

PROCEDURE FOR THE PROPER INSTALLATION OF PRECAST HOLLOWCORE SLABS

1 SHIPPING NOTIFICATION

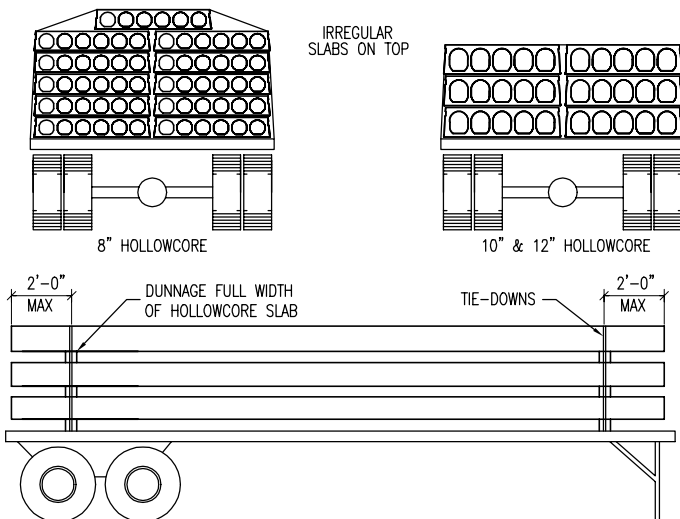
- A.) PLEASE PROVIDE A MINIMUM OF 7 WORKING DAYS NOTICE PRIOR TO DELIVERY. YOUR IPC TRANSPORTATION MANAGER CAN BE CONTACTED AT 515-648-2579
- B.) PLACE ORDER BY PIECE MARK NUMBER AND REQUIRED SEQUENCE OF INSTALLATION. REFER TO 3A.
- C.) THE PIECE MARK NUMBER IS LOCATED ON THE END OF THE HOLLOWCORE SLAB.
- D.) PRIOR TO PLACEMENT OF ORDER, VERIFY THAT THE ERECTION DRAWINGS IN YOUR POSSESSION ARE CURRENT AND UP-TO-DATE BY CONTACTING YOUR PROJECT COORDINATOR. ONLY IPC DRAWINGS STAMPED "APPROVED FINAL FOR CONSTRUCTION" ARE TO BE USED.
- E.) ACTUAL SHIPPING DATES ARE SUBJECT TO AVAILABILITY OF TRAILERS, WEATHER AND PRIOR SHIPPING COMMITMENTS
- F.) SUPPLY TRANSPORTATION MANAGER WITH WRITTEN DIRECTIONS TO JOBSITE.

2 BEFORE ORDERING

- A.) BEARING REQUIREMENTS AND ERECTION DETAILS TO BE AS PER IPC DRAWINGS AND DETAILS.
- B.) VERIFY ALL SITE DIMENSIONS AND CONDITIONS SHOWN ON IPC DRAWINGS AND DETAILS PRIOR TO ORDERING OF HOLLOWCORE TO ENSURE PROPER FIT. ALL CORRECTIONS OR FIELD MODIFICATIONS ARE TO BE COMPLETED PRIOR TO PLACING ORDER.
- C.) WRITTEN APPROVAL SHALL BE OBTAINED FROM THE ENGINEER OF RECORD (NOT IPC) PRIOR TO ERECTION OF THE HOLLOWCORE SLABS FOR STABILITY OF THE SUPPORTING STRUCTURE.
- D.) ENSURE ALL MATERIAL NECESSARY FOR THE ERECTION OF PRECAST MEMBERS IS ON HAND AND PROPERLY LOCATED AS PER IPC DRAWINGS AND DETAILS, AS WELL AS PER STRUCTURAL & ARCHITECTURAL DRAWINGS.

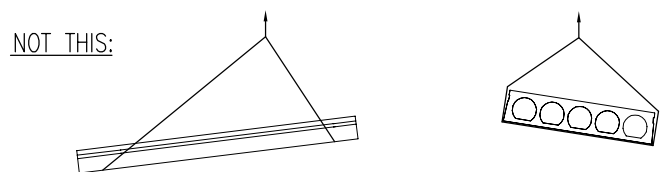
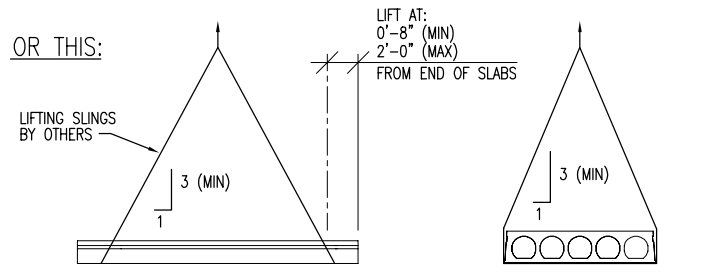
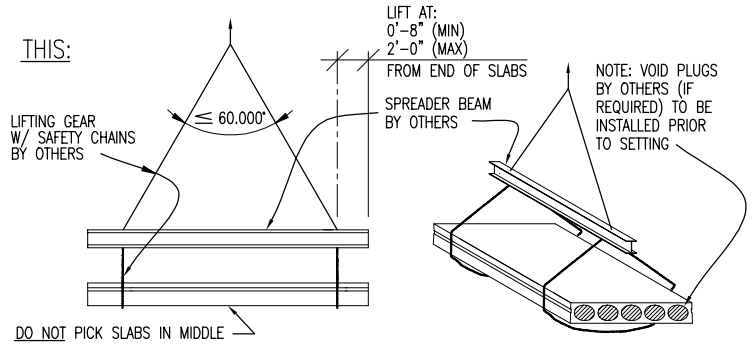
3 TRANSPORTATION

- A.) THE DIAGRAMS BELOW INDICATE THE MAXIMUM LOADING PATTERNS ON HIGH BED TRAILERS. LOADS MAY BE GOVERNED BY LEGAL TRAILER CAPACITY AND/OR SLAB GEOMETRY. SEQUENCE OF SLABS FOR OFF-LOADING MAY DIFFER SLIGHTLY FROM THAT ORDERED DUE TO SLAB GEOMETRY AND LOAD OPTIMIZATION.
- B.) TIE DOWNS AND MINIMUM 4" WIDE DUNNAGE TO BE LOCATED WITHIN 2'-0" FROM THE ENDS OF THE HOLLOWCORE SLABS AND ALIGNED VERTICALLY.
- C.) PROCEDURES FOR PLACEMENT OF DUNNAGE ON NONSTANDARD SLABS WILL BE SHOWN ON IPC HANDLING DIAGRAMS, IF REQUIRED.
- D.) MOVING THE LOAD WITHOUT PROPER TIE-DOWNS MAY CAUSE DAMAGE TO THE HOLLOWCORE SLABS.
- E.) INSPECT HOLLOWCORE SLABS PRIOR TO OFF-LOADING FOR ANY DAMAGE AND REPORT IT IMMEDIATELY TO THE IPC PROJECT MANAGER. OTHERWISE, IT IS UNDERSTOOD THAT THE PRODUCT ARRIVED TO THE JOB SITE DAMAGE FREE. ANY DAMAGE TO THE PRODUCT DURING INSTALLATION WILL BE THE RESPONSIBILITY OF OTHERS.
- F.) SUITABLE ACCESS SHALL BE PROVIDED AND MAINTAINED TO AND FROM THE TRAILER STAGING AREA.
- G.) ALL DUNNAGE TO BE RETURNED TO IPC.



4 HOISTING

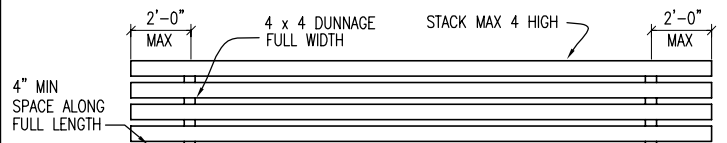
- A.) USE LIFTING GEAR OF ADEQUATE CAPACITY WITH MINIMUM SAFETY FACTOR OF 5:1. INSPECT GEAR AT LEAST DAILY FOR SIGNS OF WEAR AND/OR DAMAGE. INSTALLER TO VERIFY SAFE WORKING CAPACITIES OF SLINGS AND/OR SPREADER BARS PRIOR TO USE. NEVER LIFT MORE THAN RATED CAPACITY.
- B.) ONLY USE EQUIPMENT SPECIFICALLY SUITED FOR THE ERECTION OF PRECAST CONCRETE. NEVER HANDLE HOLLOWCORE FROM THE MIDDLE OF THE SLAB (e.g. FORKLIFT).
- C.) ONLY ONE SLAB TO BE HOISTED AT A TIME.
- D.) ENSURE LOAD IS BALANCED TO AVOID SLIPPING AND TO MINIMIZE TWIST ON LIFTING GEAR AND SLABS. HOLLOWCORE TO BE HANDLED LEVEL AND TRUE AT ALL TIMES.
- E.) DO NOT USE HOLLOWCORE AS A PLATFORM FOR HOISTING OTHER BUILDING MATERIALS UNLESS A PROCEDURE IS SUBMITTED BY AN ENGINEER.
- F.) NEVER USE THE END VOIDS TO HOIST THE HOLLOWCORE SLABS.
- G.) **HAND TRAP!** NEVER HANDLE THE SLABS ON THEIR SIDES, ONLY ON TOP SURFACE OR BY LIFTING GEAR. NEVER PUT HANDS IN CORES OR ON SIDE OF SLAB. KEEP HANDS ON TOP ALL TIMES.



5 SITE STORAGE

IF REQUIRED, SITE STORAGE OF PRECAST HOLLOWCORE SLABS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

- A.) STORAGE AREA TO BE FIRM, LEVEL AND TRUE.
- B.) BOTTOM SLAB TO BE BLOCKED A MINIMUM OF 4" ABOVE GRADE, FULL LENGTH AND WIDTH, AS TO PREVENT SETTLEMENT OF PRECAST HOLLOWCORE STACK.
- C.) NO OTHER LOAD ON THE HOLLOWCORE STACK IS ALLOWED UNLESS WRITTEN APPROVAL FROM IPC ENGINEERING IS OBTAINED.
- D.) ALWAYS HANDLE HOLLOWCORE SLABS IN THE FLAT HORIZONTAL POSITION. NEVER TURN SLAB ON EDGE OR END UNLESS APPROVED BY IPC ENGINEERING.



OFFICE

SALES
ENGINEERING
ACCOUNTING

601 S.W. 9TH STREET, SUITE B
DES MOINES, IOWA 50309
TEL: 515-243-5118
FAX: 515-243-5502

DES MOINES
PRODUCTION PLANT

HOLLOW CORE
WALL PANELS
DOUBLE TEES
SHIPPING

3312 S.E. GRANGER STREET
DES MOINES, IOWA 50317
TEL: 515-265-0711
FAX: 515-266-6280

**PROCEDURE FOR THE PROPER INSTALLATION
OF PRECAST HOLLOWCORE SLABS**

6 PLACEMENT

- A.) SLABS TO BE LOCATED AS PER IPC DRAWINGS.
- B.) IPC DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL & STRUCTURAL DRAWINGS FOR CONNECTION DETAILS OF OTHER BUILDING COMPONENTS AND/OR STRUCTURAL SYSTEMS INTERFACING WITH HOLLOWCORE MEMBERS.
- C.) IPC HAS LAID OUT THE HOLLOWCORE IN THE MOST EFFICIENT MANNER POSSIBLE AND HAS MADE EVERY ATTEMPT TO ELIMINATE POUR STRIPS. IF POUR STRIPS ARE REQUIRED, THEY SHALL BE THE RESPONSIBILITY OF OTHERS (NOT IPC).
- D.) MINIMUM BEARING TO BE 2 3/4" UNLESS OTHERWISE NOTED ON IPC DRAWINGS. BEARING LESS THAN THIS TO BE APPROVED BY IPC ENGINEERING.
- E.) ALL OTHER HANGERS, CLIPS, TIES, SUPPORTS, ETC. NECESSARY ARE TO BE LOCATED AS PER IPC DRAWINGS AND DETAILS AS WELL AS ARCHITECTURAL/STRUCTURAL DRAWINGS.
- F.) ANY DEVIATION SHALL BE REPORTED IMMEDIATELY TO IPC ENGINEERING.
- G.) WHERE REQUIRED, SLABS SHALL BE SHORED AT THE LOCATIONS INDICATED ON IPC DRAWINGS (UNTIL GROUT REACHES 2500 PSI) TO PREVENT AN UNSTABLE FIELD CONDITION.
- H.) THE DESIGN, INSTALLATION AND INSPECTION OF ALL TEMPORARY BRACING AND SHORINGS SHALL BE THE RESPONSIBILITY OF THE INSTALLER'S ENGINEER (NOT IPC).
- J.) THE INSTALLER IS RESPONSIBLE FOR ENSURING ANY SLABS WITH DIFFERENTIAL CAMBER ARE LEVELED, ADJUSTED, ETC. TO WITHIN ALLOWABLE TOLERANCES PRIOR TO GROUTING.
- K.) HOLLOWCORE INSTALLATION ONTO STRUCTURAL STEEL SHALL BE REVIEWED BY THE ENGINEER OF RECORD (NOT IPC) WITH RESPECT TO UNBALANCED LOADING OF SAME. IPC RECOMMENDS THAT SLAB INSTALLATION BE ALTERNATED TO REDUCE TORSION ON THE STEEL BEAM(S). ENSURE BEAMS ARE BRACED ADEQUATELY AT MID-SPAN TO AVOID ANY POSSIBLE KICK-OUT.
- L.) ERECT PRODUCT TO TOLERANCES SPECIFIED IN PCI MNL-116
- M.) CONTINUOUS SUPPORT IS TO BE PROVIDED (BY OTHERS) UNDER THE BEARING ENDS OF ALL HOLLOWCORE SLABS.
- N.) ALL FIELD WELDING OF CONNECTIONS SHOWN ON IPC DRAWINGS AND DETAILS TO BE PERFORMED BY WELDERS QUALIFIED WITHIN THE PREVIOUS TWELVE MONTHS, IN ACCORDANCE WITH AWS B2.1. ALL FIELD WELDING TO CONFORM TO THE REQUIREMENTS OF AWS D1.1-STRUCTURAL WELDING CODE-STEEL, AND AWS D1.4-STRUCTURAL WELDING CODE-REINFORCEMENT, IF APPLICABLE.

7 GROUTING

- A.) REMOVE ALL LOOSE DEBRIS FROM JOINTS PRIOR TO GROUTING.
- B.) GROUTING MATERIAL SHALL HAVE A MINIMUM 28-DAY STRENGTH OF 5000 PSI. AIR CONTENT 3 TO 6% AND CONSIST OF SAND/CEMENT MIX, UNLESS OTHERWISE SPECIFIED BY THE ENGINEER OF RECORD
- C.) THE INSTALLER OF THE HOLLOWCORE SHALL BE REQUIRED TO REDUCE DIFFERENTIAL CAMBER BETWEEN ADJACENT SLABS TO NO GREATER THAN 1:1000 CAMBER TO SPAN RATIO - OR AS SPECIFIED IN THE PROJECT DOCUMENTS/SPECIFICATIONS. THE FINISHED RESULT WILL ONLY BE AS GOOD AS THE PLANNING AND CARE TAKEN. PROCEDURES FOR REDUCING DIFFERENTIAL CAMBER, OTHER THAN SHOWN BELOW, SHALL BE SUBMITTED TO IPC ENGINEERING FOR REVIEW.



D.) PLACEMENT OF REBAR AND MISCELLANEOUS HARDWARE SHALL BE AS SHOWN BELOW:



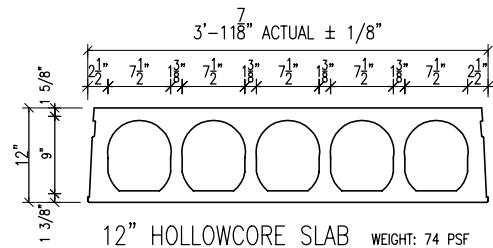
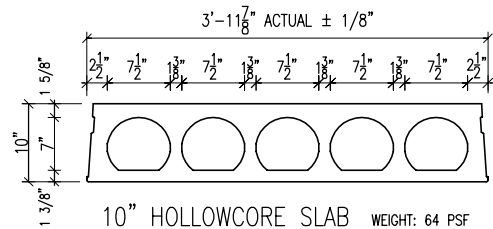
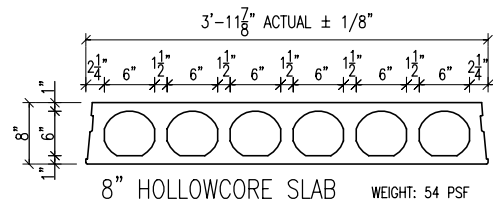
- i.) AT GROUT BAR LOCATIONS, THE BOTTOM LAYER OF GROUT SHALL BE PLACED PRIOR TO SETTING THE REBAR IN PLACE. THE REBAR SHALL BE COVERED WITH A SECOND LAYER OF GROUT TO ENSURE PROPER COVER OF THE BAR.
- ii.) ALL GROUT SHALL BE WELL CONSOLIDATED IN THE KEYWAYS BY ADEQUATE VIBRATION DURING THE PLACEMENT PROCESS.
- iii.) PRIOR TO GROUTING, ENSURE REQUIRED VOIDS ARE PLUGGED AT THE PROPER LOCATION AT THE SLAB ENDS.
- iv.) IN NO CIRCUMSTANCES SHALL THE GROUTING OF THE JOINTS AND SLAB ENDS BE DONE AS PART OF THE HOLLOWCORE TOPPING PROCESS.
- E.) MINIMUM COLD WEATHER GROUTING REQUIREMENTS ARE AS FOLLOWS UNLESS SPECIFIED ELSEWHERE:
 - i.) SUPPLEMENTARY HEATING IS REQUIRED WHEN AIR AND MATERIAL SURFACE TEMPERATURES FALL BELOW 40 DEGREES.
 - ii.) MAINTAIN A MINIMUM 50 DEGREE TEMPERATURE OF AIR, MATERIAL SURFACE AND GROUT. HEAT AND TARP AS REQUIRED.
 - iii.) 2500 PSI SHALL BE ACHIEVED PRIOR TO REMOVAL OF SUPPLEMENTARY HEATING, TARPING AND SHORING.
 - iv.) CHLORIDES SHALL NOT BE USED IN ANY CIRCUMSTANCE.
 - v.) THE FLOOR SYSTEM SHALL NOT BE ASSUMED TO HAVE FULL LOAD CARRYING CAPACITY UNTIL THE GROUT HAS REACHED ITS DESIGN STRENGTH.

8 CONSTRUCTION LOADS

- A.) UNTIL THE FLOOR SYSTEM IS FULLY GROUTED AND THE GROUT HAS ACHIEVED FULL DESIGN STRENGTH, THE CONSTRUCTION LIVE LOAD CAPACITY OF THE HOLLOWCORE SLAB SYSTEM SHALL BE LIMITED TO 10 PSF.
- B.) APPLICATION OF LARGER CONSTRUCTION LOADS SHALL BE SUBMITTED IN WRITING FOR REVIEW BY IPC ENGINEERING. STABILITY OF THE SUPPORTING STRUCTURE TO BE VERIFIED BY THE ENGINEER OF RECORD (NOT IPC) FOR THESE CONSTRUCTION LOADS. ON ALL UNGROUTED FLOOR SYSTEMS, ENSURE THAT CONSTRUCTION LOADS ARE NOT LOCATED ADJACENT TO OPENINGS.

9 FIELD CUT OPENINGS

- A.) ANY LARGE FIELD CUT OPENINGS SHALL BE CUT OUT AFTER THE GROUTING OPERATION IS COMPLETE AS PER ITEM 7, AND GROUT HAS REACHED 2500 PSI.
- B.) SUB-TRADES MAY DIAMOND DRILL OPENINGS 6" AND SMALLER BETWEEN THE WEBS AS SHOWN ABOVE. (MAXIMUM 2 PER SLAB)
- C.) SUB-TRADES MAY DIAMOND DRILL OPENINGS 6" AND SMALLER THROUGH THE WEBS OF THE HOLLOWCORE ONLY WITH THE EXPRESS WRITTEN CONSENT OF IPC ENGINEERING.
- D.) OPENINGS LARGER THAN 6" DIA. OR SQUARE ARE TO BE DIAMOND DRILLED OR SAW CUT ONLY WITH THE EXPRESS WRITTEN CONSENT OF IPC ENGINEERING.



10 TOPPINGS

- A.) IF COMPOSITE TOPPING IS REQUIRED TO CREATE THE FINAL STRUCTURAL ELEMENT, PROPER SURFACE PREPARATION IS REQUIRED. THIS WOULD INCLUDE:
 - i.) CLEANING THE TOP SURFACE OF THE HOLLOWCORE.
 - ii.) ENSURING A DAMP (NOT WET) HOLLOWCORE SURFACE.
 - iii.) APPLICATION OF A BONDING AGENT IN ACCORDANCE WITH MANUFACTURER'S SPECS.
- B.) EMPLOY PROPER CURING TECHNIQUES TO MINIMIZE DRYING SHRINKAGE.
- C.) REFER TO THE REQUIREMENTS OF ACI 301-96 FOR FURTHER INFORMATION.
- D.) REFER TO THE STRUCTURAL DRAWINGS/SPECIFICATIONS FOR FURTHER INFORMATION.

11 FIELD REPAIR AND MODIFICATION OF HOLLOWCORE

- A.) IF SLABS ARE DAMAGED, OR REQUIRE MODIFICATIONS TO SUIT SITE CONDITIONS, CONTACT IPC ENGINEERING IMMEDIATELY.
- B.) REPAIR OR REWORK PROCEDURES ARE TO BE REVIEWED BY IPC ENGINEERING PRIOR TO IMPLEMENTATION.

12 IF YOU HAVE

- DAMAGED SLABS?
- IMPROPER FIT?
- FIELD MODIFICATIONS REQUIRED?
- QUESTIONS ABOUT THESE DRAWINGS?

CALL YOUR IPC PROJECT MANAGER OR PROJECT COORDINATOR AT 515-243-5118