

# **STEEL FIBER REINFORCED CONCRETE, A BETTER TECHNOLOGY**

**CONCRETE FIBER SOLUTIONS: WE PUT  
THE STEEL IN FIBER REINFORCEMENT**

**PROSLAB<sup>®</sup>**  
BY **CFS<sup>™</sup>**

# **WHAT IS STEEL FIBER**

- **Specification: ASTM A820**
- **High Tensile Strength Low Carbon Steel**
- **Deformed For Maximum Bond**
- **Discontinuous Reinforcement**
- **Three Dimensional**
- **Ductile**

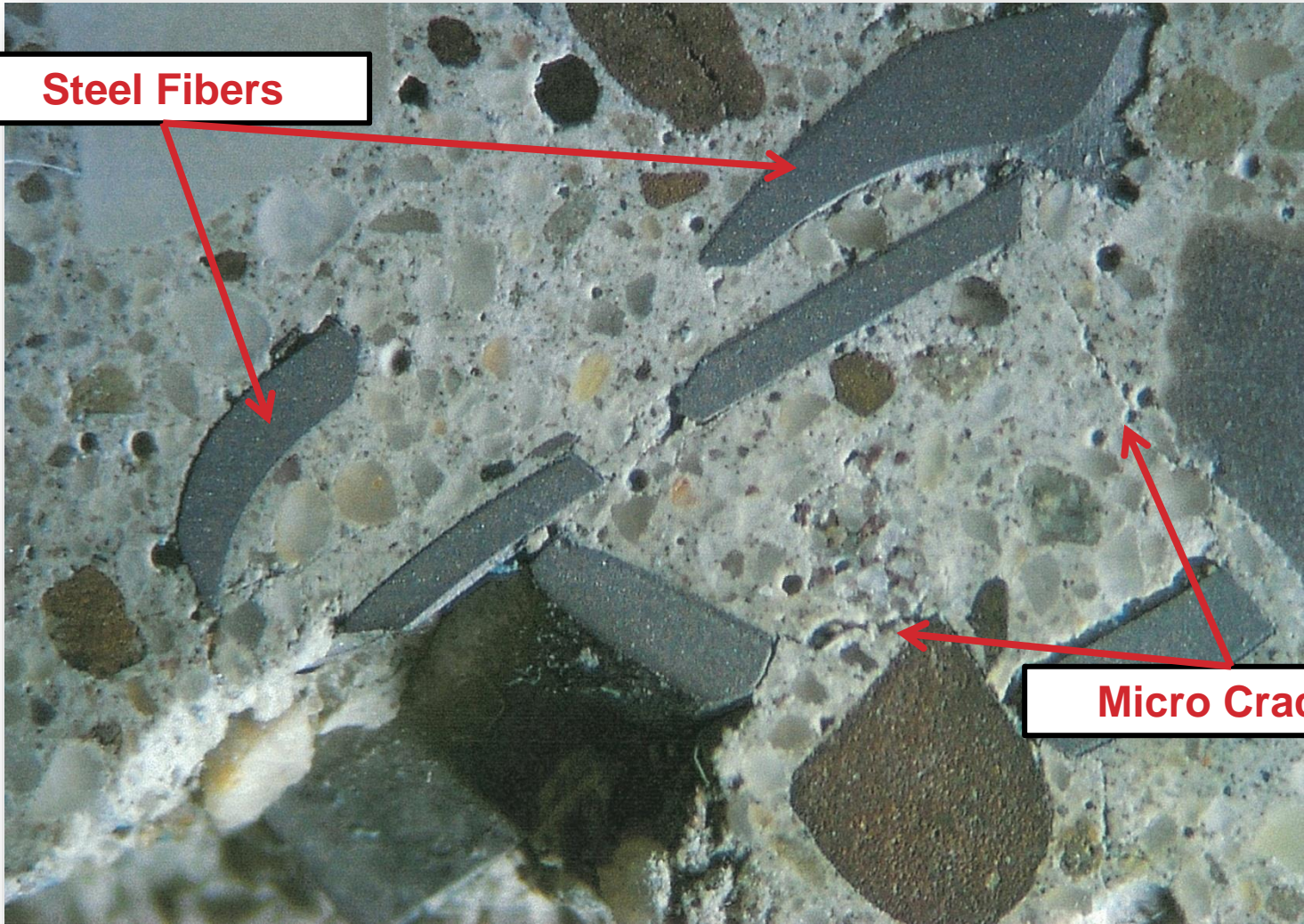
# **APPLICATIONS**

- **Slab-on-Grade/Extended Joints**
- **Multi-Story Composite Deck**
- **Freezer/Refrigerated Slabs**
- **Exterior Pavement**
- **Food Processing**

# **AFFECTS OF STEEL FIBER**

- **Increased Flexural Strength**
- **Fatigue**
- **Impact Resistance**
- **Ductility**
- **Arrests Microcracks**
- **Relieves Internal Strain**

# ARRESTING THE MICROCRACKS



**Steel Fibers**

**Micro Cracks**

# **DESIGN CONSIDERATIONS**

- **Subgrade reaction factor  $k$**
- **Loading characteristics**
- **Determine slab thickness and concrete strength as if the slab were unreinforced**
- **Determine Steel Fiber dosage based on application: e.g. shrinkage crack control, extended joint, fatigue/impact**
- **Load Transfer and edge protection**

# **MIXING, PLACING AND FINISHING**

- **Fibers on the Surface: Steel Fiber specific gravity 7.86**
- **Corrosion: Steel Fiber is discontinuous, paste coverage insulates fiber**
- **Distribution: 70 revolutions on high speed creates homogenous distribution**
- **No additional wear on mixing trucks, trowel machines**
- **Hard Trowel burnished finish**
- **Exterior brush finish**

# ADDING STEEL FIBER TO THE MIX





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# **FINISHING**

- **Laser Screed: Provides sufficient surface vibration to consolidate Steel Fiber below surface**
- **Vibrate edges to consolidate**
- **Pans first for flatness, blades to harden surface**
- **SawCuts: Steel Fiber requires 1/3 of the slab/pavement depth; timing is important**

# FINISHING



# **ENTERPRISE WEST PROJECT WEST CHICAGO, IL**



# PROLOGIS PROJECT LOCKPORT, IL



# CATERPILLAR PROJECT PEORIA, IL



# WOODWARD PROJECT ROCKFORD, IL



# CASE STUDY: REBAR VS. STEEL FIBER

**Project: White Wave Foods plant expansion to add 141,000 sf. warehouse / distribution space**

	Rebar Design	CFS Fiber
Rebar (160 tons)	\$ 244,320	\$ 0
Poly (10 mil)	\$ 0	\$ 12,320
Steel Fibers (60# / cy)	\$ 0	\$ 228,867
Prep pour	\$ 7,000	\$ 0
Pumping	\$ 35,250	\$ 0
Construct Joints	\$ 3,800	\$ 0
Dowel Baskets	\$ 0	\$ 20,240
Saw Cuts	\$ 9,066	\$ 2,229
Joint Filling	\$ 54,396	\$ 13,371
<b>TOTAL</b>	<b>\$ 353,832</b>	<b>\$ 277,026</b>

**Total Savings**  
**\$ 76,805**

**Installation Time**  
CFS vs Rebar  
**7 Days** vs 14 Days

**Advantage CFS:**  
Floor placed and finished at a lower cost, in less time than just setting the rebar for a traditional design