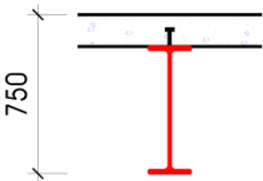
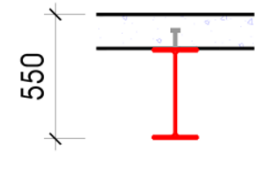
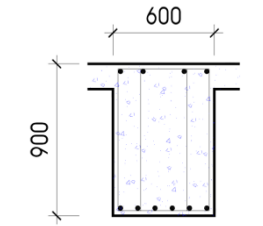
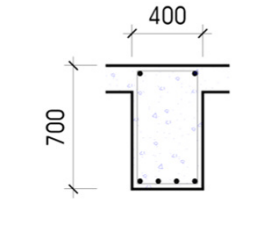
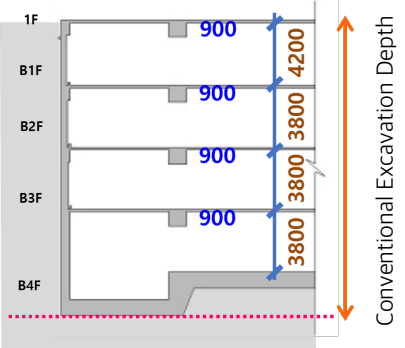
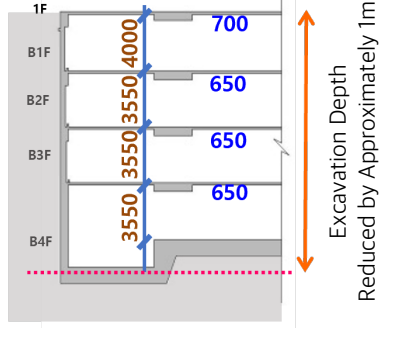


Reduced Structural Depth, Reduced Deflection & Vibration

Resolves Floor Height, Reduces Excavation Volume

CATEGORY	Conventional Structure	DBS Structure
Steel Structure		 Construction Cost Reduced by 15%
RC Structure		 Construction Cost Reduced by 10%
Excavation Depth	 Conventional Excavation Depth	 Excavation Depth Reduced by Approximately 1m Reduced Excavation Volume through Reduced Excavation Depth

Advantage of DBS

1. Reduced Excavation, Improved Economic Efficiency
2. Accommodation of King Post Construction Tolerances
3. Improved Constructability of Joints
4. Ensured Stability of Earth Retaining Wall
5. Minimized Risk of As-Built Measurement Ordering
6. Effect of Reduced Floor Height

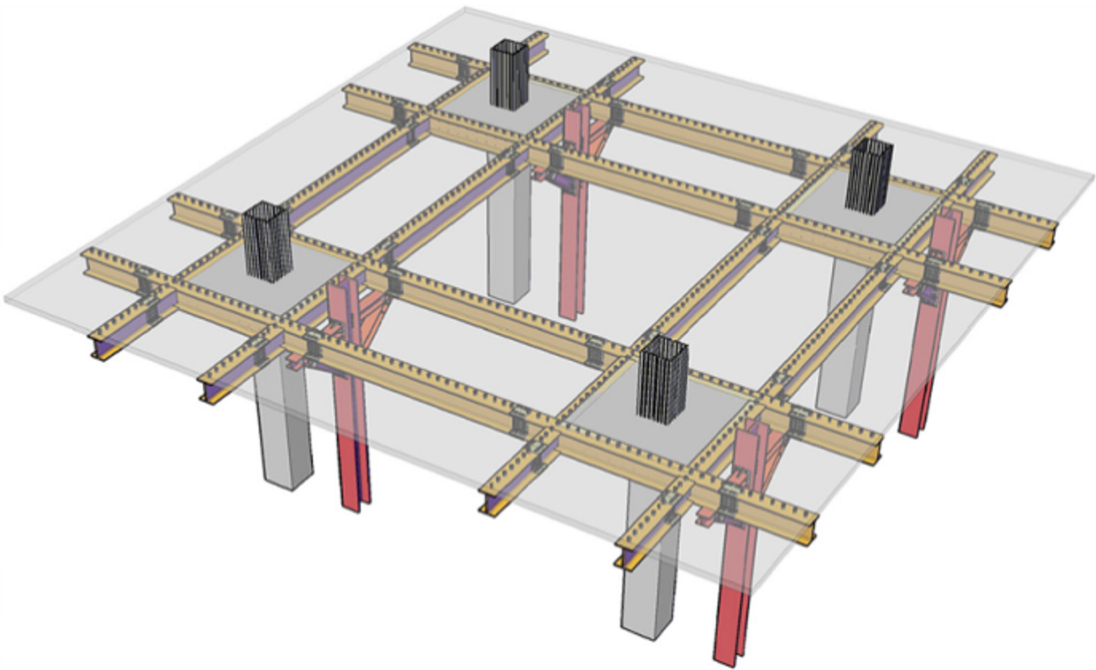


6thF Baro Bldg.9 Pungseong-ro 38-gil Gangdong-gu Seoul, Korea 05393
www.baro-ck.com
T/ 02.413.6503 F/ 02.413.6530
baro-ck@baro-ck.com

Minimizing Structural Depth to Reduce
Construction Time and Cost

DBS Method

(Double Beam System)

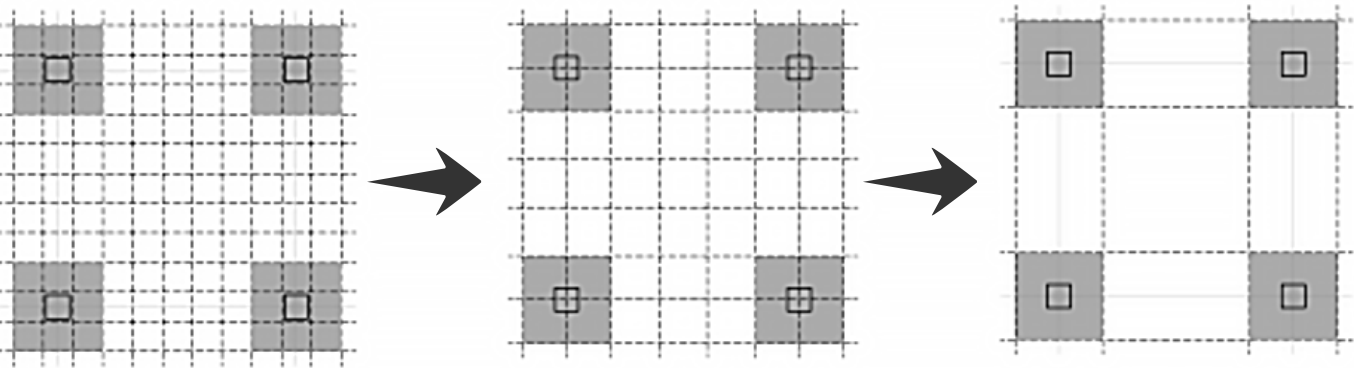


What is DBS (Double Beam System)?

A Construction Method That Minimizes Structural Depth Through Reduced Girder Stress.

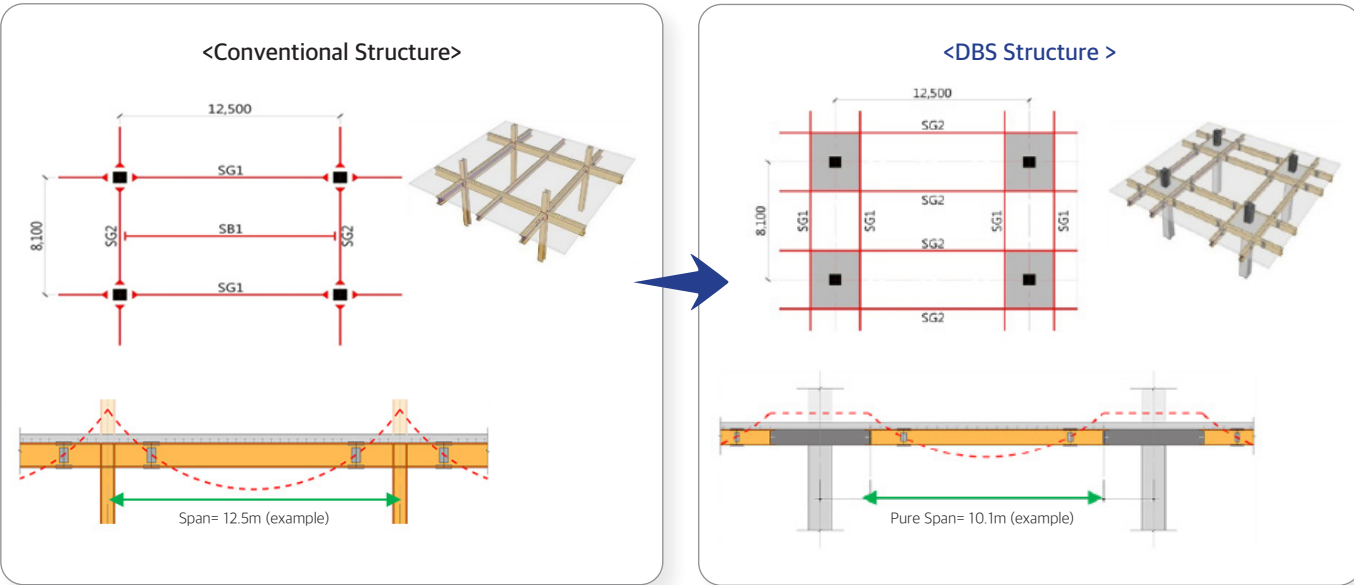
The Concept Behind DBS

The idea of replacing waffle slab joists with simple beams



Overview of the DBS Method

Compared to conventional steel structure, reduces member weight by 30% and structural depth by approximately 150mm



* Bending moment generated by the column-to-column span

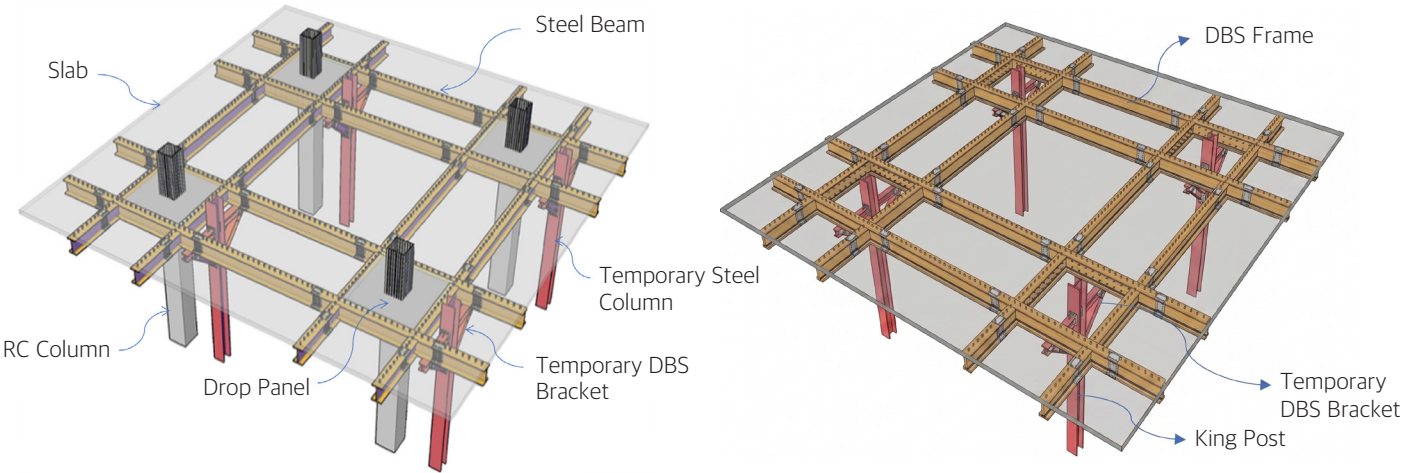
$$M_{max} = \frac{w}{12} \times (12.5)^2 = 13.02w$$

* Bending moment generated by the drop panel-to-drop panel span

$$M_{max} = \frac{w}{12} \times (10.1)^2 = 8.5w$$

Approximately 35% Reduction in Moment

DBS I , DBS II



DBS I

Temporary steel columns support the horizontal structural framing during basement construction (Used for the Downward construction sequence)

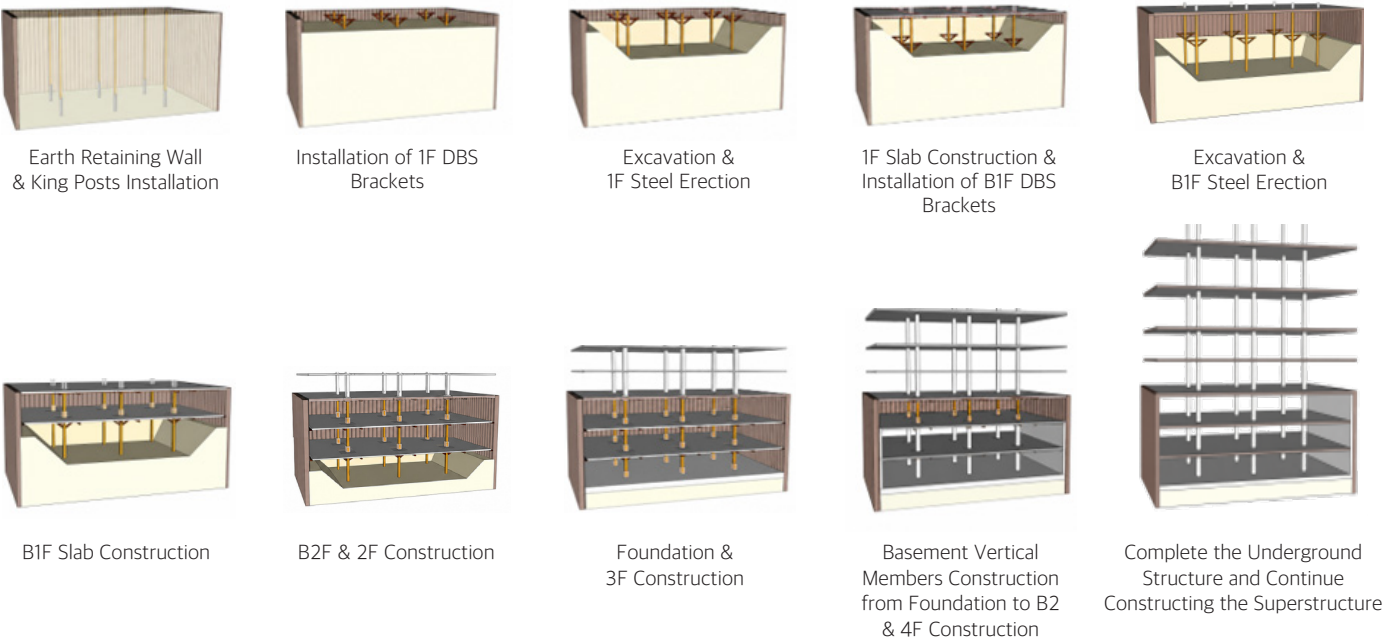
- Most Economical Top-Down Construction method
- Reduces Underground Excavation Depth and Earthwork Costs
- Reduces Cost and Time by Using Temporary steel columns Instead of King Post
- Enables Precise Construction Through Post-Installed RC Columns, Eliminating Risk from Construction Tolerance

DBS II

King posts support the horizontal structural framing during both basement and above-ground construction. (Used for Top-down & Up-up & Downward construction sequence)

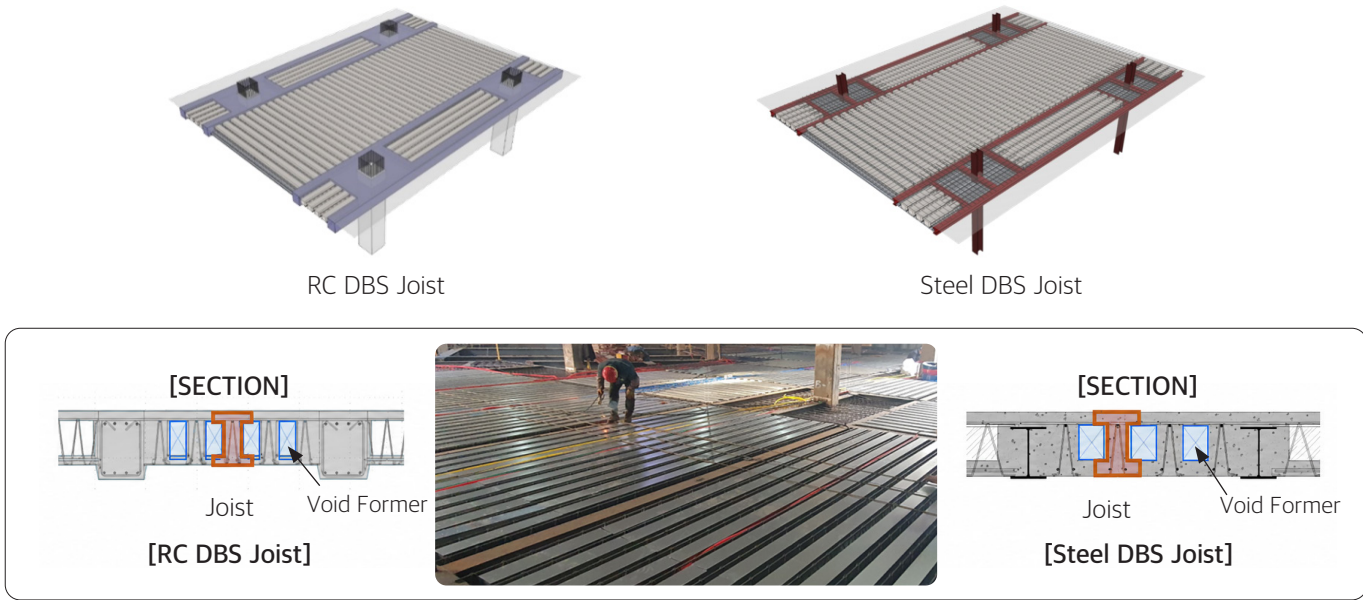
- Reduces the construction period by enabling the simultaneous construction of the above-ground and basement structures.
- Reduces Underground Excavation Depth and Earthwork Costs

DBS II Construction Sequence



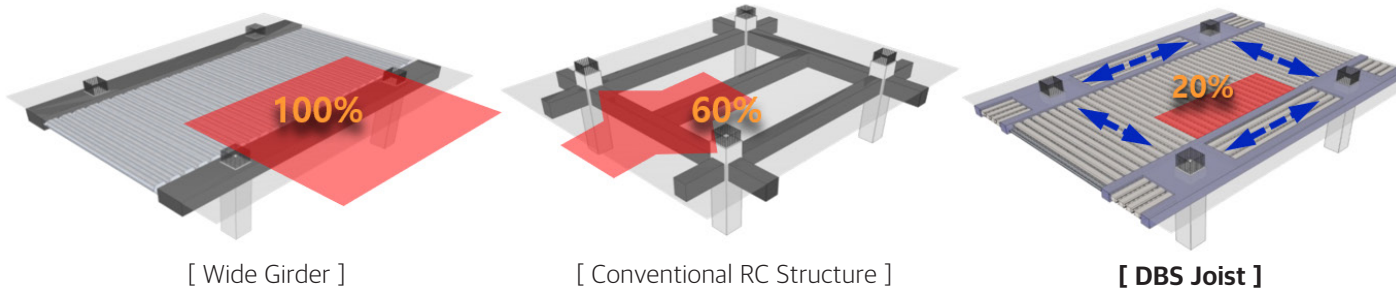
DBS Joist

Slab Support Method Applying King Post and Voided (Hollow-Core) Slab, Minimizing Structural Depth (Top-Down, Up-Up, Downward)



Efficient Load Distribution of DBS Joist

One-Way Slab(Joist) System Minimizes Loads on Beams
Minimizes Beam Depth → Reduces Overall Building Height → Helps Resolve Height Restrictions



RC DBS Joist Construction Sequence

