



DESIGN INTEGRATION (MATERIALS) Computer-Aided Design (CAD)

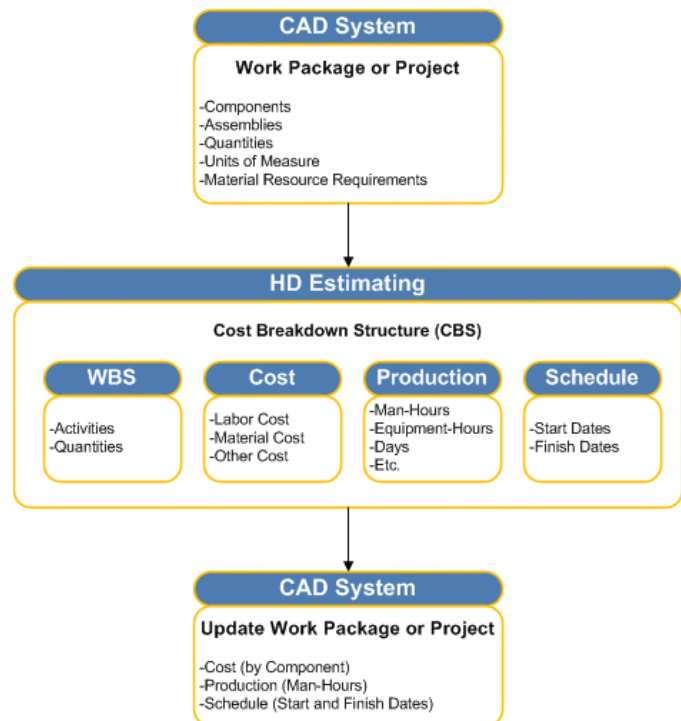
Design Integration

Providing an integration point with third-party CAD systems enables fast and accurate data sharing between design, estimating, schedule, project controls and accounting. Integrated CAD empowers data sharing between the systems unlike any single point of entry on the market. A work breakdown structure based on a design model (work package or entire project) from a third-party CAD system can be created in HD where cost, productivity, and schedule dates can be defined. Create multidirectional data delivery and collaboration by sending new data defined in HD back to the CAD system to update the work package or project with cost, productivity, and schedule data.

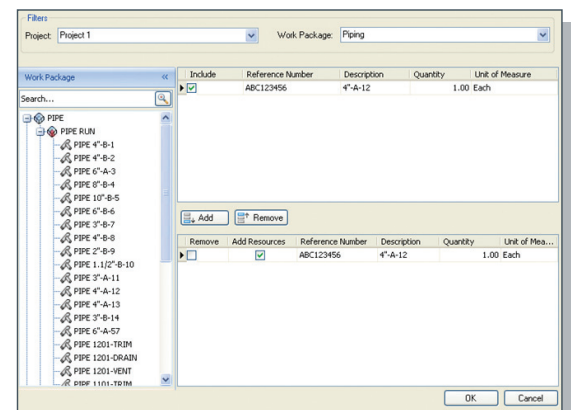


BENEFITS

- Produce Material and Labor Costs, as well as Productivity factors from CAD directly into Estimates, Schedules, Controls and Accounting
- Schedule and Cost integration to Change Orders, Detailed Design Input, and project data during the project
- Modify Scope and Activities with instant "What-If" results displayed in the schedule AND the estimate



Through a user interface, the data source (CAD system) may be accessed to allow the user to select the work package or project that they want to define cost, productivity, and schedule data for in HD. Once the work package or project is selected, the user may elect whether or not they would like the resources (i.e. materials) associated with this work package or project in the CAD system to be imported into HD along with the work package or project.



"By providing an integration point with third-party CAD systems, HD positions itself to provide a method of sharing data between the two systems unlike any current project cost management system on the market."



DESIGN INTEGRATION (MATERIALS) Computer-Aided Design (CAD)

CAD INTEGRATION

Computer-Aided Design (CAD) software provides modeling and simulation tools for construction projects. These systems provide a key component to the successful execution of a project in the form of design specifications and material requirements from within a virtual model.

Hard Dollar Corporation

9977 North 90th Street
Suite 200
Scottsdale, AZ 85258
Tel: (480) 776-2900
Fax: (480) 897-6939
www.HardDollar.com

* HD is a trademark of Hard Dollar Corporation.

The result of selecting a work package or project and defining whether or not to add resources may be the creation of a work breakdown structure (including resource requirements, if elected) for the selected work package or project in the HD Cost Breakdown Structure Register.

Below is an example of what the work breakdown structure may look like in HD for a work package imported from a third party CAD system. The 4"-A-12 activity represents the entire pipe run (CBS Position Code 1). Each of the subordinate activities (materials) are those components that are necessary to "build" this pipe run. In the first screenshot, all of the activities are collapsed (hiding the resources required to complete the activity). In the second screenshot, the activities are expanded to show the resources required to complete the activity.

Once the work breakdown structure for the work package or project has been created in HD, the costs, production rates, and schedules may be defined with direct integration to Primavera® or Microsoft® Project. Costs may be defined by detailing all of the resource requirements and a production rate (Detail cost source), directly entering the cost of the activity without defining the resource requirements (Plug cost source), or awarding the activity (component) to a subcontractor or vendor (Quote cost source).

An option may be provided to allow the user to add the drawing(s) for this work package or project as a project attachment in HD for reference purposes.

Once the cost, productivity (man-hours), and schedule dates are defined in HD, the user may be provided with a method to update the originating

work package or project in the CAD system with the data defined in HD. This data may be used for planning, look ahead purposes, and/or historical analysis.

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
1	4"-P12	1.00	Each
1.1	PIPE SMLS STD. WT ASTM A53 GR B (N.S. 4)	99.20	Foot
1.2	PIPE SMLS STD. WT ASTM A53 GR B (N.S. 3)	2.60	Foot
1.3	TEE, REDUCING BW SMLS STD. WT. ASTM A-234 GR WPB (N.S. 4 x 3)	2.00	Each
1.4	REDUCER, CONC. BW SMLS STD. WT. ASTM A-234 GR WPB (N.S. 4 x 3)	2.00	Each
1.5	ELBOW, 90 DEG. LR BW STD. WT. ASTM A-234 GR WPB (N.S. 4)	7.00	Each
1.6	FLANGE, ORIFICE 300# RPWN STD. WT. ASTM A-105 (N.S. 4)	2.00	Each
1.7	FLANGE, 150# RPWN STD. WT. ASTM A-105 (N.S. 4)	5.00	Each
1.8	FLANGE, 150# RPWN STD. WT. ASTM A-105 (N.S. 3)	2.00	Each
1.9	FLANGE, 300# RPWN STD. WT. ASTM A-105 (N.S. 3)	2.00	Each
1.10	SUPPORTS (N.S. 4)	3.00	Each
1.11	GASKET, 300# RF 1/16" THK, ASBESTOS RING, JM 60 OR 61 (N.S. 4)	2.00	Each
1.12	GASKET, 150# RF 1/16" THK, ASBESTOS RING, JM 60 OR 61 (N.S. 4)	5.00	Each
1.13	GASKET, 150# RF 1/16" THK, ASBESTOS RING, JM 60 OR 61 (N.S. 3)	2.00	Each
1.14	GASKET, 300# RF 1/16" THK, ASBESTOS RING, JM 60 OR 61 (N.S. 3)	2.00	Each
1.15	4 1/2 STUD BOLT, ALLOY STEEL, ASTM A193 GR. B7 CLASS 2H EACH WITH TWO HEX NUTS, ASTM 194 GR. 2H (N.S. 3/4)	8.00	Each
1.16	4 STUD BOLT, ALLOY STEEL, ASTM A193 GR. B7 CLASS 2H EACH WITH TWO HEX NUTS, ASTM 194 GR. 2H (N.S. 3/4)	16.00	Each
1.17	3 1/2 STUD BOLT, ALLOY STEEL, ASTM A193 GR. B7 CLASS 2H EACH WITH TWO HEX NUTS, ASTM 194 GR. 2H (N.S. 5/8)	40.00	Each
1.18	3 1/2 STUD BOLT, ALLOY STEEL, ASTM A193 GR. B7 CLASS 2H EACH WITH TWO HEX NUTS, ASTM 194 GR. 2H (N.S. 1/2)	8.00	Each
1.19	VALVE GATE ANSI B16.10 150# RF (N.S. 4)	2.00	Each
1.20	VALVE GLOBE ANSI B16.10 150# RF (N.S. 3)	1.00	Each
1.21	ORIFICE PLATE 1/8" b 1/4" 300# FE-10 (N.S. 4)	1.00	Each
1.22	CTRL VALVE FISHER TYPE 657 ED, 300# RF FV-10 (N.S. 3)	1.00	Each

Row Number	Code	Assembly	Description	Quantity	Unit of Measure	Work Hours	Pay Hours	Unit Cost	Total Cost (Forecast)	Tag 1	Tag 2
1	4IP-STD		PIPE SMLS STD. WT ASTM A53 GR B	99.20	Each			\$0.00	\$0.00		
1.1	4IP-STD		PIPE SMLS STD. WT ASTM A53 GR B (N.S. 4)	99.20	Foot			\$0.00	\$0.00		
1.2	4IP-STD		PIPE SMLS STD. WT ASTM A53 GR B (N.S. 3)	2.60	Foot			\$0.00	\$0.00		
1.3	1	3IP-STD	TEE, REDUCING BW SMLS STD. WT. ASTM A-234 GR WPB (N.S. 4 x 3)	2.00	Each			\$0.00	\$0.00		
1.4	1	4OR13.0	TEE, REDUCING BW SMLS STD. WT. ASTM A-234 GR WPB	2.00	Each			\$0.00	\$0.00		
1.5	1	4ICR3.0	REDUCER, CONC. BW SMLS STD. WT. ASTM A-234 GR. (N.S. 4 x 3)	2.00	Each			\$0.00	\$0.00		
1.6	1	4ELB130	REDUCER, CONC. BW SMLS STD. WT. ASTM A-234 GR.	2.00	Each			\$0.00	\$0.00		
1.7	1	4DELL90	ELBOW, 90 DEG. LR BW STD. WT. ASTM A-234 GR WPB	7.00	Each			\$0.00	\$0.00		
1.8	1	4OR13.0	FLANGE, ORIFICE 300# RPWN STD. WT. ASTM A-105 (N.S. 4)	2.00	Each			\$0.00	\$0.00		
1.9	1	4OR15RF	FLANGE, ORIFICE 300# RPWN STD. WT. ASTM A-105	2.00	Each			\$0.00	\$0.00		
1.10	1	4OR15RF	FLANGE, 150# RPWN STD. WT. ASTM A-105 (N.S. 4)	5.00	Each			\$0.00	\$0.00		

