

CONSTRUCTION STANDARDS BY WELL TYPE--Indiana Water Well Drilling Rules, 312 IAC 13

Department of Natural Resources, Division of Water June 2004

Well type	Casing diameter	Casing depth	Borehole diameter	Grouting material in annular space	Grouting method	Grout amount	Bottom of grout	Top of grout	Gravel pack or MW filter pack	MW filter pack seal
ROTARY and AUGERED WELLS Rule 6 Sec. 1 and certain cable tool and jetted wells	2 inches minimum (inside)	25 feet minimum (below ground surface) VAR	at least 2 inches greater than outside diameter of casing	neat cement or bentonite slurry	pressure grouting	minimum 25 feet of borehole annulus VAR	<i>well penetrating bedrock--</i> bottom of well casing or top of formation packer <i>well in unconsolidated aquifer--</i> top of natural or introduced gravel pack	ground surface (or 4 feet below ground surface if pitless adapter is installed)	gravel pack shall not extend more than 10 feet above top of well screen VAR	
CABLE TOOL and JETTED WELLS Rule 6 Sec. 3	2 inches minimum (inside)	25 feet minimum (below ground surface)	at least 2 inches greater than outside diameter of driven casing, dug at least 3 feet but no more than 5 feet below surface	bentonite slurry, granular bentonite, or medium grade crushed bentonite	during installation of casing (slurry OK by gravity)			ground surface	gravel pack shall not extend more than 10 feet above top of well screen VAR	
BUCKET WELL installed as BURIED SLAB CONSTRUCTION Rule 6 Sec. 2b	2 inches minimum (inside); <i>pipe in slab--</i> 2 inches minimum	10 feet minimum (below ground surface)	(not specified-- a bucket well is a large-diameter well by definition)	<i>below buried slab--</i> washed graded gravel <i>above buried slab--</i> minimum 6 inches of concrete or granular, pelletized, or coarse grade crushed bentonite, then clean earth	earth is tamped to minimize settling	minimum 25 feet of borehole annulus	<i>washed graded gravel--</i> bottom of well <i>concrete or bentonite--</i> top of buried slab <i>clean earth--</i> top of concrete or bentonite seal layer	<i>washed graded gravel--</i> bottom of buried slab <i>concrete or bentonite--</i> minimum 6-inch seal layer <i>clean earth--</i> ground surface		
BUCKET WELL not installed as buried slab construction-- general provisions Rule 6 Sec. 2c		5 feet minimum (below ground surface)	at least 2 inches greater than outside diameter of lining or casing	<i>lower portion--</i> washed graded gravel <i>upper portion--</i> neat cement, bentonite slurry, or granular, pelletized, medium grade or coarse grade crushed bentonite			<i>washed graded gravel--</i> bottom of well <i>cement, bentonite slurry, or bentonite particles--</i> at least five feet below ground surface	<i>washed graded gravel--</i> at least 5 feet below ground surface <i>cement, bentonite slurry, or bentonite particles--</i> ground surface		
BUCKET WELL not installed as buried slab construction-- small diameter, fully cased Rule 6 Sec. 2c(6)	less than 12 inches (inside)	bottom of borehole	at least 2 inches greater than outside diameter of lining or casing	<i>lower portion--</i> washed graded gravel <i>upper portion--</i> minimum 6 inches of granular, pelletized, or coarse grade crushed bentonite, then clean earth	earth is tamped to minimize settling		<i>washed graded gravel--</i> bottom of well <i>bentonite--</i> top of graded gravel <i>clean earth--</i> top of bentonite seal layer	<i>washed graded gravel--</i> not less than 10 feet below ground surface <i>bentonite--</i> minimum 6-inch seal layer <i>clean earth--</i> ground surface		

CONSTRUCTION STANDARDS BY WELL TYPE--Indiana Water Well Drilling Rules, 312 IAC 13

Department of Natural Resources, Division of Water June 2004

Well type	Casing diameter	Casing depth	Borehole diameter	Grouting material in annular space	Grouting method	Grout amount	Bottom of grout	Top of grout	Gravel pack or MW filter pack	MW filter pack seal
ROTARY and AUGERED MONITORING WELLS Rule 8 Sec. 3a-i and certain cable tool and jetted monitoring wells	2" minimum <i>(to monitor grnd water quality)</i> 3/4" min. <i>(to monitor grnd water levels)</i>		at least 2 inches greater than nominal diameter of casing	neat cement or bentonite slurry for most wells, but see grouting table for Rule 8 Sec. 3j	pressure grouting (for most wells)		<i>well penetrating bedrock--</i> bottom of well casing <i>well in unconsolidated mat'ls--</i> top of filter pack or filter pack seal	ground surface (or 1 foot below ground surface if flush-mounted protective cover pipe is installed)	filter pack shall not extend more than 2 feet above top of well screen or uppermost water-bearing unit to be monitored VAR	filter pack seal (of pelletized, medium grade, or coarse grade crushed bentonite) shall not extend more than 2 feet above filter pack
CABLE TOOL MONITORING WELLS Rule 8 Sec. 3a-i & k	2" minimum <i>(to monitor grnd water quality)</i> 3/4" min. <i>(to monitor grnd water levels)</i>		at least 2 inches greater than nominal diameter of driven casing, dug at least 3 feet but no more than 5 feet below surface	bentonite slurry or granular bentonite, but see grouting table for Rule 8 Sec. 3j if a variant method creates significant annular space	during installation of casing (slurry OK by gravity)			ground surface	filter pack shall not extend more than 2 feet above top of well screen or uppermost water-bearing unit to be monitored VAR	filter pack seal (of pelletized, medium grade, or coarse grade crushed bentonite) shall not extend more than 2 feet above filter pack
GEOTHERMAL HEAT PUMP WELLS for vertical closed loop system Rule 8 Sec. 1c					pressure grouting		bottom of borehole	ground surface		

VAR--indicates that driller may seek a variance from this standard by contacting DNR Division of Water

MW--monitoring well