



# Panel System

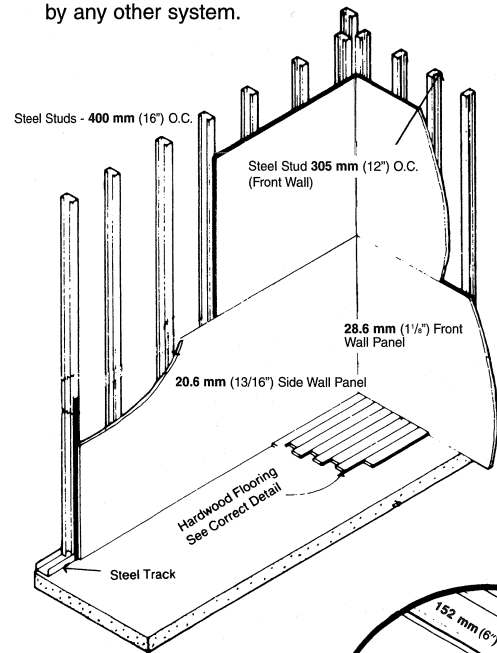
## THE CRS PRODUCTS INTERNATIONAL PANEL SYSTEM

This **1219 mm x 2438 mm (4' x 8')** high density, high-impact plastic laminate panel, is the heart of our product line and provides a tough pre-finished playing surface that stands up to the rigorous demands of racquetball, handball and squash and is virtually maintenance free.

CRS Products International offers a choice of four thicknesses of panels. As the front wall is the key to fast solid play and conforms to International Squash Racquet Regulations recommended is **38 mm (1 7/16")** thick and our **28.6 mm (1 1/8")** for the side walls on squash and front walls for racquetball which is manufactured of **6.35 mm (1/4")** thick **1153 kg/cu m (72 lbs./cf)** hardboard on both the playing and non-playing sides, with a **882 kg/cu m (55 lbs./cf)** particle board core. When this is combined with the **1.4 mm (0.050") 1362 kg/cu m (85 lbs./cf)** density plastic laminate surfaces on both sides, the composite panel density is an outstanding **1041 kg/cu m (65 lbs./cf)**. The result is a panel with 50% higher impact resistance than the closest competitive panel, as tested per Federal procedures. This translates into faster ball reactions and protection against chips, dents, and cracks in the playing surfaces.

CRS side and back wall panels are normally **20.6 mm (13/16")** thick; and the ceiling panels are **16 mm (5/8")** thick.

Every panel is thoroughly inspected by the highest quality control standards in the industry and machined to a corner to corner tolerance of **+/-0.8 mm (1/32")**, an end to end tolerance of **+/-0.8 mm (1/32")**, and a surface to control cut of **+/-0.4 mm (1/64")**. These tolerances are guaranteed by CRS Products International and are unmatched by any other system.



**CRS GYMNASIUM WALL PANELING**  
**20.6 mm (13/16") size**  
**1219 x 2438 mm -**  
**1219 mm x 3048 mm**  
(4' x 8' - 4' x 10') on steel studs or furring strips complete laminate colour range. Can be installed vertically or horizontally.

## METHODS OF ATTACHMENT

CRS Products International panels feature two optional systems for attachment to steel or wood framing:

**PRECISION TONGUE-AND-GROOVE:** Each panel is hidden-screwed through the base of the horizontal tongue into the framework, in combination the application of superholding construction adhesive between the panel back and each framing member. The T & G interlocking system among panels results in a solid, non-vibrating matrix on each wall, with none of the plugs and face screw holes associated with many other panel systems. The uniformly flush fit between panels and framing, and among the panel joints, assures the optimum dynamics of ball impacts and reactions for championship racquetball, handball, and squash play.

**CONCEALED METAL SPINE:** Here rows of metal splines are first attached to the framing on each wall. Then the precision-routed backs of the panels are mounted over the splines. As in the T & G system, construction adhesive is also used to secure the inner section of each panel to the framing members. All the basic properties of the panel care and plastic laminate surfaces are the same as those for the T & G panels. The spline system pre-dates the T & G one, and today its most important use is for applying panels directly to concrete block walls.

CRS Products International warrants both systems equally, and offers complete consultations with architects, contractors, and owners on the correct system choice for each set of conditions.

TEST DATA	28.6 mm	1 1/8"	20.6 mm	13/16"
Screw Holding (ASTM D-1037)	3,257 N	(732 lb)	2,905 N	(653 lb)
Internal Bond	1.72 MPa	(250 psi)	1.72 MPa	(250 psi)
Modulus of Rupture	37.9 MPa	(5496 psi)	49.5 MPa	(7183 psi)
Modulus of Elasticity	9,653 MPa	(1,400,000 psi)	12,480 MPa	(1,810,000 psi)
Impact	507 N	(114 lb)	369 N	(83 lb)
Dimensional Change	0.16%	(0.16%)	.09%	(.09%)
Abrasion (NEMA LD3-75)	2500 cycles	(2500 cycles)	2500 cycles	(2500 cycles)

CRS Corporation Front wall panel 28.5 mm (1 1/8") thick, **1041 kg/cu m (65 lbs./cf)** density

Solid Glue Line provides complete bond between panel and reclining wall - NO GAPS

Steel stud, metal or wood furring

1.4 mm (0.055") high pressure plastic laminate on both sides of panel

**UL Fire Rated**  
**Available Upon Request**

CRS Corporation Front wall panel 28.5 mm (1 1/8") thick, **1041 kg/cu m (65 lbs./cf)** density

Concerned Aluminum Spine Attachment

Steel stud, metal or wood furring

1.4 mm (0.055") high pressure plastic laminate on both sides of panel

## OUTLINE OF CONSTRUCTION SEQUENCE

For at least a week prior to installing panelled courts, the building shell should be kept at temperatures and relative humidity levels closely approximating conditions which will prevail when the courts go into use.

The concrete sub-floor should be broom clean, finished smooth, straight and level with maximum tolerance of **3 mm (1/8")** in a **3 meters (10')** radius. The concrete floor is the foundation for the completed court, and accuracy is essential.

## FASTENING OF PANELS

Once the walls and partitions are plumb, both horizontally and vertically, the panels are secured to the studding with no fewer than four screws per panel edge. Each stud receives a ribbon of structural adhesive the full length of the panel creating a solid bond between panel and stud, LEAVING NO GAPS.

The ceiling panels are attached directly to **152 mm x 1.5 mm (6" x 16)** gauge joists, **400 mm (16")** o.c., bridging the short dimensions of the court from top plate to top plate. This method of attachment is the same as the walls. This provides for a totally self-supporting ceiling system with no hang wire suspension necessary.

**Rough dimensions for standard courts**  
(Standard Court: 28.6 mm (1 1/8") front, 20.6 mm (13/16") side and back, 16 mm (5/8") ceiling)

## COURTS

Singles squash (American)  
Doubles squash  
International squash  
Racquetball/handball

## WIDTH

5874 mm (19' 3 1/2")  
7855 mm (25' 9 1/2")  
6636 mm (21' 9 1/4")  
6331 mm (20' 9 1/4")

**NOTE: 6096 mm (20 ft.)** Squash Court is approved for play  
Consult CRS for further information

## LENGTH

9989 mm (32' 9 1/2")  
13951 mm (45' 9 1/2")  
9989 mm (32' 9 1/2")  
12427 mm (40' 9 1/2")

## HEIGHT

No floor  
n/a  
n/a  
n/a  
6268 mm (20' 6 3/4")

The rough dimensions allow **6 mm (1/4")** clearance from the wall using **92 mm (3 1/2")** studding and the court panels. The floor's tongue and groove flat grain hardwood flooring over **50 x 75 mm (2" x 3")** sleepers. The ceiling of the racquetball/handball court is **16 mm (5/8")** laminated plastic panels and **152 mm (6")** 1.55 mm (16) gauge joists.

**Exact dimension requirements (Before panels can be installed)**

## WIDTH

Singles squash (American)  
Doubles squash  
International squash  
Racquetball/handball

5690 mm (18' 8")  
7671 mm (25' 2")  
6452 mm (21' 2")  
6147 mm (20' 2")

## LENGTH

9811 mm (32' 2 1/2")  
13773 mm (45' 2 1/2")  
9811 mm (32' 2 1/2")  
12249 mm (40' 2 1/2")

## HEIGHT

n/a  
n/a  
n/a  
6960 mm (20' 3/4")

Dimensions shown are after any wall irregularities have been corrected. CRS Corporation Panels are milled to (90-degree angles), and to within as little as **+/-0.8 mm (1/32")** overall length.

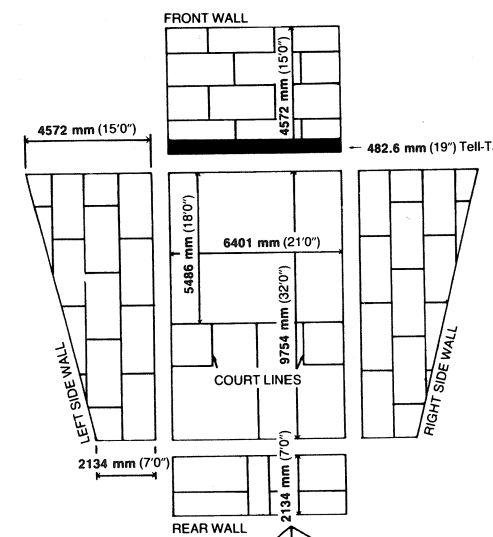
## STUDS

All stud framing members will be structural metal cee studs Single walls are **92 mm (3 1/2") x 1.2 mm (18)** gauge studs where bracing can be attained at **0.25 mm (1/4")** points to the exterior structure. If the wall is freestanding, **152 mm (6") x 1.2 mm (18)** gauge studs must be used. Common walls are **152 mm (6") x 1.2 mm (18)** ga., and ceiling joists are **152 mm (6") x 1.5 mm (16)** ga, **400 mm (16")** o.c., running the short dimension of the court. All studs are placed **400 mm (16")** o.c. except front walls at **305 mm (12")** o.c. The stud approach allows the court system to be totally self-supporting and does not depend on the building structure for support, including the ceiling.

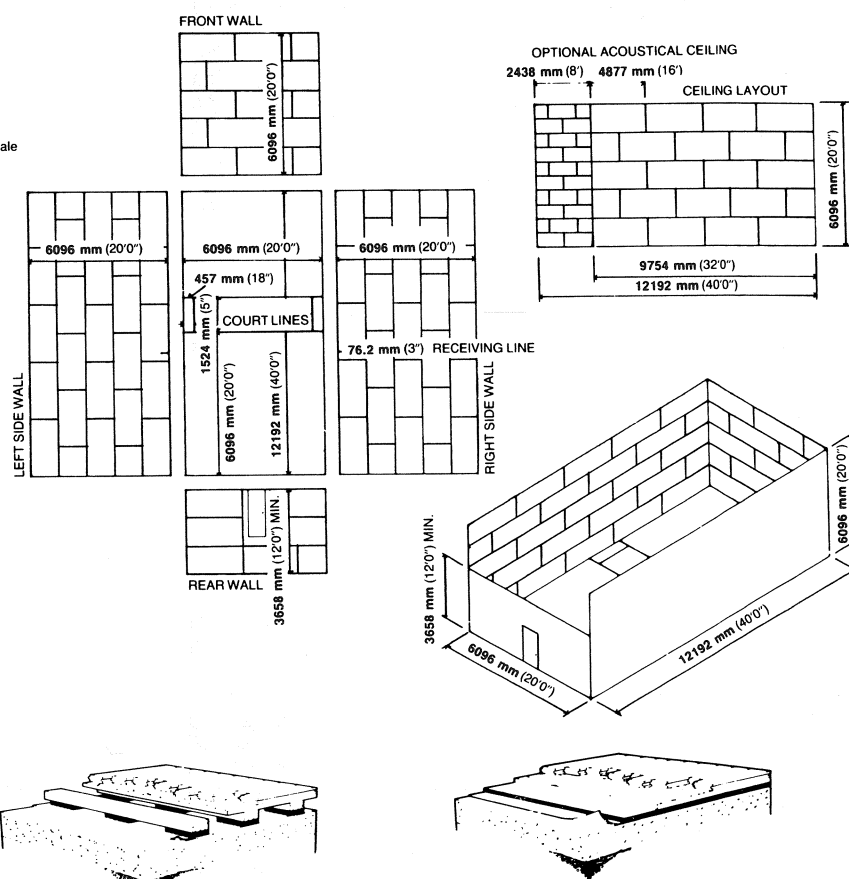
**DOORS (Custom sizes for the physically challenged or standard sizes)**

CRS Products International Court Doors all types available, panel with view window, metal or wood frame, **12.7 mm (1/2")** tempered glass door solid oak frame, architectural clear aluminum, deep bronze on white baked enamel frames, contact our Engineering and Design office for detailed sheets and R.O. sizes.

## INTERNATIONAL SQUASH COURT



## RACQUETBALL/HANDBALL COURTS



## CUSHIONED SLEEPER SYSTEM

Cushioned Sleepers shall be **50.8 x 76.2 x 1219 mm (2" x 3" x 4')** Douglas Fir or Western Hemlock, Woodlife treated by the Dri-Vac System. Pads shall be securely attached to the underside of sleepers approximately **305 mm (12")** on center and at both ends. Cushioned Sleepers shall be placed end-to-end, spaced at least **6 mm (1/4")** apart and on **228 mm (9")** for **19.8 mm (25/32")** flooring, or on **305 mm (12")** centers for **26.2 mm (33/32")** flooring. Overall height of this floor is **66.5 mm & 73.5 mm (2 5/8" & 2 7/8")**, respectively.

## CUSHIONED SLEEPER-PLYWOOD SYSTEM

Cushioned Sleepers shall be **50.8 x 76.2 x 1219 mm (2" x 3" x 4')** Douglas Fir or Western Hemlock, Woodlife treated by the Dri-Vac System. Pads shall be securely attached to the underside of sleepers approximately **305 mm (12")** on center and at both ends. Cushioned Sleepers shall be placed end-to-end, spaced at least **6 mm (1/4")** apart and on **305 mm (12")** centers.

Plywood shall be exterior glue line **16 mm x 1219 mm x 2438 mm (5/8" X 4' x 8')** sheets placed over sleepers and securely attached at bearing. Overall height of this floor is **83 mm (3 1/4")**.

## RESILIENT UNDERLAYMENT SYSTEM

A layer of **1219 mm x 2438 mm (4' x 8')** sheets of **12.7 mm (1/2")** Asphalt Impregnated Resilient Underlayment Board shall be laid with long dimensions of sheets parallel to long dimensions of wall with **6 mm (1/4")** space at all edges.

A layer of **19 mm (3/4")** plywood shall be laid at a 90° angle to the under-layment board with **6 mm (1/4")** spacing at all edges.

Finish flooring shall be **19.8 mm (25/32")** inches thick by **57.2 mm (2 1/4")** face kiln dried continuous tongue and groove and end-matched MFMA Hard Maple. Architect shall select from first, or second and better grades. Overall height of this floor is **50.8 mm (2")**.

**FLOORING** - ALSO AVAILABLE ARE OTHER CRS PRODUCTS INTERNATIONAL FLOORING DESIGNS FOR STANDARD AND CUSTOM APPLICATIONS. INFORMATION AVAILABLE ON REQUEST.  
SEE ARCHITECTURAL DATA ON BACK COVER.

## PART 1 - GENERAL

### 1.01 - Description

- A. SCOPE: Provide all labor, materials, and equipment necessary to complete the installation of prefabricated racquetball court walls and ceiling. All work shall be done in a workmanlike manner, conforming to industry standards, including but not limited to the following:
- |  |   |   |
|--|---|---|
| 1. Wall and ceiling panel and related steel stud framing and/or wood furring | 4. CRS Glass walls (with Opacified Glass Design optional) | (WORK NOT INCLUDED)   |
| 2. Multi-purpose CRS Convert-A-Court Moving Glass Backwall                   | 5. Doors and valuable storage compartments                | a. HVAC components.   |
| 3. Light Fixtures  | 6. Floor and wall markings                                | b. Finish trim on backwalls, common wall cutouts or corridor side of courts |
|  | 7. Wallyball Kits   | c. Electrical wiring and hook-up to light fixtures.                         |
|  | 8. Floors   |   |

### 1.02 - Quality Assurance

- A. SUPPLIER:
- For purposes of establishing quality requirements, these specifications are based upon the CRS Products International Panel System as supplied by CRS Products International, 321 S. Main Street, Unit 536, Sebastopol, California, U.S.A. 95472 Toll Free: 1-800-661-4174 (415) 543-4113 Fax: (415) 543-4114, or Edmonton, 10021 - 169 Street, Edmonton, Alberta, Canada T5P 4M9, (780) 484-2786 Fax: (780) 484-5827, or Oakville, 419 Avon Crescent, Oakville, Ontario, Canada L6J 2T1, (416) 283-3452 Fax: (416) 283-3452, or Richmond, Unit #1 3511 Viking Way, Richmond B.C., Canada V6V 1W1 (604) 278-7997 Fax: (604) 278-7967. Consideration will be given by the Architect to other systems if, in his opinion, it is of equal quality. Submit information on products for approval at least 10 days prior to bid date.
- B. INSTALLER:
- All work in conjunction with the racquetball and/or squash courts as indicated on the drawings and as specified herein shall be installed by one specialty contractor with no less than 15 years experience.
  - Submit a list of at least three completed projects of similar magnitude and complexity.

### 1.03 - Submittals

- A. Samples: Submit Samples of wall and ceiling panels. C. Shop Drawings: Submit in accordance with plans and specifications.
- B. Brochures: Submit three copies of supplier's brochures.

### 1.04 - Product Delivery, Storage and Handling

- A. No materials shall be delivered to the jobsite until building is completely enclosed and weathertight.
- B. It is critical to the acclimation of the flooring and panels that proper humidity and temperature be maintained in the court area. Therefore, the permanent HVAC shall be in operation prior to material arrival. Panels and flooring must be brought into the court area five to seven days before installation under desired use conditions, which should not be less than 13°C (58°F), nor greater than 26°C (80°F), and within the range of 40 to 60 percent relative humidity. Panels should never be subjected to direct sunlight, rain, or wide variations of ambient conditions during unloading, storage, or installation.
- C. Store materials properly stacked in clean, dry, storage area.
- D. Panels shall be stacked flat and delivered on pallets. After delivery, panels shall have banding and wrap removed to allow panel to acclimate to room conditions.
- E. Material not properly protected and stored and which is defaced or damaged shall be rejected.

### 1.05 - Warranty

- A. Material and workmanship in conjunction with racquetball and/or squash courts shall be warranted against defects for five (5) years after installation. Warranty covers such defects as structural failure, delamination, and workmanship when installed and handled according to CRS Products International Specifications and Procedures, and under normal playing conditions. CRS Products International guarantees each panel to a corner to corner tolerance of +/-0.8 mm (1/32"), an end-to-end tolerance of +/-0.8 mm (1/32"), and a playing surface tolerance of +/-0.4 mm (1/64") when installed by CRS Products International and according to conditions set forth in these specifications.

## PART 2 - PRODUCTS

### 2.01 - Materials

- A. Steel Framing:
- Front walls — 152 mm (6") x 1.2 mm (18) ga. metal cee studs, 305 mm (12") o.c. with deep leg track
  - Back walls — 152 mm (6") x 1.2 mm (18) ga. metal cee studs, 305 mm (16") o.c. with deep leg track
  - Side walls — 152 mm (6") x 1.2 mm (18) ga. metal cee studs, 305 mm (12") o.c. with deep leg track
  - Common walls — 152 mm (6") x 1.2 mm (18) ga. metal cee studs, 400 mm (16") o.c. with deep leg track
  - Ceiling joists — 152 mm (6") x 1.5 mm (16) ga. metal cee studs, 400 mm (16") o.c.
- Note: 92 mm (3 1/2") x 1.2 mm (18) ga. metal cee studs may be substituted at perimeter walls if bracing can be attached at 0.25 mm (1/4) points to exterior building wall or mezzanine deck support.
- B. FURRING: (supported by masonry walls)
- Front walls — nominal 25.4 mm (1") x 100 mm (4") or 50.8 mm (2") x 100 mm (4") furring, 305 mm (12") o.c.
  - Side walls — nominal 25.4 mm (1") x 100 mm (4") or 50.8 mm (2") x 100 mm (4") furring, 400 mm (16") o.c.
  - Back walls — nominal 25.4 mm (1") x 100 mm (4") or 50.8 mm (2") x 100 mm (4") furring, 400 mm (16") o.c.
- Note: Masonry walls shall be furnished to Racquetball court sub-contractor straight and plumb with a maximum variation of 3 mm (1/8") in any 3 meters (10') radius. Furring members shall be mechanically attached with low velocity Hilti shot at 2' intervals. Exterior walls should be properly insulated and vapor proofed.
- C. PANELS: (UL Fire Rated Wall Panels available upon request)
- Thickness: Squash Court front wall Model #176-CRS-65 38 mm (1 7/16") thick, Squash Court side wall and Racquetball Court. Front wall Model #0118-CRS-65 — 28.6 mm (1 1/8") thick incorporating 6.35 mm (1/4") thick 1153 kg/cu m (72 lbs./cf) hardboard on both the playing and non playing sides with a 1.4 mm (0.050") thick 1362 kg/cu m (85 lbs./cf) high density plastic laminate surface both sides for a total composite density of 1041 kg/cu m (65 lbs./cf). Side and rear walls Model #1316-CRS-S — 20.6 mm (13/16") thick, 961 kg/cu m (60 lbs./cf) composite density. Ceiling Model #0058-CRS — 15.9 mm (5/8") thick, 721 kg/cu m (45 lbs./cf) composite density.
  - Dimensions: Panel sheets shall be 1219 mm (4') x 2438 mm (8') and 1219 mm (4') x 1219 mm (4') and installed in a staggered configuration.
  - Surface: High-pressure plastic laminate with velvet texture finish 1.4 mm (0.050") in thickness with an average density 1362 kg/cu m (85 lbs./cf).
  - Core: Industrial grade high density particle board of nominal 882 kg/cu m (55 lbs./cf) and 721 kg/cu m (45 lbs./cf) density conforming to commercial Standards (CS236-66).
  - Squash Court paneling must conform to International Squash Racquet Regulation sizes of 38 mm (1 7/16") for front walls and 28.6 mm (1 1/8") for side walls.
- D. ADHESIVE:
- Rigid set glue conforming to Federal Specifications MMM-A-188. Attach panels to steel stud system or wood furring with screws and B.F. Goodrich P.L. 400 or W.W. Henry #217 heavy bodies structural adhesive.
- E. DOOR:
- Shall be a 45 mm (1 3/4") solid core wood door as manufactured by Stratford Industries with full length piano hinge and covered both sides with matching plastic laminate. Soss hinges are not acceptable. Door size 762 mm (2'6") x 2032 mm (6'8") with 254 mm (10") x 254 mm (10") viewport, or CRS Sports glass door C/W frame. Available in special sizes.
- F. GLASS: (5 year warranty)
- CRS Sports glass and Multi-Purpose Convert-A-Court as manufactured and supplied by CRS Products International. Complete glasswall systems court doors and view windows.
- G. LIGHTS:
- Flourescent fixtures by Devoe Systems.
  - Metal halide fixtures by Abolite Lighting, with heat and impact resistant prismatic glass lenses.
- H. FLOORS
- Concrete sub-floor shall be furnished to the racquetball court sub-contractor broom-clean and steel troweled smooth, and level with a maximum variation of 3 mm (1/8") in any 3 m (10') radius. Any leveling required to meet this tolerance shall be the responsibility of the general contractor or owners.
  - CRS Products International provides and installs wood floor systems utilizing MFMA northern hard maple.
- I. TELL-TALES (Game Line Mouldings):
- Squash court tell-tales (delete if not applicable) — 0.60 mm (16) gauge steel and appropriate dimension size. Game Line Moulding (14) gauge.
- J. ACCESSORIES
- Valuable storage compartments (valu box) as manufactured by CRS Products International.
  - CRS Wallyball Set interior or Racquet Ball Court as supplied and installed by CRS Products International.

## PART 3 - EXECUTION

### 3.01 - Inspection

- A. Inspect court area to ensure conditions as set forth in these specifications have been adhered to.
- B. Inspect concrete sub-floors and masonry walls for proper tolerance and dryness. Discrepancies should be reported to the general contractor and architect in writing. Correction of such is the responsibility of others.
- C. Masonry walls shall be free of protruding mortar by masonry contractor.

### 3.02 - Installation

- A. Install metal studs and/or furring in width and spacing in locations as shown on plans. Studs shall be plumb and corners square. Attach aluminum spline to studs with no fewer than four (4) screws per panel edge. Each stud shall receive a ribbon of construction adhesive the full length of the panel. No plugs shall be used and no screwheads shall show.
- B. Clean-up all debris caused by work in this section and remove same from the premises.

Manufacturer reserves the right to change design or specifications to improve product or processing at any time, without notice.

**1-800-661-4174 • E-MAIL: sales5@crsproducts.com • Visit our Website at www.crsproducts.com**

## SQUASH • RACQUETBALL • HANDBALL COURTS

# CONSTRUCTION DIVISION

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CRS PRODUCTS INTERNATIONAL  
321 S. MAIN STREET, UNIT 536,  
SEBASTOPOL, CALIFORNIA, U.S.A. 95472  
TELEPHONE (415) 543-4113 FAX (415) 543-4114  
TOLL FREE 1-800-661-4174

CRS PRODUCTS INTERNATIONAL  
10021 - 169 STREET  
EDMONTON, ALTA., CANADA T5P 4M9  
TELEPHONE (780) 484-2786  
FAX (780) 484-5827

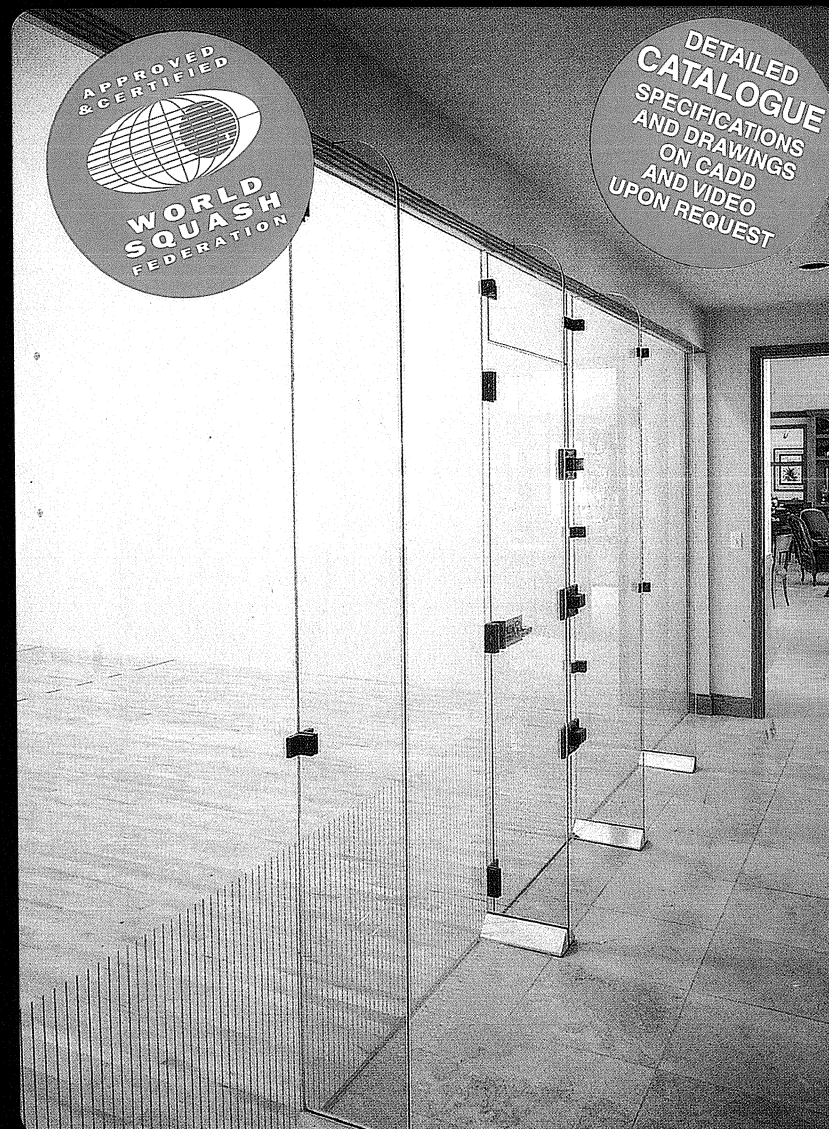
CRS PRODUCTS INTERNATIONAL  
419 AVON CRESCENT  
OAKVILLE, ONT., CANADA L6J 2T1  
TELEPHONE (416) 283-3452  
FAX (416) 283-3452

CRS PRODUCTS INTERNATIONAL  
UNIT #1, 3511 VIKING WAY  
RICHMOND, B.C., CANADA V6V 1W1  
TELEPHONE (604) 278-7997  
FAX (604) 278-7967



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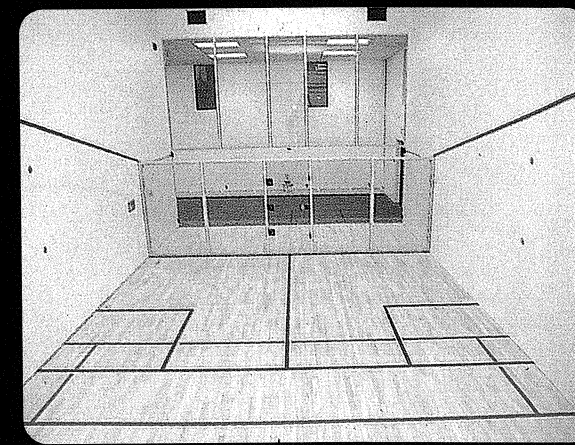
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**FOR MULTI PURPOSE COURTS  
THE ORIGINAL CONVERT-A-COURT**

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**MOVEMENT WITHIN 60 SECONDS  
WITH FLUSH MOUNTED PERMANENTLY  
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CRS Sports glass championship glass walls with white etched lines. The ultimate for racquetball, squash, handball courts. Available in all sizes with custom sized doors for the physically challenged. Glasswall fittings available in black, deep bronze and other colours to match your interior.

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