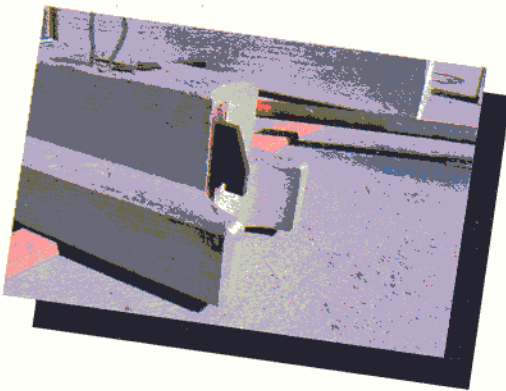
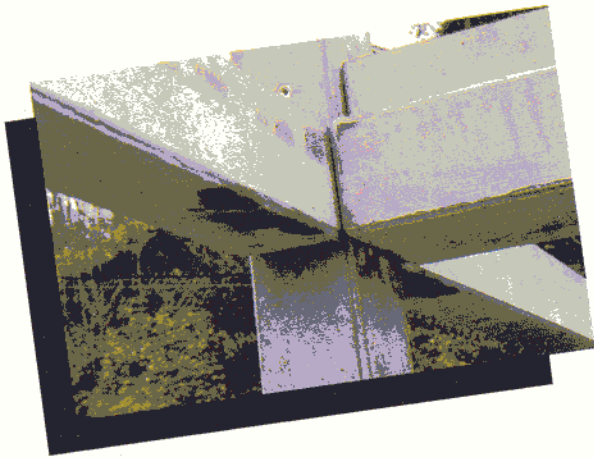
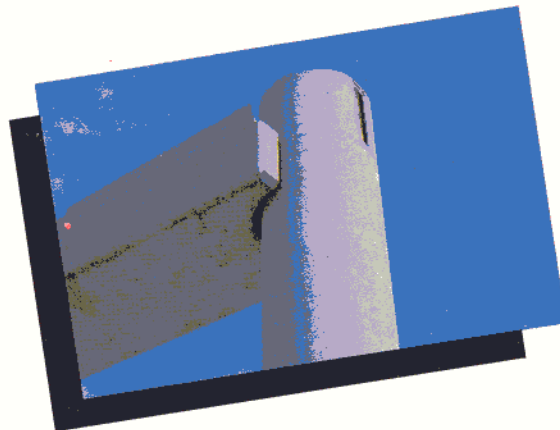


BSF

PRECAST CONCRETE BEAM TO COLUMN CONNECTION SYSTEM



**“THE
INVISIBLE
CORBEL”**



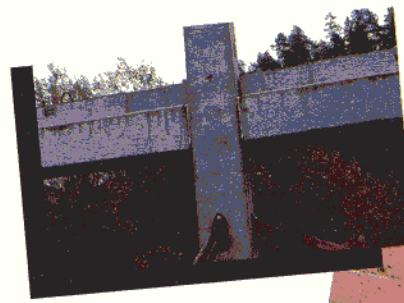
JVI

ACCESSORIES, INC.

7550 North Linder Avenue • Skokie, Illinois 60077 USA • 847/675-1560 • Fax 847/675-0083 • 1-800-742-8127

WHAT IS IT?

The **BSF** connection is a hidden beam end connection for gravity loads that eliminates the need for projecting column corbels. It provides a simple, efficient connection that allows the designer new freedom in creating clean, elegant lines in the completed precast/prestressed concrete structure. The **BSF** connection can be used in all types of building structures where beams frame into columns, such as office buildings, hotels, parking structures, schools, sports stadiums, and other similar structures.



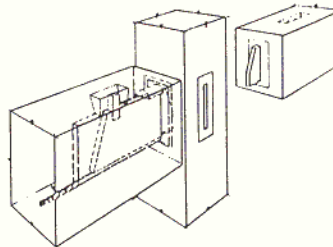
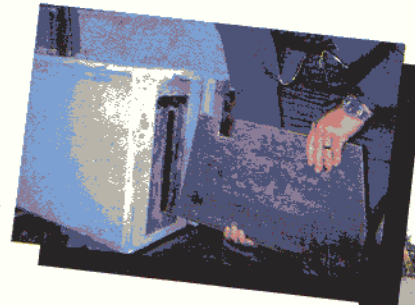
THIS...



...INSTEAD OF THIS

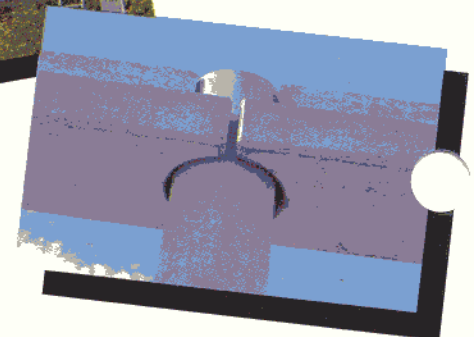
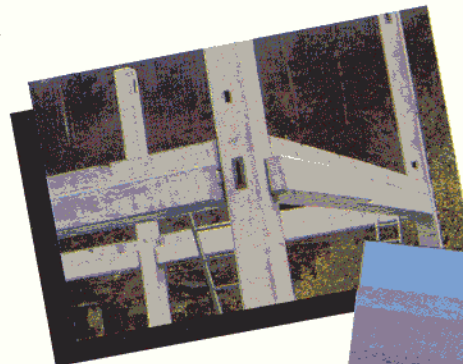
HOW DOES IT WORK?

From a steel box unit cast into the concrete beam end, a sliding steel "knife" plate with a safety notch is cantilevered into a steel box unit that has been cast into the concrete column. The efficient "invisible corbel" allows new possibilities in geometrical expression with greater freedom for architectural design of precast concrete structures.



ADVANTAGES

- Clean straight lines
- Completely hidden connection
- Quick erection...no bolting or welding on site
- Flexibility in column production sequence.
- Reduces space requirements for storage and transport
- Lowers transport costs
- Easily used with round columns
- Easily protected against fire and corrosive elements
- Saves time in design and drafting
- Efficient production technique
- Standard hardware inventory



The **BSF** connection is available in six standard sizes to provide a full range of load capacities.

SIZE/CAPACITY

VERTICAL DESIGN (ULTIMATE) STRENGTH (ϕR_n)

BSF TYPE	SIZE (IN.xIN.)	KNIFE PLATE AISC (LRFD) ⁽¹⁾ ACI 318 ⁽²⁾		MIN. BEAM SIZES ⁽³⁾ ($f'_c = 5000$ psi)	
		KIPS (kN)	KIPS (kN)	WIDTH (IN)	HEIGHT (IN)
150/20	5.91x0.79	45(200)	50(222)	8	22
200/20	7.87x0.79	67(300)	75 (334)	10	24
200/30	7.87x1.18	101(450)	110 (489)	14	24
200/40	7.87x1.57	135 (600)	150 (667)	15	30
200/50	7.87x1.97	157 (700)	175 (778)	16	34
250/50	9.84x1.97	213(945)	235 (1050)	21	36

(1) AISC design strength shown must be equal or greater than required strength,
 $U=1.2D+1.6L$ and $U=1.4D$

(2) ACI 318 design strength shown must be equal or greater than required strength,
 $U=1.4D+1.7L$

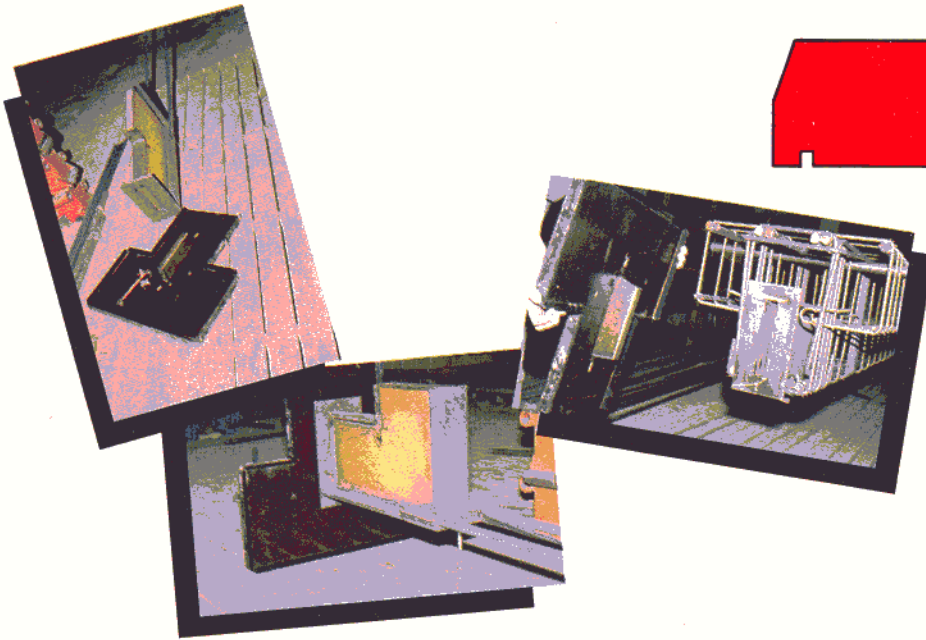
(3) Smaller width possible with deeper beam size. BSF unit must be located near top of beam section for minimum beam height shown.

The **BSF** technical data manual presents the concept, engineering and design examples that illustrates conformance to Standard Industry Practice. By specifying a **BSF** connection the user is assured of connection components of known load capacity designed to meet AISC and ACI 318 strength requirements. Also, full-scale load tests have verified the engineering design methodology. The **BSF** connection system can be easily incorporated into typical building designs.

WHAT ABOUT TORSION?

The BSF connection is intended to be a vertical gravity connection. During erection, torsional forces are created as deck members are placed onto the beam. Temporarily these beam torsional forces must be addressed by erection procedures (i.e. support posts, column brackets, grout joints) until the design permanent connections between beam and deck members and/or beam and column members are completed.

FABRICATION



A few simple devices and methods have been developed to insure correct and secure placement of the **BSF** box units during casting. The fabrication technique allows accurate placement in the forms with proper positioning easily checked prior to casting. A fabrication procedure is included in the **BSF** technical data manual.

ERECTION



Field erection is easily accomplished...usually within 5 minutes per beam. The beam is lifted into position with knife plates fully retracted. When the beam is correctly positioned, the knife plates are extended into the column box until they hit the back wall and the underside slots of the knife plate engage the lip.



SPECIAL FEATURES

The **BSF** connection system is a valuable tool in creating an architectural statement. Design possibilities such as round columns, wrap-around forked beams and skewed connections are routine.

For help in designing the **BSF** connection into your next project, contact a JVI sales engineer and ask for a **BSF** technical data manual. Information on the **BSF** connection system is accessible on the internet; E-Mail: jvi@enteract.com and also our Internet address is: <http://www.enteract.com/~jvi>