Fabricate entire window in a manner that will allow easy replacement of any defective, damaged or worn components, hardware or weather stripping.
7. Fabricate windows so that the aluminum head and sill members are continuous for the entire length of the frame and extend over and beneath the jamb members.

2. Finish

1. All to be clear anodized finish (Kawneer #17 finish).

PART 3 EXECUTION

1. INSTALLATION

1. Install work in accordance with manufacturer's recommendations and with standards specified herein.
2. Work shall include all fixings, clips stiffeners, trim pieces, sills condensation gutter, etc., as required for a complete installation.
3. Install windows plumb, level and true relative to building structure. Do not exceed 1/8" (3 mm) in 10'-0" (3050 mm) variation from plumb and level.
4. Provide all required expansion joints.
5. Isolation: isolate all aluminum coming in contact with other metals, masonry or concrete with heavy shop coating of black alkali resistant bitumastic paint.
6. All fixings shall be concealed.

7. Wood shall not be used for shimming or blocking.
8. Fill voids in aluminum extrusions and between masonry surfaces at all perimeters with foam spray applied insulation as specified in Section 07215 to prevent movement or infiltration of air.

2. CAULKING

1. Work shall include caulking at all joints between aluminum frame members. All perimeter window caulking to surrounding finishes to conform to Section 07900 and be installed by this Section 08520.
2. Caulk in accordance with materials and procedures as Section 07900.

3. GLAZING

1. Set glazing tape against permanent stops, allow 4 mm for heel bead, set horizontal strips first using full width pieces of tape, then set vertical pieces. Butt tape at corners, do not run tape or run continuous at corners.
2. Set glass on setting blocks, number as recommended by glass manufacturer. Set glass with draw lines horizontal.
3. Apply heel bead on interior using sealant. Place spacer shims set glazing tape against glass and install stops.
4. Apply cap bead to fill void on exterior tool sealant with a slight bevel, sloped away from the glass to create a water shed.
5. Mark each light with a large white cross to indicate presence of glass. Use flour and water paste for markings.
6. Replace under the work of this section defective, damaged, or broken glass due to faulty setting, handling or storage.
7. Neoprene bulb type glazing in accordance with manufacturer's instructions.

4. ADJUST AND CLEAN

1. Clean surfaces promptly after installation, exercising care to avoid damage of the protective coating (if any).
2. Advise the Contractor of protective treatment and other precautions required through the remainder of the construction period, to ensure that windows will be without damage or deterioration (other than normal

weathering) at the time of acceptance.

3. Aluminum shall be isolated from concrete, mortar, plaster and dissimilar metal with bituminous paint. Windows shall be protected from other building materials during and after installation until acceptance by the Contractor. Thereafter, it shall be the responsibility of the Contractor to maintain protection and provide final cleaning.

END OF SECTION

1. **GENERAL**

1. **GENERAL REQUIREMENTS**

1. Division One, General Requirements, is part of this Section and shall apply as if repeated here.

2. **QUALIFICATIONS**

1. Manufacturers approved for the work of this section are:
 1. Kawneer Company, Canada Ltd.
 2. Old Castle Building Envelope
 3. Alumicor
 4. Commdoor
 5. Aerloc
2. Only those manufacturers listed above shall be used unless an alternative manufacturer submits technical information for approved alternative status to the Architect in writing a minimum of 7 days prior to tender closing. All proposed equivalent products shall comply fully with the product performance requirements / finishes / all options specified and detailed on the drawings.
3. **It is the responsibility of the approved manufacturers to *meet or exceed and submit OBC SB-10 Energy Efficiency Compatibility Results.***

Note: The above mentioned submittal is to incorporate the specified sealed glazing unit and each opening component as a whole before the shop drawings are accepted or before any shop drawings are reviewed.

3. **SHOP DRAWINGS**

1. Submit shop drawings in accordance with Section 01300 – Submittals.
2. Submit shop drawings for the fabrication and installation of associated components of the work. Indicate anchors, joint system, expansion provisions, hardware, and other components not included in manufacturer's standard data. Include glazing details (where required).
3. Before shop drawings and fabrication is started, take critical measurements at the site to facilitate installation and fitting of work.
4. Note that shop drawings for translucent glazing units to be part of this section.

5. Submit with shop drawings certification that window design and construction will meet the specified requirements. Certification shall be in the form of test reports on similar units performed by an independent testing laboratory, and shall meet approval of Architect before fabrication commences.
6. ***Shop drawings that are submitted are to be in the units of the tendered drawings with critical on center mullion dimensions (dimension string from datum level to top of opening noting center of mullions) noted along with all other regular shop drawing dimensions, no exceptions. Both units (metric and imperial) are allowed. Openings are to be identified with the corresponding tags on the tendered drawings. (Coordinate with typical A8 drawing notes)***

4. SUBMITTALS

1. Submit samples of curtain wall, panel sections, glazing, fasteners, caulking and finishes / colours for Architect's approval before fabrication.
2. Furnish templates, diagrams, and other data to fabricators and installers of related work, as needed for coordination installation.
3. Coordinate with Electrical Sections, Section 08700 - Finishing Hardware and security subcontractor for any electrical provisions required.

5. WARRANTY

1. The work and materials of this Section shall be under Warranty in accordance with CCDC Document 2 - 2020 but for a period of five (5) years from the date of Architect's Certificate of Substantial Completion. Hermetically sealed glazing units shall be guaranteed for a period of ten (10) years.
2. Warranty shall include: Warranty against excessive colour changes or surface deterioration of aluminium finishes; complete weather tightness of the curtain wall and aluminium panel system against unreasonable intensity and frequency, or both, of sound by the curtain wall and aluminium panel system installation or its anchorage system or loosening or deforming of any members of the installation.

6. PROTECTION

1. Mark each light with a large cross to indicate presence of glass (colour that stands out to the visible eye). Use material that will leave no residue

after removal.

2. Replace under the work of this section defective, damaged or broken glass due to fault setting, handling or storage.

7. OPERATION AND MAINTENANCE DATA

1. Upon completion of installation, supply standard parts service kit and service manual. Arrange with, and demonstrate to building maintenance staff window operation, sash removal, cleaning, re-glazing, and general maintenance procedures.

8. DESIGN

1. Aluminium Curtain Wall shall be designed to safely withstand a wind load normal to the plane of the wall of twenty (20) pounds per square foot (0.95 kPa.) and shall meet the standards of the latest Ontario Building Code as currently amended in regard to increased design pressure due to height and negative pressures. All components shall be able to withstand the loads with maximum deflection of L/200 of the span. Aluminium curtain wall shall be designed to accommodate thermal movement over an ambient temperature range of -40 F. to +120 F.

Copies of any and all structural calculations made in connection with the supplementary design and/or detailing of the work of this Section shall be promptly furnished to the Architect if requested.

Supply all connections, brackets, angles and fasteners to tie curtain wall to main structure, floors, columns and beams.

2. The entire exterior skin execution shall be based on the "Rain Screen" principle and the system shall provide:
 1. Such gaskets, baffles, overlaps and seals as required to provide a "Rain Screen" barrier to effectively deter rain water entry into the cavities of the system.
 2. The necessary "air seals" to minimize air passage from the system cavities into the building and vice-versa to assure adequate pressure equalization of the system cavities with the outside.
 3. The "air and vapour seals" required to minimize air borne vapour exfiltration from the building into the system cavities.
 4. Openings between these cavities and the outside of sufficient

cross-section to provide pressure equalization. All openings must be effectively baffled or otherwise guarded to minimize direct water entry.

5. Thermally, the grid members shall have a resistance to heat transfer equal to or better than that of the area along the bottom of the 1" (25 mm) sealed glass units.

3. Performance:

1. Air in-or-Exfiltration performance shall exceed industry standards of .06 c.f.m./ft² (.0003 m³/s-m²) when tested in accordance with ASTM E283 at a 6.24 p.s.f. (300 Pa) pressure difference.
2. There shall be no water infiltration into the building when tested in accordance with ASTM E331 with a pressure differential of 15.0p.s.f. (720Pa) whichever is higher.
3. No condensation shall form on any interior surfaces of the aluminium members before any of the exposed area of the 1" (25 mm) sealed units reaches the dew point temperature.
4. Thermal expansion allowance at aluminium panel system: The system has to take a temperature difference of 185 degrees F. (85 degrees C) without putting stress into any member of sealant.
5. Erected aluminium panel system shall have flatness criteria not to exceed 1/4" (6mm) in 20'-0" (6000mm). Units have rippling, waving, or oil canning exceeding the above criteria shall be subject to reflection if the condition cannot be satisfactorily repaired and corrected in the field.

9. STANDARDS

1. **Kawneer 1600UT (System 1 & 2 where applicable refer to drawings)**
Thermally Broken Curtain Wall System with silicone structural glazing or fiberglass perimeter pressure plates - 7 1/2" (190.5mm) or 6" (152.4mm) deep frames (manufacturer to approve in writing with tender submission prior to start of construction in regard to loading on the system(s)) with 2 1/2" (63.5 mm) sightline tubular mullions with 3/4" deep cap or 100mm sloped cap with drip edge and Cap-Less (combination of horizontal and vertical) as indicated on drawings and/or as recommended otherwise by manufacturer.

1. Provide GlassVent UT (Ultra Thermal), top pivoting awning projecting out window operation with operator assembly and complete with removable insect screens. Operator to work from the interior without removing insect screen. Finish to be black anodized typical and Duranar colour where indicated on the drawings.

NOTE:

Maximum operable opening not to exceed 4" (100mm) on any floor level from above ground (Main, Level 1) floor and up.

2. Provide Air barrier in the form of a sealed insulated metal back pan for all spandrel glazing locations, at aluminium panel locations and plywood infill locations. Install air/vapour barrier transition membrane over plywood infill locations, both to be sealed in curtain wall framing. Provide finished aluminium cover inside on the surface of the sealed metal back between and flush with interior face of mullions.
3. Fabricate and install Curtain Wall in accordance with NAAMM Standard SW-1-68T published by the National Association of Metal Manufacturers. Only those provisions of the Standard applicable to the Curtain Wall shown on drawings and as specified herein shall govern.
4. Comply to CAN3-S157 as currently amended.
5. Aluminium doors at exterior and interior curtain wall locations shall be doors as per Section 08400 - Aluminium Entrance Framing and Doors.

10. DESCRIPTION

1. ALUMINUM CURTAIN WALL

1. Work included: furnish labour, material and other services to complete the fabrication and installation of the framing, including material and fitments required for the operation of any entrance units included, in the manner, direction and performance shown on the shop drawings and specified herein.
2. Work included: furnish all labour material to provide and install the following items:
 1. Aluminium uninsulated panels.
 2. Aluminium flashings, trim pieces, fascia and closer members.

3. Formed subjects.
 4. All necessary clips, fastening devices, required accessories needed to attach the composite aluminium pieces indicated on the drawing into position.
 5. Aluminium metal weeping channels.
 6. All necessary caulking conforming to 19-GP-24M and all necessary gaskets, etc. to weather seal all joints.
 7. All necessary flanges and supports as required to keep panels rigid and stable to conform with design as indicated on the drawings.
 8. Intermediate galvanized steel stud panel and girt supports.
 9. All aluminium framing including "Z" girts, channels, clips, angles or blocking to secure aluminium composite panels.
 10. Cutting, reinforcing, closing, trimming of openings.
 11. All glass, spandrels and glazing.
 12. All caulking and sealants.
 13. Aluminium panels, aluminium and galvanized steel air barrier liners and insulation.
 14. 1/8" (3mm) aluminium or 1/4" (6mm) aluminium composite panels at walls and entrance canopy and soffit locations and above curtain wall areas below roof parapets.
 15. Aluminium Operators as indicated on drawings.
 16. Oversized 200mm x 64mm caps complete with Duranar colour finish where indicated on drawings. Allow for 3 colours.
3. Curtain wall supplier engineer to verify all required curtain wall systems, spans, loads etc. prior to tender closing.

2. **PRODUCTS**

1. MATERIALS

1. Aluminium: Extruded aluminium alloy members 6063 T5 alloy, minimum 1.6 mm (0.62") thick. Sheet which is not to be exposed shall be Utility Grade.
2. Aluminium Flashing: Supply 0.125" (3.2 mm) thick aluminium to profiles as indicated on drawings.
3. Aluminium Sills: Sills are to be extruded aluminium in colour to match exterior colour of frame and shall be complete with required anchors, joint covers, end caps or returns, chairs, anchors, anchoring devices and jamb drip deflectors. Extruded sills are to be the profile shown with minimum 1/8" (3mm) thickness with safety / drip edges. Sills shall be in longest possible lengths, joints only at mullions; all joints are to be sealed with slip joint.

NOTE: Aluminium sills to be provided at bottom of all windows and curtain wall locations as detailed.

4. Cavity insulation in Metal Air-barrier Liner / Back Pan: See Section 07213 - Mineral Fibre Insulation.
5. Metal Air-barrier Liner / Metal Back Pan: 3.2mm clear anodized aluminium with all corners of panels sealed where exposed to interior areas. All other locations shall be 20 gauge thick steel air/barrier liner with 1.25 oz./sq. ft. (458 g/m²) galvanizing with corners of panel sealed. Panels to be flat; stiffen as required.
6. Vision Glass: as per Section 08800 Glass and Glazing Section.
7. Operating Vents: Finish to be Black anodized typical and Duranar finished where indicated on the drawings. Hinged awning style limited opening to max. 4" (100mm). 1 pair heavy duty Anderburg or Senator Friction Arms with polished US-4 cam handle and keeper for 500mm wide and less and 2 for all windows greater than 500mm wide.
(or operation handle that the screen does not have to be taken out in order to open the operable window)
8. Insect Screens: Size to match operable window vent as per manufacturer, glass fibre mesh in clear anodized aluminium frame with extruded elastomer removable splines.
9. Spandrel Glass Panels: as per Section 08800 Glass and Glazing Section.
10. Glazing Tape: Tremco Visionstrip co-extruded EPDM gasket with integral

glazing tape on the exterior and a black, closed cell elastomeric glazing gaskets appropriate to the function on the interior. Colour of glazing selected by Architect.

11. Spacer Shims: 1/4" (6 mm) x 1/2" (12.7 mm) Norton tape. Shims for frame are to be oil resistant rubber or plastic acceptable to glass manufacturer, channel shaped and each approximately 4" (100 mm) long.
12. Thermal Break: Soft PVC, compressed to seal between main sections and pressure plates.
13. Isolating Coating: Black alkali resistant bitumastic enamel.
14. Sealant Bond Breaker: Open cell foam backer rod sized to suit.
15. Silicone Sealant: Dow Corning #795 or as per manufacturer's recommendations exceeding CAN2-19.13-M87 Class 40 requirements. Min 2 colours as selected by Architect.
16. Sealant at Perimeter Masonry Openings: 3 part Tremco Dymeric 240 sealant in accordance with Caulking - Section 07900 (Type A sealant). Minimum 2 colours as selected by Architect.
17. Sprayed-on Urethane Insulation: Supply and installation by this section as specified under Section 07215 – Spray-on Insulation.
18. Fasteners, Screws and Bolts: Stainless steel 300 Series or stainless steel 400 Series cadmium plated of sufficient size and quality to perform their intended function.

2. FABRICATION

1. General

1. Construct aluminium assemblies of extruded sections to size and profile shown on drawings.
2. Build units square, true, accurate to size, free from distortion, waves, twists, buckles or other defects detrimental to performance or appearance.

3. Units too large for handling or shipping shall be prefabricated in factory, disassembled and marked for shipping and field assembly.
4. Use concealed fastenings. No exposed screws shall show in the finished work where finished product is exposed to view, unless approved by the Architect. Such screws shall be countersunk and finished to match surfaces in which they occur.
5. Joints shall be accurately cut and fitted to result in a tightly closed joint.
6. Provide additional reinforcing at location of handrail brackets and at stair and landing areas to withstand O.B.C. horizontal loading designs.
7. Vertical and horizontal members shall be tubular extrusions designed for shear block corner construction.
8. All joints shall be accurately machined, assembled and sealed to provide neat weathertight joints. Shielded drainage and pressure equalization vents shall be provided where required. All horizontal members shall be sealed to vertical members to provide individual compartments within the system in accordance with the rain screen principle

2. Assembly

1. Assembly shall be Kawneer 1600 UT System 1 & 2 Curtain Wall System or approved equal. See item 1.6.
2. Mullion Depth Sizes exclusive of cap: See Item 1.6
3. Cap Depth Sizes and Locations:
 1. Exterior horizontal caps 3/4" (19 mm).
 2. Typical exterior vertical caps 3/4" (19 mm). Oversized 8" (200mm) caps where indicated on the drawings.
 3. Do not provide vertical or horizontal caps where single lines are indicated on drawings, these shall be structural silicone glazed and capless.
4. Aluminium caps for mullion assembly to be without gap.

5. All horizontal members must form individually pressure equalized and sealed gutter members.
6. Vertical expansion and construction joints shall be provided and designed for baffled overlaps with a compressed resilient air seal laid in between the mullion ends.
7. At aluminium and spandrel panel locations provide 20 gauge thick steel air/barrier liner with 1.25 oz./sq. ft. (458 g/m²) galvanizing with corners of panel sealed at all concealed locations. Provide 16 ga. clear anodized air/barrier liner panels at all interior exposed locations. Panels to be stiffened as required to maintain a flat surface.
8. Insulation shall be fitted into the air-barrier liners / metal back pans and secured by being impaled onto welded pains and retained by integral discs. Insulation to always extend out to thermal break in framing members. All void spaces to have spray in place insulation installed, this includes where indentations have been created by integral disc compression (where insulation does not fluff up to original shape, thickness), and from thermal break in curtain wall framing sealed to batt insulation, all perimeters of back pan.
9. Structural anchors shall have three-way adjustment and be welded after curtain wall alignment. Field paint touch-up shall follow the welding operation.
10. Provide thermally broken door frame adaptors for all doors in aluminium curtain wall framing.
11. Provide 10" (254 mm) height side light bases with sill flashing by doors where indicated on drawings.
3. Closures, Flashings and Miscellaneous Covers
 1. Provide .125" (3 mm) thick aluminium closures, caps and flashings where indicated
4. Aluminium Finish
 1. The aluminium frame finish to be black anodized.

2. Caps to be black anodized typical unless noted otherwise on drawings. Provide Duranar finished oversized caps where indicated on the drawings. Allow for 3 custom colours for oversized caps.

3. Exterior of operable window perimeters to be Black anodized finish.

5. Aluminium Sills

1. Provide continuous extruded aluminium sills at bottom of curtain wall set in bed of caulking. Sills to match finish of curtain wall caps above and be manufactured by curtain wall supplier.

6. Aluminium Door Adapters

1. Provide 19mm perimeter door adapters to suit door installation in curtain walls wherever aluminium doors are indicated on drawings.

7. Aluminium Panel Joints

1. Aluminium panel joints to be aligned with centre line of curtain wall mullions or other panel joints (to be verified at site) and to be coordinated with Architectural drawings prior to manufacturing; also coordinate with drawings for joint detailing, if not on drawings, contractor to ask for detail during shop drawing submission.

3. EXECUTION

1. INSTALLATION

1. Install curtain wall in accordance with manufacturer's recommendations and with standards specified herein.

2. Isolate all aluminium coming in contact with other metals, masonry or concrete with heavy shop coating of black alkali resistant bituminous paint to prevent electrolytic or chemical action.

3. Fill voids between aluminium extrusions and masonry or concrete surfaces with sprayed-on urethane insulation where necessary to prevent movement or infiltration of air. Drill and fill aluminium extrusions with sprayed-on urethane insulation where indicated on drawings.

4. Installation of aluminium panel system:

1. Erection shall be by skilled personnel only as directed by Panel Manufacturer. Joints shall be thoroughly sealed against entrance of weather to interior of assembly.
2. Install work, plumb, straight, even and true to required lines, levels and slopes. Reject and replace bent, scratched, dented mismatched, loose, or out-of-true work.
3. Provide custom structural supports and aluminium shims.
4. Fasten panels by system of support and fasteners according to manufacturer's recommendation to provide true surface free from undulations.
5. Install adequate expansion joints to accommodate thermal movement wall.
6. Install copings, closures, drips, and flashings unless specified otherwise. Finish shall match exterior panels.
7. Tape or backpaint contact surfaces where galvanized & aluminium metal & concrete come in contact to prevent corrosion
8. Replace all panels with mars, scratches, and cut edges with new panel etc.
9. Install aluminium doors as per Section 08400 - Aluminium Entrance Framing and Doors.

2. CAULKING

1. Glazing and aluminium caulking to be under this section as per manufacturer's instructions and as per details on drawings in accordance with procedures specified under Section 07900 – Sealants.
2. Caulking around perimeter of curtain wall between curtain wall and masonry to be done by this section as per Section 07900 - Sealants using Tremco Dymeric 240 (Type 'A') sealant.
3. Caulking to be done between panels including air-barrier liners / metal back pans under this Section using silicone sealant and installed as per Section 07900. All caulking of panels to surrounding masonry, concrete, etc. shall be by Section 07900 – Sealants.

3. GLAZING

1. Glazing shall be in strict conformance with manufacturer's instructions and shop drawings.
2. Units shall be manufactured by an I.G.M.A.C. certified facility.
3. Mark each light with a large white cross to indicate the presence of glass.
4. Replace under this Section defective, damaged or broken glass due to faulty setting, handling, storage or cleaning.
5. Glass supplied and installed under this section in accordance to Section

08800 – Glass and Glazing.

4. PROTECTION AND CLEANING

1. Aluminium shall be isolated from concrete, mortar, plaster and dissimilar metals with bituminous paint.
2. Framing shall be protected from other building materials during and after installation until acceptance by the Architect.
3. General Contractor to maintain protection and provide final cleaning.
4. Upon completion of erection all aluminium panel surfaces shall be cleaned to the satisfaction of the Architect.
5. Promptly as the work proceeds and on completion, clean up and remove from the premises all rubbish and surplus materials resulting from the foregoing work.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

1. Division One - General Requirements is a part of this section and shall apply as if repeated here.

1.2 DESCRIPTION

1. Work included: Provide as a separate price option (refer to supplementary tender form) manually operated rolling shade systems in all classrooms, offices, Library and wherever else indicated on drawings.

Provide included in the base bid amount, motorized rolling shade systems in the Gymnasium. Provide in the base bid amount Privacy screens for doors and sidelights into all classrooms. Provide all components as needed for a complete and proper installation.

1.3 RELATED WORK

1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Masonry - Section 04200
3. Wood Blocking - Section 06100
4. Finish Carpentry - Section 06200
5. Aluminum Entrance Framing, Windows & Doors – Section 08800
6. Aluminum Window Curtain Wall System - Section 08900
7. Electrical – Refer to Electrical Sections

1.4 QUALITY ASSURANCE

1. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.5 SUBMITTALS

1. Product Data: Within 60 calendar days after the General Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items proposed to be provided under this Section.
 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 3. Shop Drawings in sufficient detail to show fabrication, installation, anchorage and interface of the work of this Section with the work of adjacent trades.
 4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.
2. Construct one complete light proof window shade with attachments and accessories for approval by the Architect.

1.6 WARRANTY

1. Three-year written warranty against mechanical and fabric failure (including fabric fading) under normal conditions.

1.7 ACCEPTANCE

1. All manual and motorized shades remain the property of the supplier until accepted in place by the Architect.

1.8 SCOPE

1. Supply and installation of Manual Rolling Shades with 3% opening weave in all Classrooms, Library and Offices. Supply and install motorized black out rolling shades in the Gymnasium.
2. Provide privacy screens at glazing in all doors and sidelights into all classrooms. Product equal to Velo PS and Velo PSL by Activar Inc. 1-800-554-6077.

PART2 PRODUCTS

2.1 MOTORIZED SHADE SYSTEM

1. ElectroShade motorized shading system. Specifications are based on products manufactured by:
 1. Sun Project Canada Inc. – www.altex.com
500 Applewood Crescent
Vaughan, ON, Canada L4K 4B4
1.888.836.6980 | 905.660.3117

2. Provide Moduline Electra Tandem 105 120VAC where required for layout of multiple blinds.
3. Approved equal product/manufacture is Solarfective Products Ltd.
4. Motorized Sunshades locations: Gymnasium.

2.2 ELECTROSHADE MOTOR SYSTEM

1. Switches: Internal limit switches are adjusted by two external thumbscrews to allow exact setting of travel in both the raised and lowered positions. Micro switches provide circuit braking at the end of the run. The limit-switch setting cannot be disturbed by the action of the roller tube.
2. Brake: A solenoid activated disc brake mechanism stops and holds in any position. The brake automatically disengages when the motor is operating.
3. Motor: An asynchronous motor with built-in reversible capacitor start-and-run is made to be operated with 95 to 125 V. A.C. at 60 hz., single phase, temperature Class-A (maximum temperature rating of 140 degrees C.), thermally protected, totally enclosed, maintenance free with locking disconnect plug assembly furnished with each operator. Provide Electra tandem 105 120VAC where required for multiple blinds.
4. Gear Box: Three levels of satellite gears are provided for load distribution (planetary gears) and machined to close tolerance of tempered steel.
5. Installation: A single pin locks the drive end of the motor to the tube. A notched section in the tube turns the ring which counts the turns and activates the limit switch. To interchange motors, the pin is pressed out of the tube and the motor slides out.
6. Sizes: The motors are available in torques of 35-435 in lbs. (lifting capacity), 12-30 r.p.m. speed, to meet specified requirements and shall not exceed 60 mm in diameter.
7. Warranty: The manufacturer provides warranty that the motor is free of manufacturing defects for three (3) years from the date of installation. This warranty is void if the products have been improperly installed or subjected to improper care.

2.3 HARDWARE AND ACCESSORIES REQUIRED FOR A TOTAL INTEGRATED SYSTEM

1. Shade Roller: Extruded aluminum tube, 6063-ST6 alloy, 2.55 in. OD with internal keyway to receive tubular motor. The tube is extruded with two fabric-mounting channels designed so that the shade cloth does not disengage from the tube itself.
2. Mounting Spline: Extruded vinyl with asymmetrical locking channels and embossed fabric guide for use with 2.55 in. OD tube. Spline has sufficient capacity to hold shade and additional weight without disengaging from the tube.
3. End Brackets: Consist of 1/8" in. thick sheet steel. Wall, jamb or ceiling mounted as required and permanently installed.
4. Centre Support Brackets: supplied to meet span or weight requirements. Ceiling or wall mounted.
- e. Weights: Mill-finished aluminum, flat bars, single lengths for each shade panel.
5. Fascia: Extruded aluminum 6063T5 with clear anodized finish. Used for surface mounted applications at east wall cafeteria 128. Snap on with concealed fastenings that hide the bracket assembly and appears to be a continuous unit when mounted side to side.
6. Recessed Housing: is specifically designed for acoustical or plaster ceilings with removable closure plate for access to the recessed and concealed roller system.
7. Finishes: All exposed aluminum parts have a clear anodized finish. Steel parts are either cadmium plated, satin finished or have been bonderized prior to painting with a baked enamel finish.
8. Exterior hembars shall be rectangular 6 mm x 37 mm, with internal grooves to accommodate a fabric guide carrier at each end.
9. Side channel shall be a heavy-duty two-piece Snap-On 75 x 22 side channel for inside or frontal mount.
10. Fabric shall be hot laser cut and reinforced at the edges with a high frequency thermoweld seal. Fabric is reinforced with heat sealed spring tempered stainless steel batten stiffeners positioned approximately every 900 mm insuring that fabric cannot escape or be pulled out of the side channel.

2.4 BLACKOUT SHADE FABRIC

1. To be located at Gymnasium only. Lightproof shades to be 100% opaque blackout flame retardant. Architect to choose colour when shop drawings are submitted. Seams shall be equally spaced vertically to form equal widths. Note two levels are

required to mount above and below the horizontal beam located as a brace to the curtain wall system in the Gymnasium.

2.5 SUNSHADE FABRIC

1. Provide manual rolling shades in all other areas fabric to be 3% open weave flame retardant. Architect to choose colour when shop drawings are submitted. Seams, if required, shall be equally spaced vertically to form material in equal widths.

2.6 AUTOMATIC OPERATOR

1. 3 position remote control switch with "up", "down", and "stop" control. Mount operator in shade frame with control switch located where indicated. Include all components for proper unit operation. Control each shade in one room from individual control stations for each shade.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

1. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

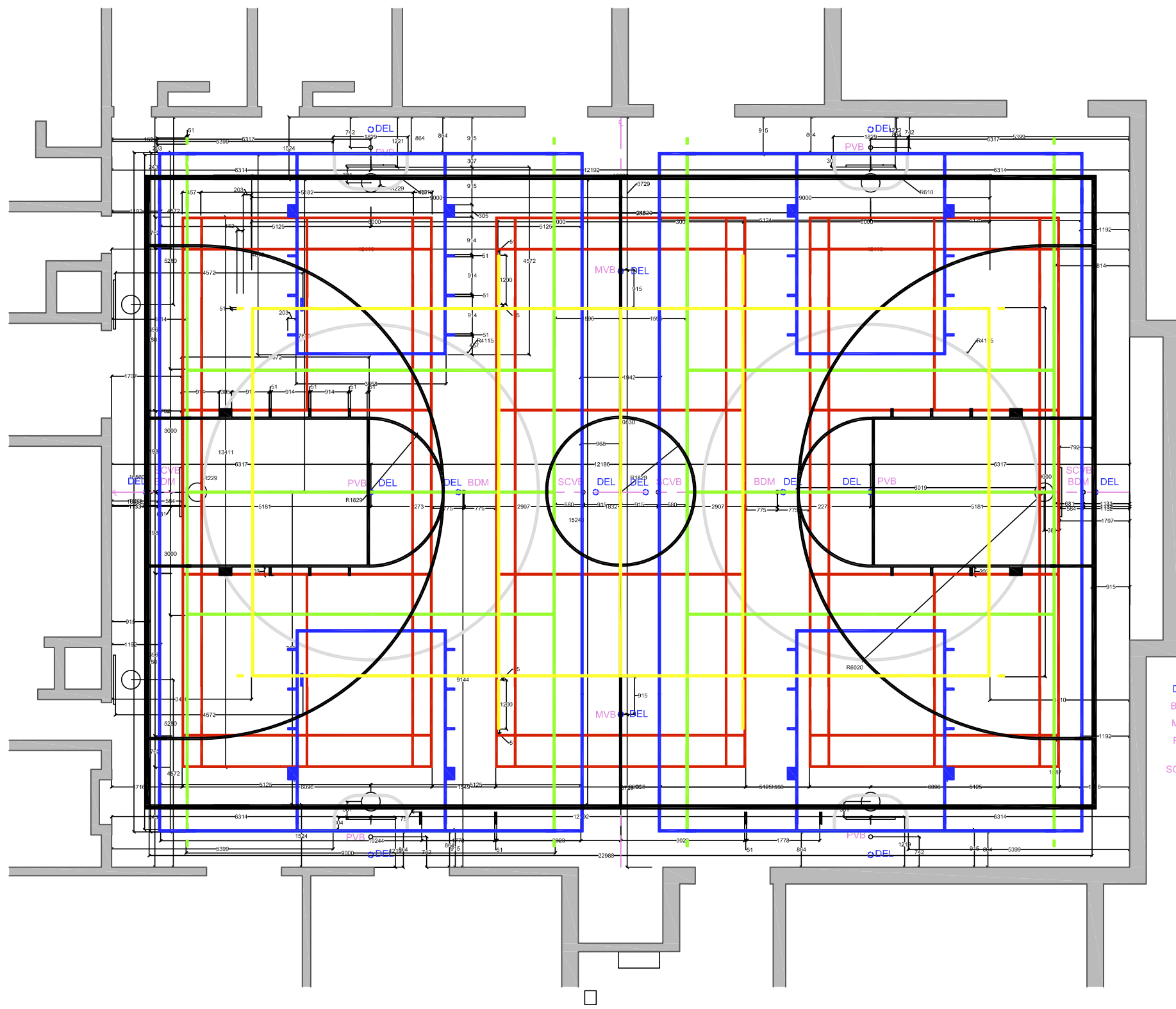
3.2 INSTALLATION

1. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interfaced with the work of this Section.
2. Install the work of this section in strict accordance with the original design, the approved Shop Drawings, pertinent requirements of government agencies having jurisdiction, and the manufacturer's recommended installation procedures as approved by the Architect, anchoring all components firmly into position for long life under hard use.
3. Install the work plumb, level, and in proper operating condition.
4. Upon completion of the installation, put each operating component through at least five complete cycles, adjusting as required to achieve optimum operation and complete blackout at all edges (at blackout locations).
5. Touchup scratches and blemishes to be completely invisible to the unaided eye from a distance of five feet (1500 mm) or replace item.

Waterloo District School Board
WRDSB No. 23-7360-RFT
Crestview Public School –
Library, Gym, and Vestibules Renovation. New Univ.
WR & Room Renumbering
153 Montcalm Drive Kitchener, Ontario
+VG Project No. 22057

Section 12522
**MANUALLY OPERATED AND
MOTORIZED ROLLING SHADES**
Page 6 of 6

END OF SECTION

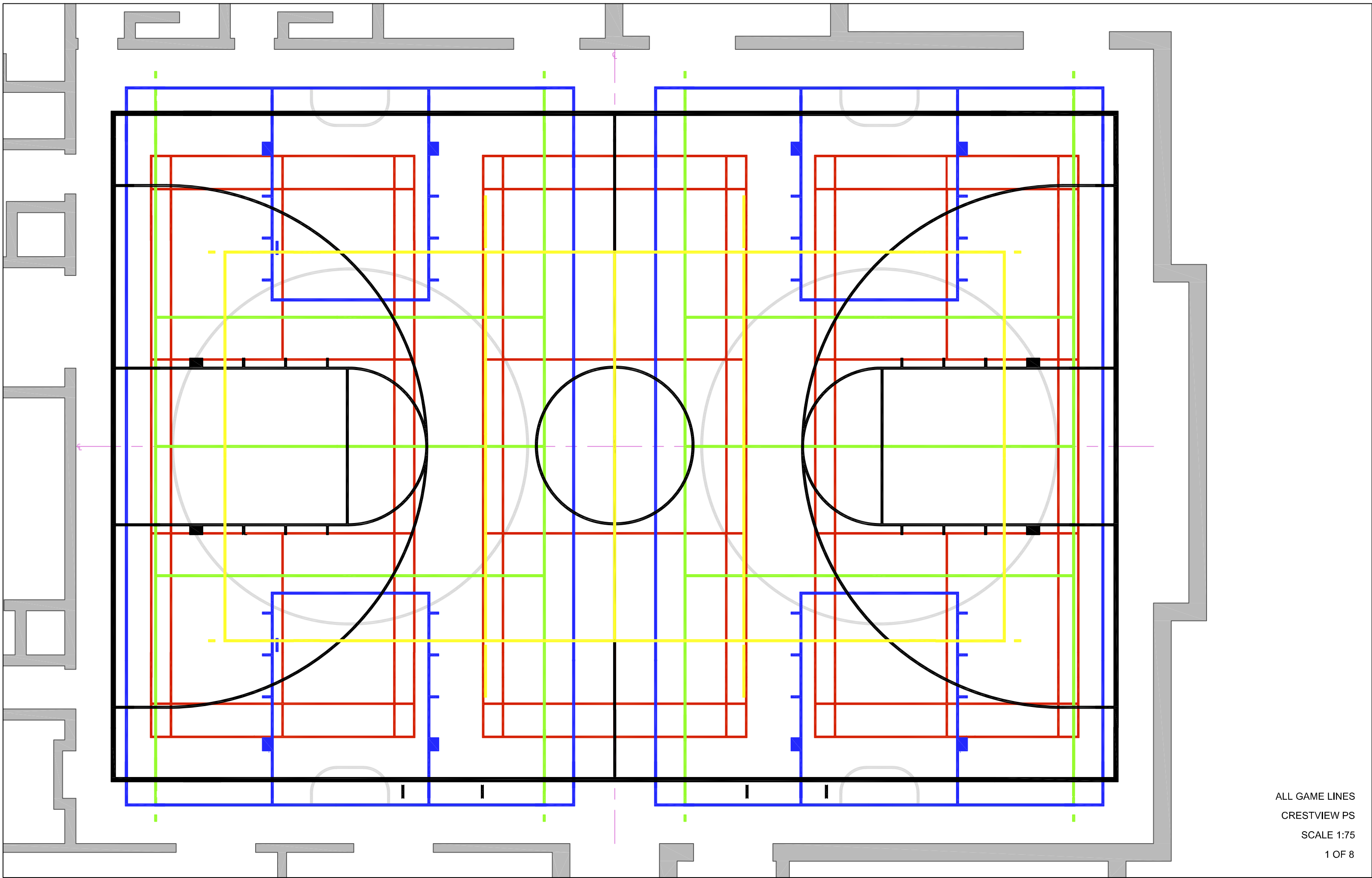


- 102mm WIDE SOLID BLACK - BASKETBALL PERIMETER
- 51mm WIDE SOLID YELLOW - VOLLEYBALL
- 51mm WIDE SOLID BLACK - BASKETBALL INTERIOR
- 51mm WIDE SOLID BLUE - SIDE COURT BASKETBALL
- 51mm WIDE SOLID GREEN - SIDE COURT VOLLEYBALL
- 38mm WIDE SOLID RED - BADMINTON
- 51mm WIDE SOLID WHITE - CIRCLES & CREASES
- - - - (CENTRE LINE OF GYM FOR REFERENCE - DO NOT PAINT)

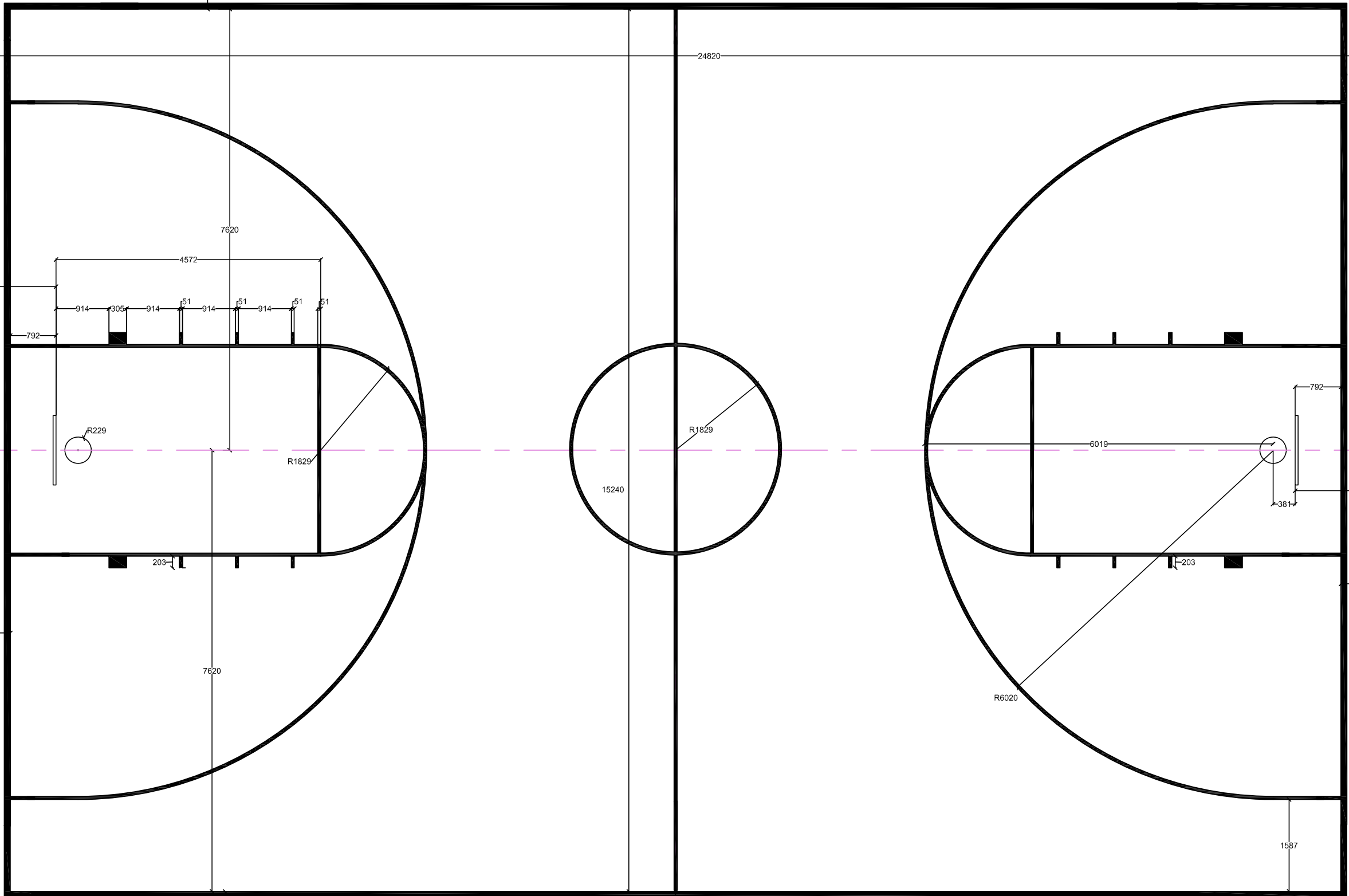
DEL - TO BE DELETED
 BDM - BADMINTON
 MVB - MAIN VOLLEYBALL
 PVB - PRACTICE VOLLEYBALL (NETS ONLY, NO LINES)
 SCVB - SIDE COURT VOLLEYBALL

- GENERAL NOTES:**
1. MAIN COURT BASKETBALL LINES MAY BE USED IN SMALL GYMS FOR MAIN COURT VOLLEYBALL.
 2. SMALL GYMS TO USE SIDE COURT BASKETBALL & VOLLEYBALL LAYOUTS AND COLOURS IF FULL SIZE MAIN COURTS DO NOT FIT.
 3. NUMBER OF BADMINTON COURTS WILL BE DETERMINED BY SIZE OF GYM.
 4. BASKETBALL COURT LOCATION TO BE DETERMINED BY BACKSTOP LOCATIONS IN EXISTING CONDITIONS.
 5. VOLLEYBALL AND BADMINTON LOCATIONS TO BE DETERMINED BY FLOOR SOCKET LOCATIONS.
 6. FINAL LAYOUT TO BE APPROVED BY FACILITY SERVICES AND CONSTRUCTION DEPARTMENT AND APPROVED DESIGNATE FROM SCHOOL.
 7. MAXIMUM REGULATION COURT SIZES TO BE USED IF ACCEPTABLE MINIMUM CLEARANCES EXIST AROUND COURT PERIMETER.
 8. MAIN COURT BASKETBALL 3 POINT CIRCLE TO BE OMITTED IF COURT WIDTH LESS THAN 44'6".
 9. PLAY CIRCLE TO BE OMITTED AT SCHOOL'S REQUEST.
 10. RESIZING OF COURTS TO TAKE PLACE AT BREAKS IN LINE ON DRAWING. LINES TO BE CONTINUOUS.
 11. SIDE COURT BASKETBALL AND SIDE COURT VOLLEYBALL CAN COMBINE LINES IN GYMS LESS THAN 45' IN LENGTH.
 12. ADJUSTMENTS TO BE APPROVED BY WRDSB.
 13. PLAY CIRCLE RADIUS MAY VARY TO FIT GYM.
 14. DIMENSIONS SHOWN ARE FOR REFERENCE. DO NOT SCALE THESE DRAWINGS.
 15. FOR ANY NEW SOCKET LOCATIONS THAT ARE TO BE IN THE SAME LOCATION AS AN EXISTING SOCKET, CONTRACTOR SHALL REMOVE EXISTING AND INSTALL NEW SOCKET AFTER FLOOR IS IN PLACE.

WATERLOO REGION DISTRICT SCHOOL BOARD			
PROJECT:		CRESTVIEW PS - GYM FLOOR LAYOUT	
TITLE:		GAME LINES AND SOCKET LOCATIONS	
Orig./Design.:	-	Drawn by:	ADO
Date:	FEB 2023	Scale:	NTS
		Appr.:	.
		Dwg. No.:	1 OF 1



ALL GAME LINES
CRESTVIEW PS
SCALE 1:75
1 OF 8

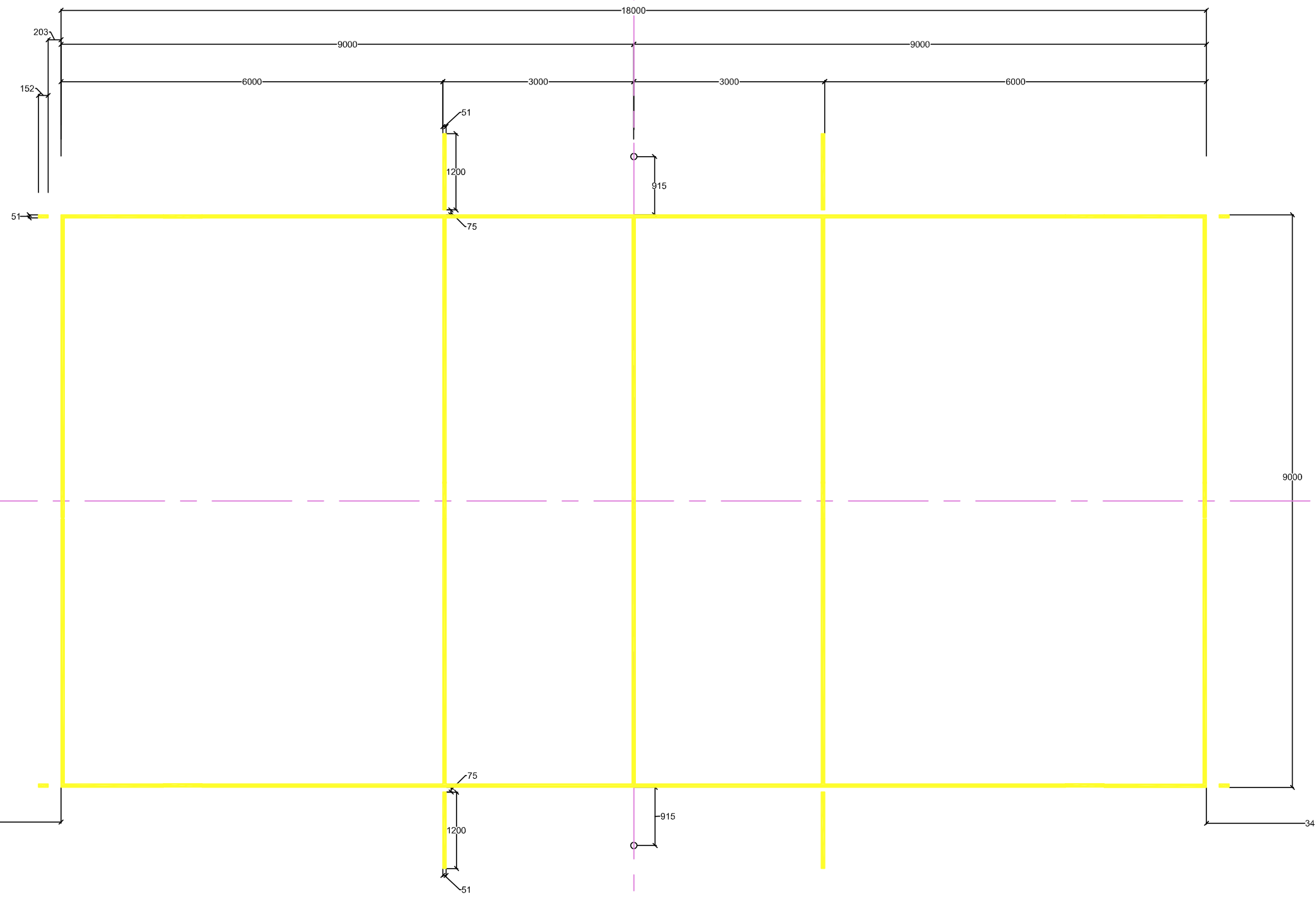


BASKETBALL LINES - BASED ON
CENTER OF BACKBOARD FACE

CRESTVIEW PS

SCALE 1:75

2 OF 8

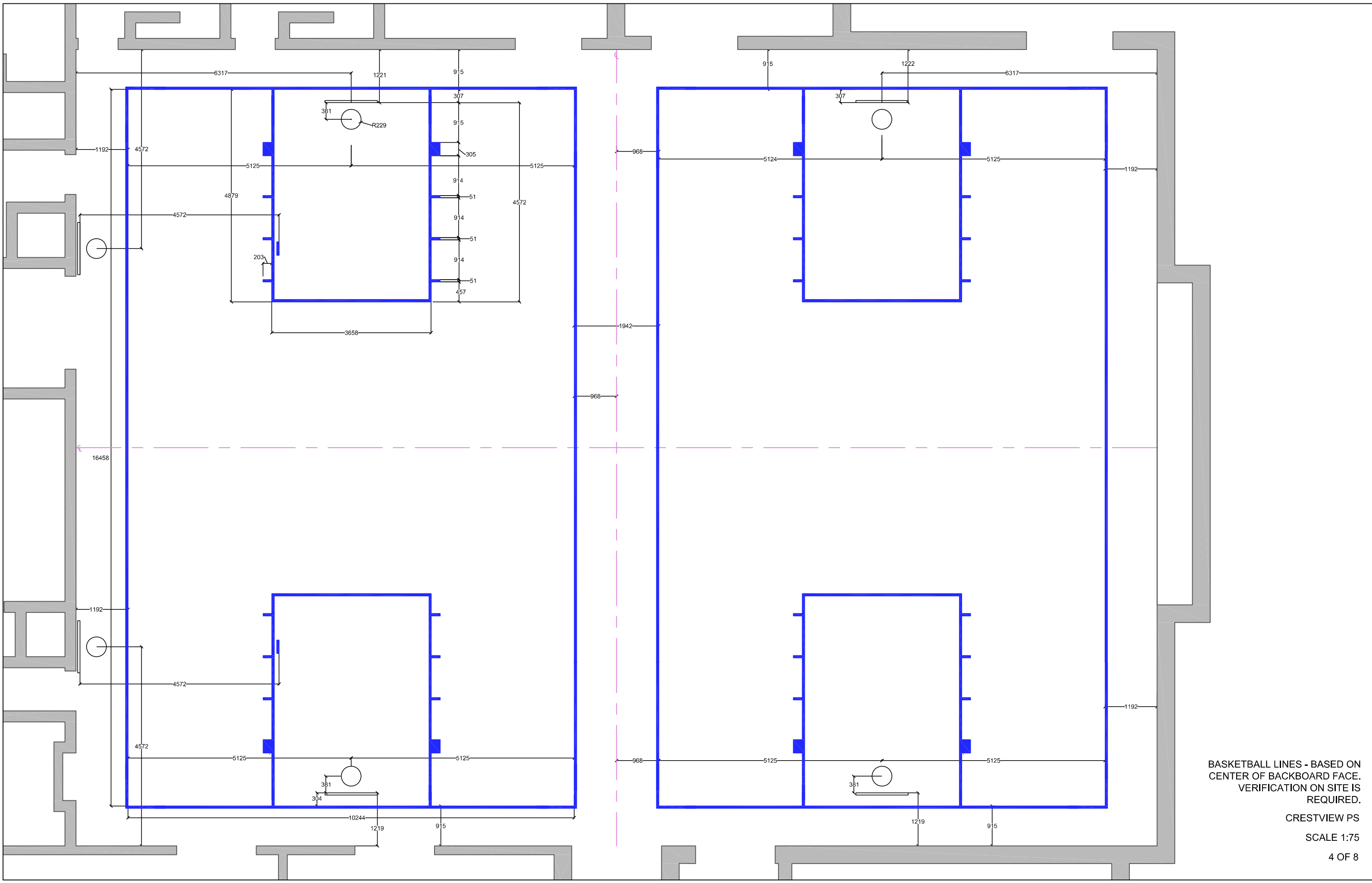


VOLLEYBALL LINES - BASED ON
CENTER OF SOCKETS

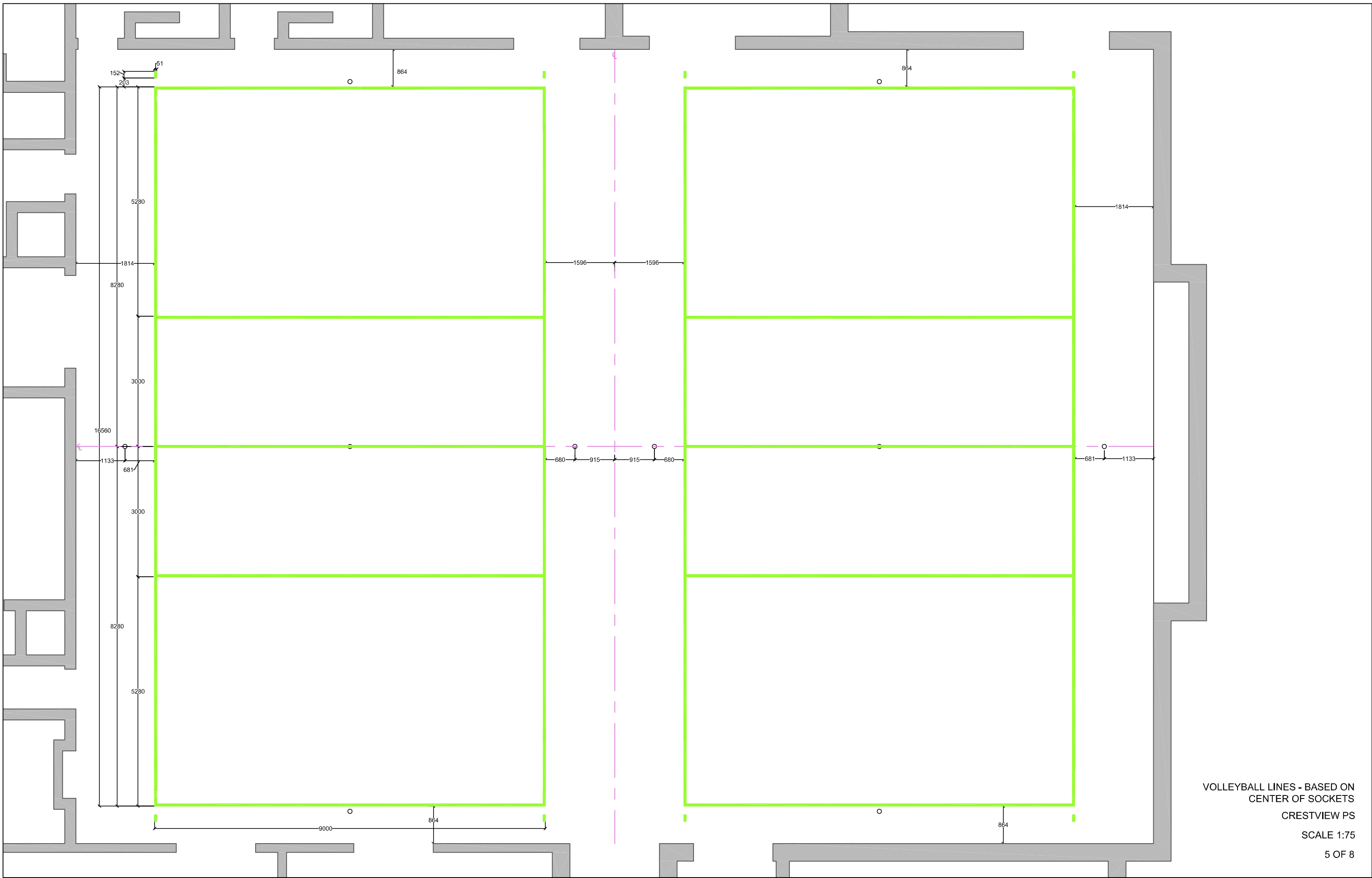
CRESTVIEW PS

SCALE 1:75

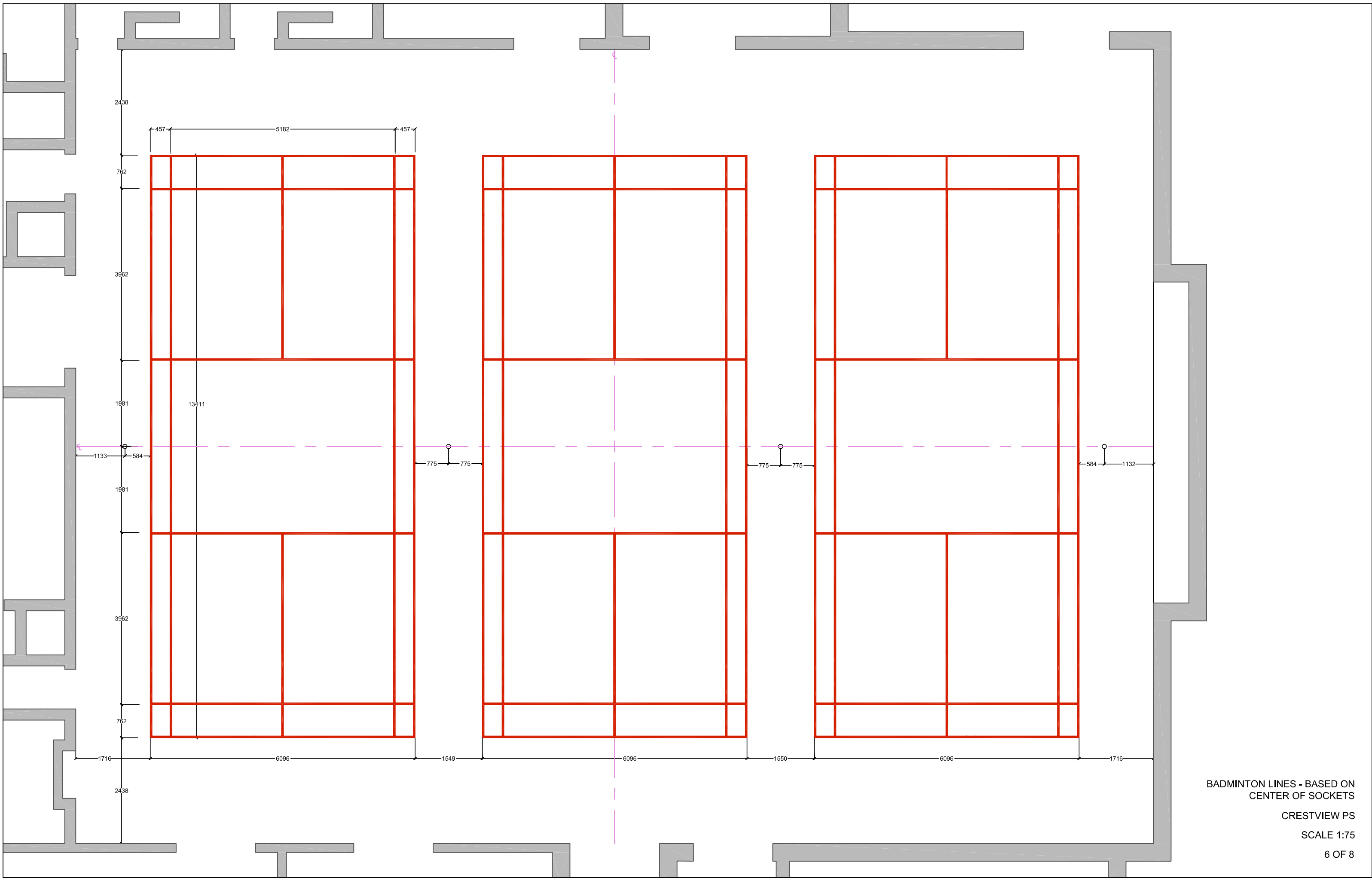
3 OF 8



BASKETBALL LINES - BASED ON
 CENTER OF BACKBOARD FACE.
 VERIFICATION ON SITE IS
 REQUIRED.



VOLLEYBALL LINES - BASED ON
 CENTER OF SOCKETS
 CRESTVIEW PS
 SCALE 1:75
 5 OF 8

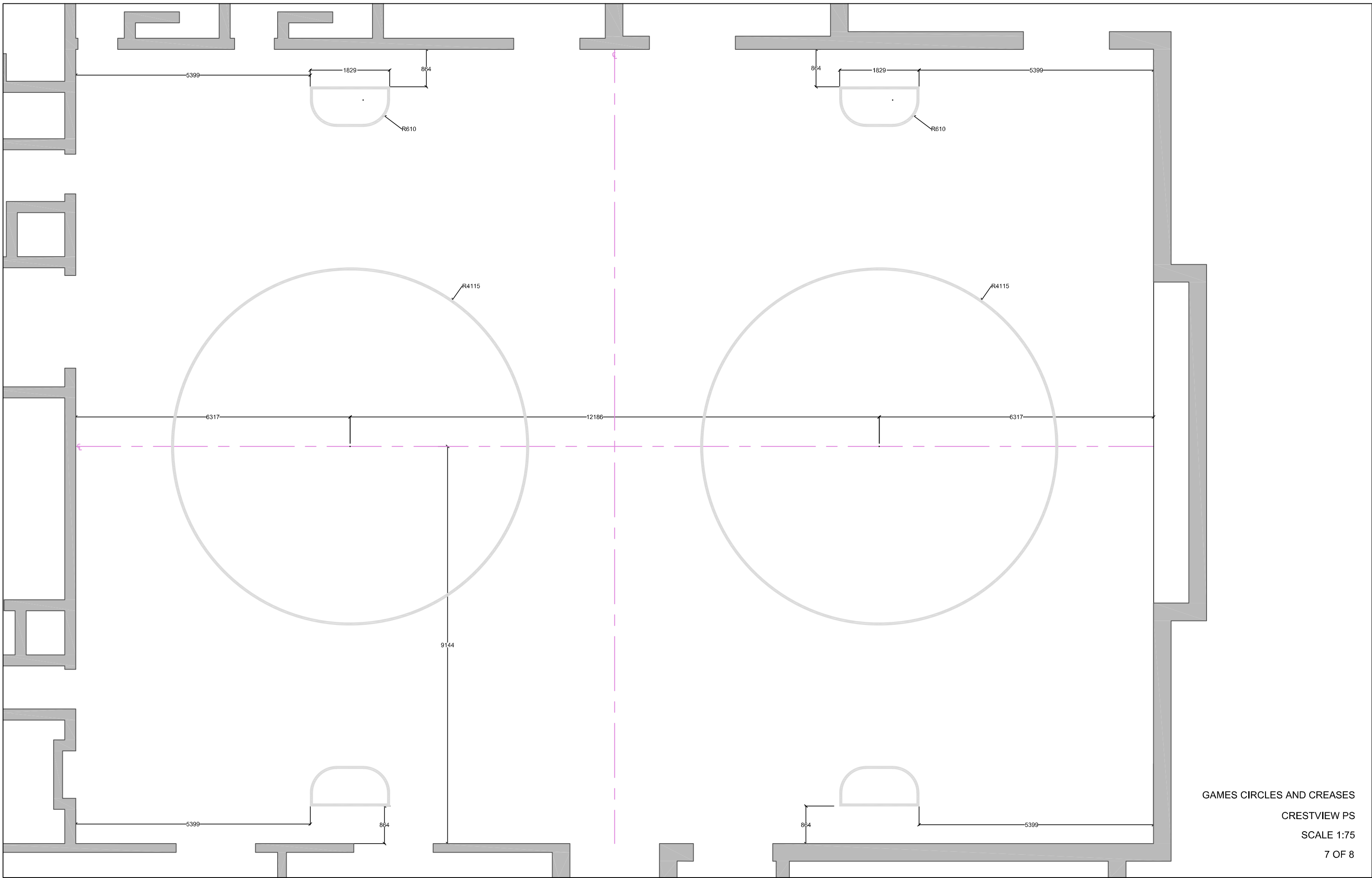


BADMINTON LINES - BASED ON
CENTER OF SOCKETS

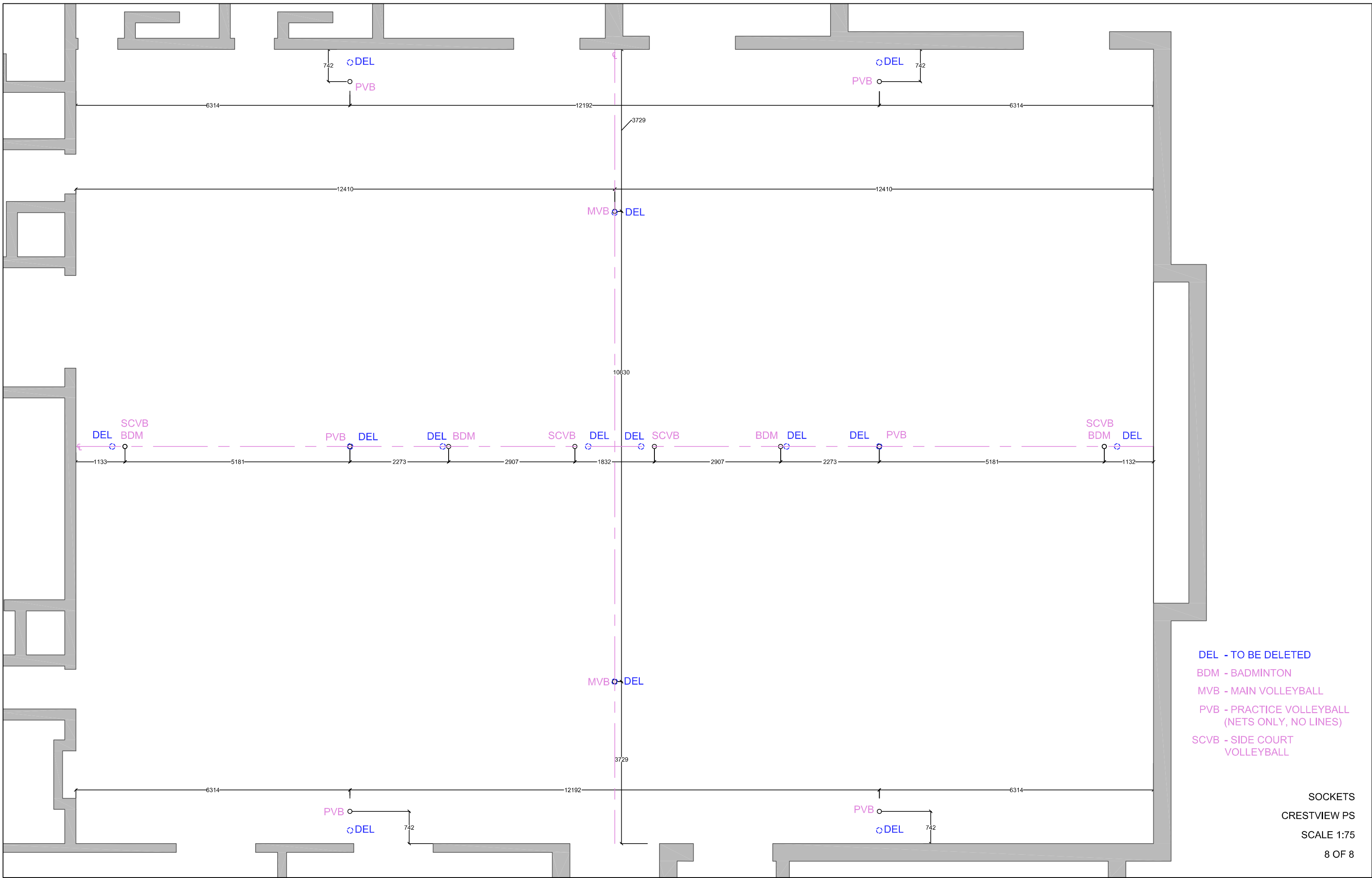
CRESTVIEW PS

SCALE 1:75

6 OF 8



GAMES CIRCLES AND CREASES
CRESTVIEW PS
SCALE 1:75
7 OF 8



- DEL - TO BE DELETED
- BDM - BADMINTON
- MVB - MAIN VOLLEYBALL
- PVB - PRACTICE VOLLEYBALL (NETS ONLY, NO LINES)
- SCVB - SIDE COURT VOLLEYBALL