Ergonomic Assessment and Analysis Techniques Available from Proplanner

Proplanner provides 3 unique methods for ergonomic evaluation and assessment in the workplace. These 3 methods are integrated into 3 different applications from Proplanner, and essentially take advantage of the process data available within those applications.

1. Assessment Checklists in the Proplanner MPM Suite for the purpose of identifying potential ergonomic hazards and certifying OSHA compliance while simultaneously reducing workman's comp insurance premiums.

2. Ergo Weighted Factor Analysis Technique in the Proplanner Line Balancing Application for the purpose of evaluating the combined ergonomic impacts of tasks while they are being assigned to workplaces.

3. Ergo Analysis involving NIOSH (Lift) and GARG (Energy Expenditure) in the Proplanner Workplace Planning Application for the purpose of analyzing the combined effects of lifting, pushing and pulling tasks, as well as high energy tasks in the context of a production sequence.

1) Proplanner Manufacturing Process Engineering and Management Suite (MPM)
The Proplanner MPM suite provides the ability to assign and ergonomic evaluation form to an Operation, Activity or Workplace item. While default forms are provided with the software, the user can modify these forms, or create their own from scratch. Proplanner's ergonomic forms tool allows for the creation of dynamic components in the form that are capable of performing mathematical operations and then using logic to alter the content or formatting on the form (such as a GO or NO-GO result after the user enters the workplace and/or task attributes.

With the Proplanner ergonomic evaluation forms, linked to reusable process and location items in the process definition, engineers will always know where to find the latest ergonomic assessment information, as well as, quickly identify when a change to the process or workplace layout would require a re-assessment.
Sample

Risk Factor Checklist (Default form in MPM Suite)

Workstation Design Oriented Ergo Assessment

File Edit View Tools Library Ergonomics Help

mBOM

Documents | mBOM Authoring | Charting | WorkInstructions | PFMEA | Ergonomics

PP43A: Hydra Pump
- PP40S: Final Asse
  - PP01S: Initial
    - 40S-001: L
    - 40S-002: P
    - 40S-003: L
    - 40S-004: I
    - 40S-005: P
    - 40S-006: P
    - 40S-007: L
    - 40S-008: T
    - 40S-009: Place
    - 40S-010: Pull t
    - 40S-011: Place
    - 40S-012: Lubri
    - 40S-013: Insta

ID	Name
1	PP40S
2	PP40S
3	PP40S
4	PP40S

ID: 2
Created By: PROPLANNER\dave
Last Modified By: PROPLANNER\dave
Last Modified On: 8/11/2005

Name: PP40S
Description: Ergonomics Assessment for PP40S Created By PROPLANNER\dave on 8/11/2005 12:00:00 AM

mB... | Pla... | Res...

Properties

General
Description
ID   PP40S
Name   Final Assembly
Misc
BaseID   7C23BC3B-5CA
IsOptional False
LinkID   70873A92-9FB6
OptionMixID
Path   1
TabType   mBOM
TreeOrder   0
UID   FEDEDFB9-266

Name
A more descriptive name used by the company.

UAW Ergonomics Risk Factor checklist RFC2

Job ID

Initial Analysis ●   Re-Analysis ○

Job Identification

Plant   Cisco Code
Super Department   Department
Job Occupation   Sub-Department
"Popular" Job Title   Location in Plant
Brief Description

Operation Information

First Name   Middle Initial   Last Name   Social Security #

Gender: ○ Male   ○ Female   Is this the Normal Operator: ○ Yes   ○ No

                                  Height: ___ Feet   ___ Inches

Shift: ○ First   ○ Second   ○ Third   Operator's Dominant Hand: ○ Left   ○ Right

Checklist information

Edit   Cancel   Save   Preview

Common UAW Approved Checklist (English)

File Edit View Tools Library Ergonomics Help

mBOM

Documents | mBOM Authoring | Charting | WorkInstructions | PFMEA | Ergonomics

PP43A: Hydra Pump
- PP40S: Final Asse
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    - 40S-001: L
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    - 40S-003: L
    - 40S-004: I
    - 40S-005: P
    - 40S-006: P
    - 40S-007: L
    - 40S-008: T
    - 40S-009: Place
    - 40S-010: Pull t
    - 40S-011: Place
    - 40S-012: Lubri
    - 40S-013: Insta
    - 40S-014: Place

ID	Name
1	PP40S
2	PP40S
3	PP40S
4	PP40S

ID: 3
Created By: PROPLANNER\dave
Last Modified By: PROPLANNER\dave
Last Modified On: 8/11/2005

Name: PP40S
Description: Ergonomics Assessment for PP40S Created By PROPLANNER\dave on 8/11/2005 12:00:00 AM

mB... | Pla... | Res...

Properties

General
Description
ID   PP40S
Name   Final Assembly
Misc
BaseID   7C23BC3B-5CA
IsOptional False
LinkID   70873A92-9FB6
OptionMixID
Path   1
TabType   mBOM
TreeOrder   0
UID   FED5DFB8-266C

Name
A more descriptive name used by the company.

LISTA DE CHEQUEO DE FACTORES DE RIESGO EN ERGONOMÍA RFC2

IDENTIFICACION DE LA OPERACIÓN

INFORMACIÓN DE LA OPERACIÓN

PLANTA   LOCALIDAD
AREA   DEPARTAMENTO
CLASIFICACIÓN DE LA OPERACIÓN   DEPARTAMENTO
NOMBRE DE LA OPERACIÓN   LÍNEA
DESCRIPCION DE LA OPERACIÓN

INFORMACIÓN DEL OPERADOR

NOMBRE   # SEGURO SOCIAL

SEXO: ○ MASCULINO ○ FEMENINO   ES EL OPERADOR TITULAR: ○ SI   ○ NO

                                   ESTATURA: ___ MTS.   ___ CM.

TURNO: ○ PRIMERO ○ SEGUNDO ○ TERCERO   MANO DOMINANTE: ○ IZQUIERDA ○ DERECHA

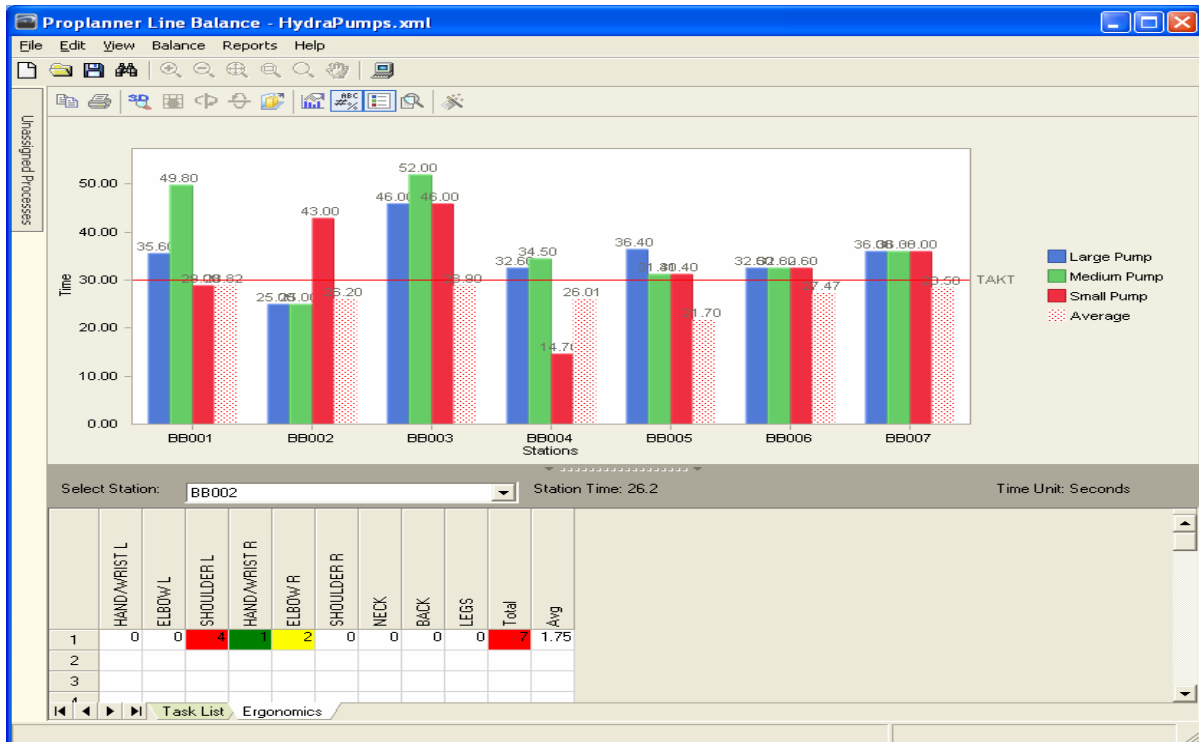Edit   Cancel   Save   Preview

Common UAW Approved Checklist (Spanish)

2) Line Balancing Weighted Factor Analysis

The Proplanner Line Balancing application (both in integrated and standalone versions) allows the engineer to classify the potential ergonomic stresses of a particular task using 10 different attributes. These attributes are retained as properties of the task when that task is reassigned to a workplace (either automatically or manually) within the Line Balancing Application. The Line Balancing application will then aggregate these ergonomic attributes for each workplace to determine the potential for cumulative ergonomic problems, at an early stage in the production design process when task re-assignment is easiest and cheapest to do.

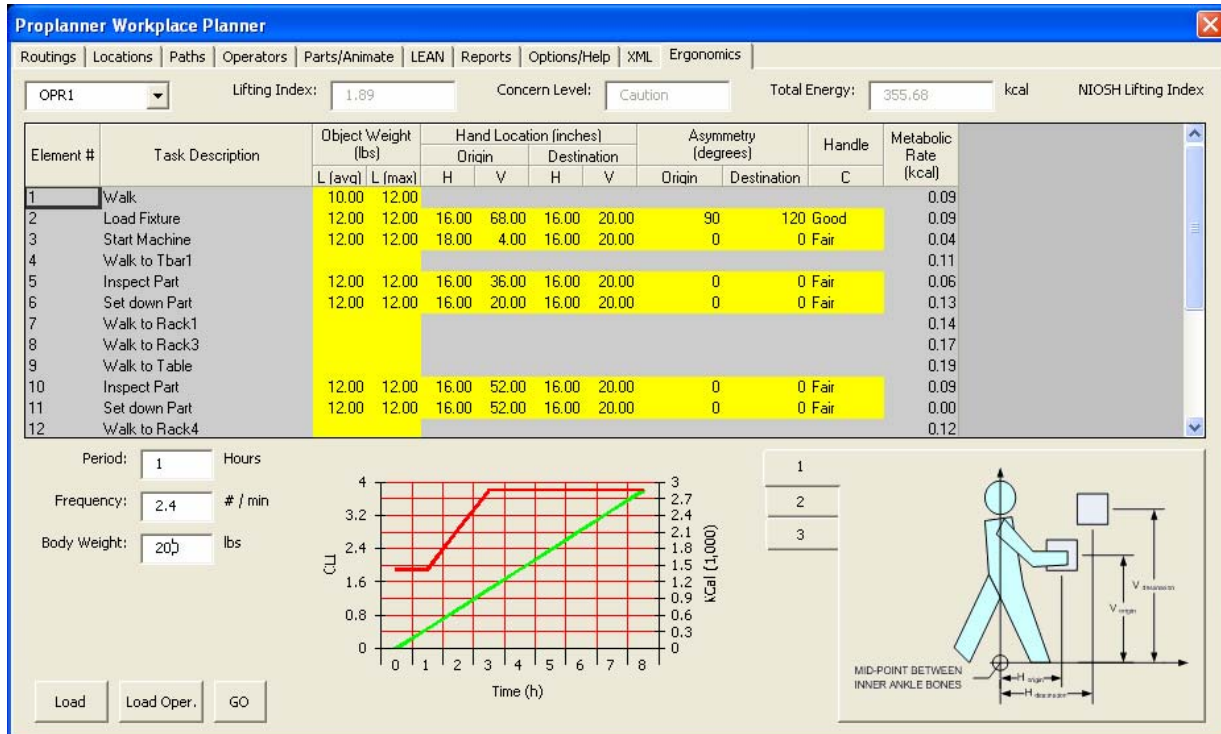Screen for Assigning Ergo Attributes to Process Tasks

Screen for Workplace Aggregation of Ergo Attributes

3) Workplace Planner NIOSH (Lift) and GARG (Energy Expenditure) Analysis

The Proplanner Workplace Planner application includes the optional ability to define the attributes of a lifting, or placement, task using the OSHA approved NIOSH technique. From this task definition, the Workplace Planner computes the CLI (Combined Lifting Index) for each operator, as well as the Kilo Calorie expenditure for that operator for their entire working shift. In addition, a Push and Pull stress analysis, similar to that defined in the SNOOK method, will be incorporated in a later version of the software.

While not typically performed for all operators in all workplaces, the Lift and Energy analysis capability allows the engineer to evaluate the detailed aspects of work tasks for operators that have been identified as being 'At Risk' using one of the prior ergonomic assessment techniques described earlier in this document.

By integrating the Lifting attributes as a property of the task, it is easy to re-assign tasks throughout the facility and then re-aggregate and analyze the cumulative aspects of the workstation work content for any operator with minimal, to no, redundant data entry.

Lift and Energy Analysis for an Operator

Proplanner   Page 5   Call Proplanner at
2500 North Loop Drive   515-296-9914
Ames, IA 50010