



Recommended Practices for model viewing, basic drawing structure and dimensions

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Table of Contents

1	Introduction	4
2	Scope	4
3	Fundamental concepts	4
3.1	MODEL VIEWING	4
3.2	BASIC DRAWING ORGANIZATION.....	8
3.3	ASSOCIATIVE DIMENSIONS	10
3.4	PRESENTATION OF A DIMENSION	12
3.5	ASSOCIATIVITY OF DIMENSION VALUE TO VISUAL PRESENTATION IN CALLOUT	17
3.6	TOLERANCE INFORMATION	18
4	Part 21 file examples.....	19
4.1	EXAMPLE WITH ASSOCIATIVE DIMENSIONS	19
4.2	EXAMPLE WITH NON-ASSOCIATIVE DIMENSIONS	65
5	Known issues.....	102
5.1	RESTRICTION OF ITEMS OF A DRAWING_SHEET_REVISION IS TOO LIMITED.....	102
5.2	CURRENT DISALLOWANCE TO COMBINE TYPES OF DIMENSIONS	102
5.3	WRONGLY CODED EXPRESS RULES	102
5.4	ASSIGNMENT OF VALUES TO GEOMETRIC DIMENSIONS IN AP214.....	102
5.5	CONTRADICTION IN THE DEFINITION OF VIEW_VOLUME IN PART 46	102
5.6	AP 203 GLOBAL RULES.....	103
6	Availability of implementation schemas	103
6.1	AP214	103
6.2	AP203 WITH MODULAR EXTENSIONS	103

List of Figures

<i>FIGURE 1 - CAMERA MODEL INSTANCES</i>	<i>5</i>
<i>FIGURE 2 - PARALLEL VIEWING PIPELINE.....</i>	<i>6</i>
<i>FIGURE 3 - DRAWING STRUCTURE INSTANCES</i>	<i>8</i>
<i>FIGURE 4 - GEOMETRIC DIMENSION REPRESENTATION INSTANCES</i>	<i>10</i>
<i>FIGURE 5 - GEOMETRIC LOCATIONAL DIMENSION MEASUREMENT REPRESENTATION INSTANCES.....</i>	<i>10</i>
<i>FIGURE 6 - GENERAL SCHEME FOR THE PRESENTATION OF A DIMENSION.....</i>	<i>13</i>
<i>FIGURE 7 - INSTANCES RELATED TO THE CALLOUT OF A DIMENSION.....</i>	<i>13</i>
<i>FIGURE 8 - INSTANCES RELATED TO A PROJECTION_CURVE</i>	<i>14</i>
<i>FIGURE 9 - INSTANCES RELATED TO A DIMENSION_CURVE</i>	<i>15</i>
<i>FIGURE 10 - ASSOCIATIVITY BETWEEN DIMENSION VALUE AND ITS PRESENTATION IN THE CALLOUT.....</i>	<i>17</i>
<i>FIGURE 11 - INSTANCES DEPICTING A DIMENSION RELATED TO A PLUS-MINUS TOLERANCE</i>	<i>18</i>
<i>FIGURE 12 - ASSOCIATIVE DIMENSION EXAMPLE</i>	<i>19</i>
<i>FIGURE 13 - DIAGRAM FOR GEOMETRIC LOCATION DIMENSION</i>	<i>20</i>
<i>FIGURE 14 - DIAGRAM FOR ASSOCIATED STRUCTURED_DIMENSION_CALLOUT.....</i>	<i>21</i>
<i>FIGURE 15 - DIAGRAM FOR LINEAR_DIMENSION</i>	<i>22</i>
<i>FIGURE 16 - DIAGRAM FOR CAMERA MODEL.....</i>	<i>23</i>
<i>FIGURE 17 - DIAGRAM FOR BASIC DRAWING ORGANISATION</i>	<i>24</i>

1 Introduction

This document describes the recommended practices for implementing the draughting-related capabilities model viewing, basic drawing organization, and associative dimensions. It documents the common approach for the implementers related to AP214 and to AP203 with the corresponding modular extensions.

All instance diagrams presented within this document refer to instances defined within the Part 21 file examples included within section 4.

If questions arise during your review of this document, please contact either of the persons listed on the cover page of this document.

2 Scope

The information presented in this document covers how a STEP implementation would support:

- the definition of a projection of a styled model onto a view (i.e., viewing pipeline);
- the layout of views on a sheet;
- the organization of sheets in drawings;
- annotation elements used for presenting dimensions;
- the linkage of dimension annotation to the corresponding numerical values;
- the association of the dimension annotation elements to geometric elements.

3 Fundamental concepts

Particular concepts of interest within the scope of this recommendation are described within the following sections.

3.1 Model viewing

The model viewing capability deals with projecting a model that may contain geometric, as well as three-dimensional planar annotation elements, onto a two-dimensional view. The concept to represent the model is **draughting_model**.

As depicted in *Figure 1* (an instance diagram of the entities involved in the camera model), the result of projecting the three-dimensional potentially styled model is a **camera_image**. As an item of a **presentation_view**, a **camera_image** maps a **camera_model** onto its designated viewport (a **planar_box**). The **camera_model** is the source part of the projection mapping; it contains the information needed to create the projection from a three-dimensional representation to a two-dimensional picture of that representation, to which it is associated by **camera_usage**.

A **camera_image_3d_with_scale** is a subtype of **camera_image** that includes a derived scale. The scale is given by the ratio between the size of the viewport and the size of the *view_window* (a **planar_box**) of the **view_volume** of the **camera_model**.

Each **camera_model** is either a **camera_model_d2** or a **camera_model_d3**. A **camera_model_d3** captures the projection information to create a mapping from a three-dimensional representation to a planar projection of that representation. A **camera_model_d3_with_hlshsr** is a subtype of **camera_model_d3** that indicates, via his *hidden_line_surface_removal* attribute, whether a removal of hidden lines and surfaces shall be performed.

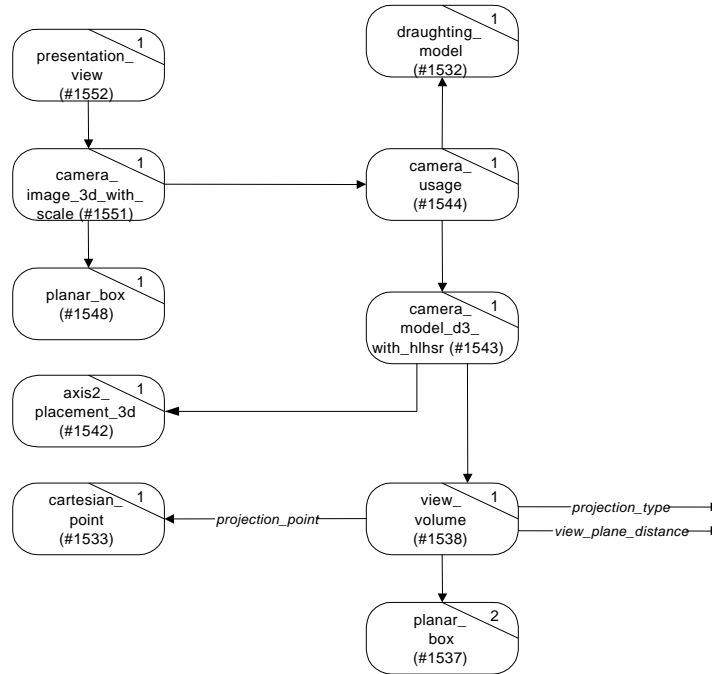
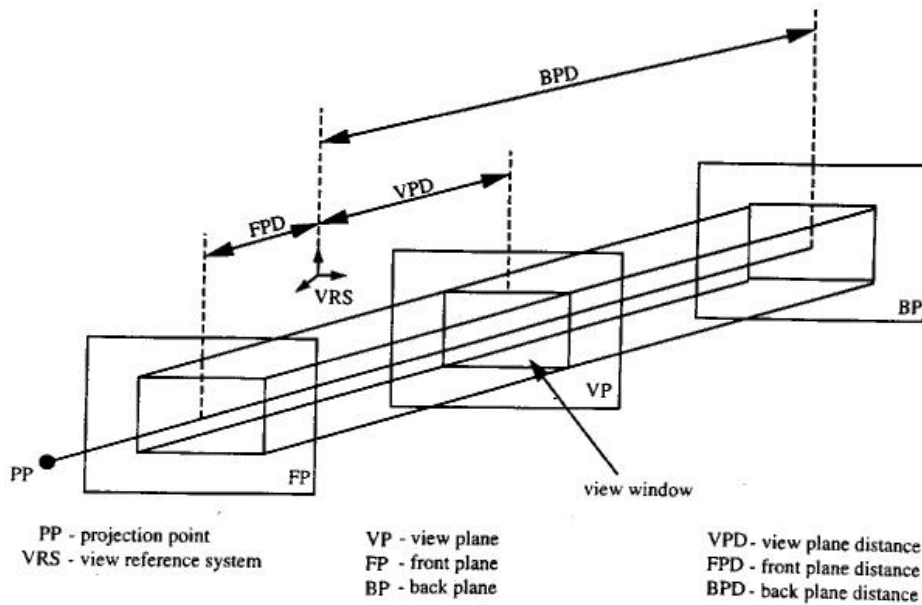


Figure 1 - Camera model instances

A **view_volume** is defined in the **view_reference_system** of the **camera_model** that uses the volume. It is either a truncated pyramid or a parallelepiped. The contents of this volume are projected onto the **planar_box** defined by the **view_window** that is then mapped onto the viewport.

If the type of projection is **parallel** (as shown in *Figure 2*), the projection is made parallel to the line from the **projection_point** (i.e. from where the items are viewed) to the geometric center of the **view_window**, and the **view_volume** is a parallelepiped.



View volume, projection type PARALLEL

Figure 2 - Parallel viewing pipeline

If the type of projection is **central**, the **view_volume** is a truncated pyramid emanating from the **projection_point**.

The **view_plane_distance** is a signed distance along the z-axis of the **axis2_placement** indicated by the **view_reference_system**. This distance positions the origin of the **view_window**. **Front_plane_distance** and **back_plane_distance** define the front and back end of the **view_volume**. The geometry of the projected representation can be clipped at the front plane (with **front_plane_clipping** set to TRUE), back plane (**back_plane_clipping**) and against the planes which are the sides of the **view_volume** (**view_volume_sides_clipping**).

3.1.1 Entities and Attributes

Name	Explanation
draughting_model	The representation of the shape of a product for the purpose of draughting.
name	A unique name.
items	The elements of the draughting_model. Each item shall be a mapped_item, styled_item, axis2_placement or a camera_model.
context_of_items	Same as context of the geometric shape.
camera_image	The result of projecting two- or three-dimensional geometry.
name	Due to no requirement defined, it is recommended to instantiate with an empty string.
mapping_source	A camera_usage.

mapping_target	A planar_box onto which the view window is projected.
presentation_view	It is a picture that is the result of the projection of a draughting_model. It needs to be placed onto a presentation_area.
name	Inconsequential name of the view.
items	The elements of the view. In our context this includes the camera_image, the axis2_placement_2d that is the origin of the view, as well as all annotation_occurrences that are defined and depicted in the view.
context_of_items	A two-dimensional representation context.
camera_model_d3_with_hlshr	A camera_model that contains the information to create a projection. This subtype of camera_model indicates whether hidden line and hidden surface removal shall be performed.
name	Due to no requirement defined, it is recommended to instantiate with an empty string.
view_reference_system	An intermediate three-dimensional coordinate space in the coordinate space to be projected (see <i>Figure 1</i>).
perspective_of_volume	A pointer to a view_volume that is the information required to determine how to project the geometry. It is defined in the view_reference_system.
hidden_line_surface_removal	A value of TRUE indicates that hidden lines and surfaces shall be removed during projection.
view_volume	Defines the volume that is projected onto the presentation_view.
projection_type	Parallel or central
projection_point	The location from which the items are viewed. For a parallel projection, this point indicates a line from itself to the geometric center of the view_window.
view_plane_distance	This distance positions the origin of the view_window.
front_plane_distance	For a parallel projection, this is the distance to the front of the parallelepiped.
front_plane_clipping	A boolean flag indicating whether to clip the projection against the plane given by the front_plane_distance.
back_plane_distance	For a parallel projection, this is the distance to the back of the parallelepiped.
back_plane_clipping	A boolean flag indicating whether to clip the projection against the plane given by the back_plane_distance.
view_volume_sides_clipping	A boolean flag indicating whether to clip the projection against the sides of the view_volume.
view_window	A rectangular extent on the view plane. The draughting_model is mapped onto this planar_box , which is then mapped to the

	viewport of the camera_image .
planar_box	A rectangular box and its location in a two-dimensional coordinate system.
name	Due to no requirement defined, it is recommended to instantiate with an empty string.
size_in_x	The extent in the x-axis direction.
size_in_y	The extent in the y-axis direction.
placement	The position and orientation of the bottom-left corner of the rectangular box.

3.2 Basic drawing organization

The capability described here allows placing views on drawing sheets and attaching basic organizational information to the sheets. An instance diagram of the entities involved in this area is shown in *Figure 3*.

The anchor for drawing organization is the entity **drawing_definition**. **Drawing_definition** gives an identifier for the organizational number of a drawing and specifies a label for the categorization of a drawing. For a **drawing_definition**, multiple **drawing_revisions** may exist. A revision of a drawing includes revisions of sheets that are part of the drawing. This usage is modeled through the use of **drawing_sheet_revision_usage**. A **drawing_sheet_revision** is a sheet with an assigned revision identifier. The *items* of a drawing sheet include an **axis2_placement_2d** that is the origin of the sheet, **mapped_items** that place presentations on the sheet, and a **planar_box** that defines the size of the sheet. Drawing sheets may also contain **annotation_occurrences** that are defined and depicted in the sheet.

The construct **applied_presented_item** together with **presented_item_presentation** is used to link a given drawing revision with the description of the items presented in the drawing.

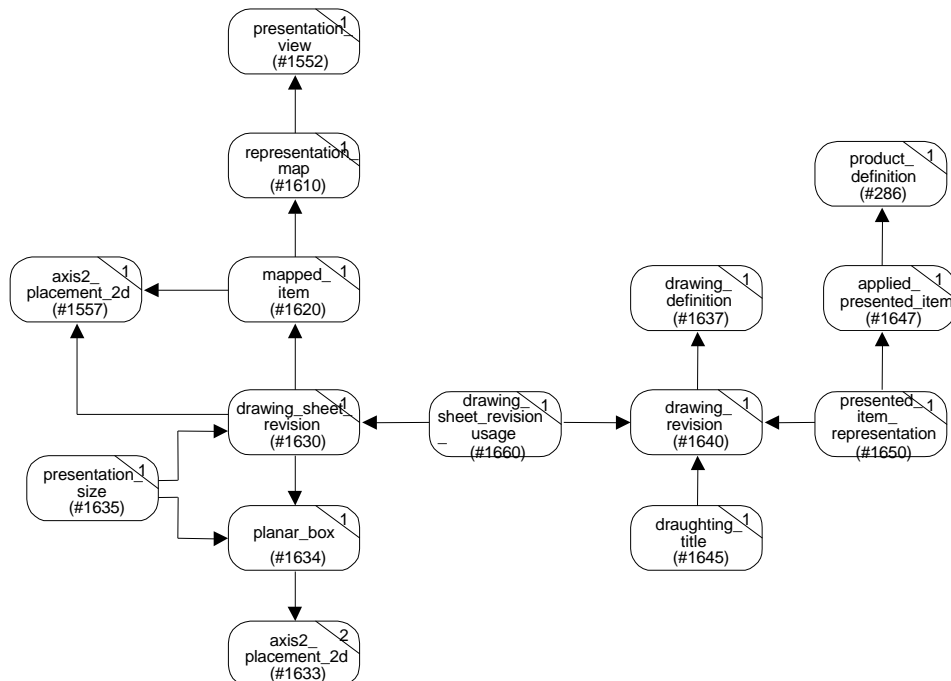


Figure 3 - Drawing structure instances

3.2.1 Entities and Attributes

Name	Explanation
presentation_size	Used to define the size of a presentation_view or presentation_area.
unit	The representation that is being assigned a size. In our scope this is the drawing_sheet_revision .
size	A planar_box that describes the size of the unit attribute.
drawing_definition	Identifies a set of drawing revisions.
drawing_number	The organizational number assigned to the drawing (identifier).
drawing_type	A label used to categorize the drawing. Due to no requirement defined, it is recommended to instantiate with an empty string.
drawing_revision	A revision of a drawing.
revision_identifier	The identifier of the drawing revision, usually a letter revision designator.
drawing_identifier	The identifier of a drawing (a pointer to the drawing_definition).
intended_scale	Optional: a text description of the intended scale – for information only.
draughting_title	A brief text string describing the contents of the drawing.
items	The sheets or revisions to which the description applies.
language	A label to define the language of the description.
contents	The text description.
applied_presented_item	Assigns an item to a presentation_representation or a presentation_set
items	The set of assigned items. Within our scope, this set only includes product_definitions .
presented_item_presentation	The association of a presentation with the item for which its is the picture.
presentation	The presentation.
item	The presented item.
drawing_sheet_revision	A revision of a drawing sheet.
name	The organizational name assigned to the drawing sheet.
items	The elements of the sheet. In our context this includes the axis2_placement_2d that is the origin of the sheet, mapped_items that place presentations on the sheet, and a planar_box that defines the size of the sheet.
context_of_items	A two-dimensional representation context.

revision_identifier	The organizational identifier assigned to the drawing sheet.
drawing_sheet_revision_usage	Relates the revision of a sheet with the revision of a drawing.
area	The drawing_sheet_revision .
in_set	The drawing_revision .
sheet_number	An identifier indicating the position of the sheet in the overall sequence of sheets defining the drawing.

3.3 Associative dimensions

Associative dimensions establish a link between the calculated size of a dimension and the presentation of this value and the element(s) from which the dimension value is calculated.

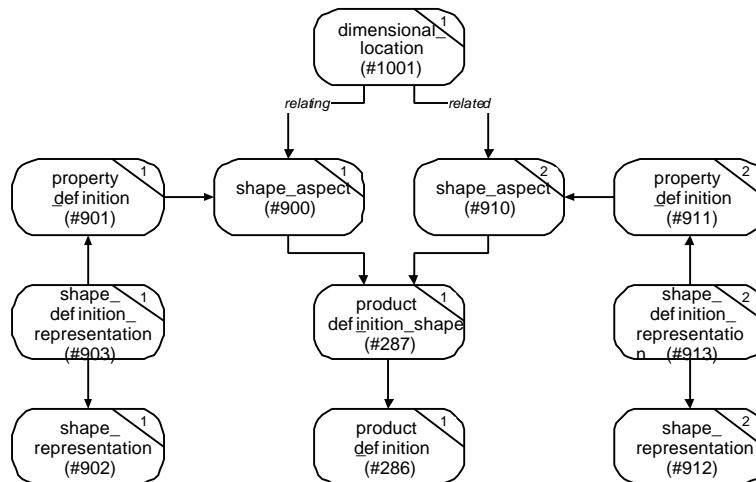


Figure 4 - Geometric dimension representation instances

Instance diagrams depicting the entities involved defining a geometric locational dimension are shown in Figure 4 and Figure 5. A **dimensional_location** specifies that a spatial constraint between two identified portions of a given geometric shape exists. This constraint is represented as a measure. The concept for identifying portions of shape is a **shape_aspect**. **Dimensional_location** is a subtype of **shape_aspect_relationship**. The portion of shape specified by a **shape_aspect** is given by the elements of the **shape_representation** that is linked to it

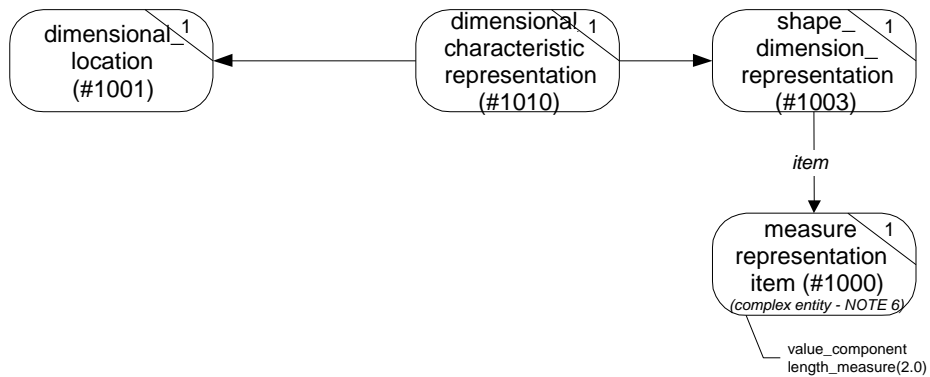


Figure 5 - Geometric locational dimension measurement representation instances

The dimension given implicitly by the relationship of the respective **shape_aspects** can be linked to an explicit non-geometric representation. Such a representation is **shape_dimension_representation**. A **shape_dimension_representation** describes the geometric representation of a dimension of or between **shape_aspects** with a value. Being part of that representation, the value needs to be instantiated as a **measure_representation_item**.

The two representations related to the **location_dimension** are associated via the entity **dimensional_characteristic_representation**.

3.3.1 Entities and Attributes

Name	Explanation
dimensional_location	Describes a spatial constraint between two shape_aspects .
name	Due to no requirement defined, it is recommended to instantiate with an empty string.
description	Due to no requirement defined, it is recommended to instantiate with an empty string.
relating_shape_aspect	The first shape_aspect .
related_shape_aspect	The second shape_aspect .
shape_aspect	An identifiable portion of the shape of a product.
name	Due to no requirement defined, it is recommended to instantiate with an empty string.
description	Due to no requirement defined, it is recommended to instantiate with an empty string.
of_shape	The product_definition_shape of which the entity is an aspect.
product_definitional	If a value of TRUE is given, than it is asserted that the shape_aspects are on the physical boundary of the product_definition_shape .
shape_dimension_representation	A representation of a dimensional_location or dimensional_size .
name	Due to no requirement defined, it is recommended to instantiate with an empty string.
items	The measure_representation_items that represent the dimension. There shall be at most two items. The value component of these items shall be positive.
context_of_items	Same as context of the geometric shape.
dimensional_characteristic_representation	Associates the implicit definition of a dimension with an explicit non-geometric representation.
dimension	The implicit geometric dimension.
representation	The explicit non-geometric representation.

3.4 Presentation of a dimension

A combination of annotation curves, symbols and text are used to present dimensions. The grouping of such elements is achieved via the usage of the entity **draughting_callout**.

Typically the dimension information is separated in a callout capturing the description of the measure information via text and symbols and a callout capturing the dimension, projection, and leader curves.

For draughting callout which collects the dimension, projection or leader curves a specific subtype corresponding to the type of the presented dimension is used.

The table below shows the available dimension types:

dimension callout type	description	subtype of
angular_dimension	presents a value of an angular distance measure (e.g. to specify a circle segment)	dimension_curve_directed_callout
curve_dimension	presents a value of distance between two elements measured along a curved path or the length of curved element	dimension_curve_directed_callout
diameter_dimension	presents a value of the diametrical size of a circular element	dimension_curve_directed_callout
leader_directed_dimension	presents some dimension, e.g. hole characteristics, directed by a leader curve	leader_directed_callout
linear_dimension	presents a value of distance between two elements, measure along a linear path or the length of a linear element	dimension_curve_directed_callout
ordinate_dimension	presents a dimension value directed by a projection curve	projection_directed_callout
radius_dimension	presents a value of radial size of a circular element	dimension_curve_directed_callout

Dimension_curve_directed_callout, leader_directed_callout, projection_directed_callout are subtypes of draughting_callout without additional attributes. These subtypes have associated constraints that ensure that e.g. a leader_directed_callout actually contains a leader_curve.

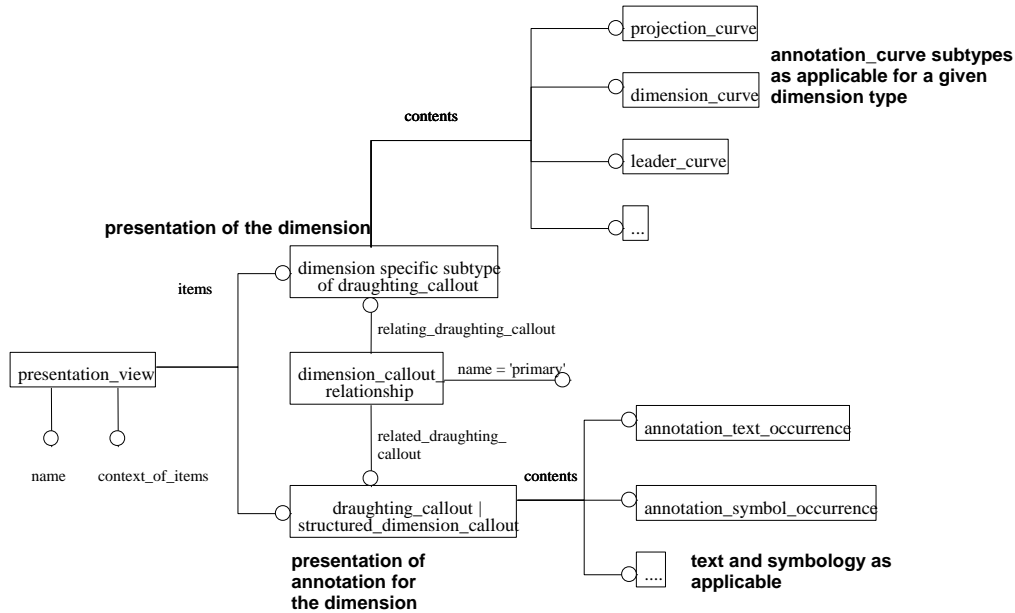


Figure 6 - General scheme for the presentation of a dimension

The related draughting callout represents the annotation text and symbology to present the measure information of a dimension. The two callouts are related by the entity **dimension_callout_relationship** with the attribute name set to 'primary'. A secondary presentation of the measure representation may be associated with an additional **dimension_callout_relationship** with the name attribute set to 'secondary'.

The related callout for the measure information annotation may either be a plain **draughting_callout** or the subtype **structured_dimension_callout** may be used to indicate that the presentation of the dimensional information is structured in individual elements (e.g. dimension value text and tolerance text) that need to be identified and distinguished.

In this document it is assumed that dimension information is placed on the view – as opposed to be placed on the drawing sheet – thus it is recommended that the involved **draughting_callouts** shall be founded in the corresponding **presentation_view**.

The discussion of the callout for the dimension now exemplarily focuses on a **linear_dimension**. The approach is similar for the other dimension callout types listed in the table above.

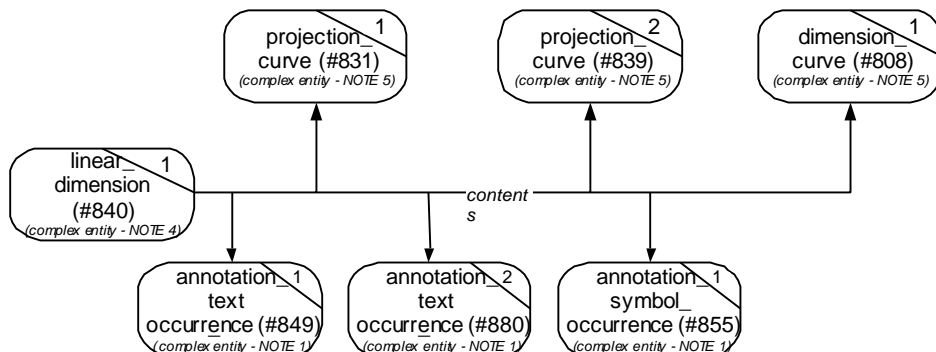


Figure 7 - Instances related to the callout of a dimension

A **linear_dimension** is a subtype of **draughting_callout** that presents the value of a dimension via a dimension curve. The contents of a **linear_dimension** are **projection_curve** and **dimension_curve** items. An instance diagram depicting the entities that may be related to a **linear_dimension** is shown in *Figure 7*.

The **projection_curve** and **dimension_curve** entities represent curves with a style assignment.

A **projection_curve** is a subtype of **annotation_curve_occurrence** that models a projection line resulting from projecting a point, curve or surface from an image of the product shape to a point outside that image. *Figure 8* is an instance diagram that depicts the entities that are related to a **projection_curve**.

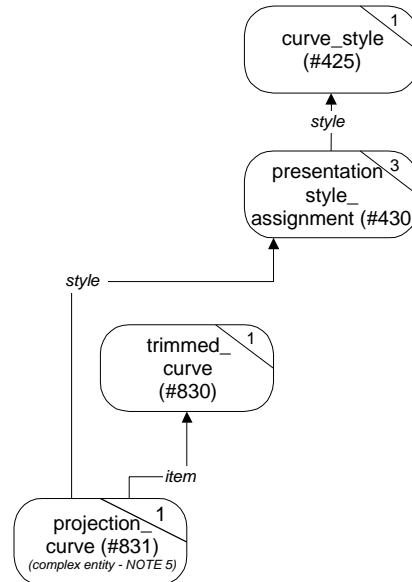


Figure 8 - Instances related to a projection_curve

A **dimension_curve** is a subtype of **annotation_curve_occurrence** that, along with related terminator symbols, presents the direction and extent of a dimension measure. To mark the start- and end-point of a dimension extent, **dimension_curve_terminator** symbols are used. A **dimension_curve_terminator** is a subtype of **terminator_symbol**. **Dimension_curve_terminator.role** specifies either origin or target, depending on whether the symbol corresponds to the beginning or end of a dimension.

The item styled by a **dimension_curve_terminator** is a **defined_symbol**, which is defined by a **pre_defined_terminator_symbol.name** taken from the list {'blanked arrow', 'blanked box', 'blanked dot', 'dimension origin', 'filled arrow', 'filled box', 'filled dot', 'integral symbol', 'open arrow', 'slash', 'unfilled arrow'}.

Figure 9 is an instance diagram that depicts the entities that are related to a **dimension_curve**.

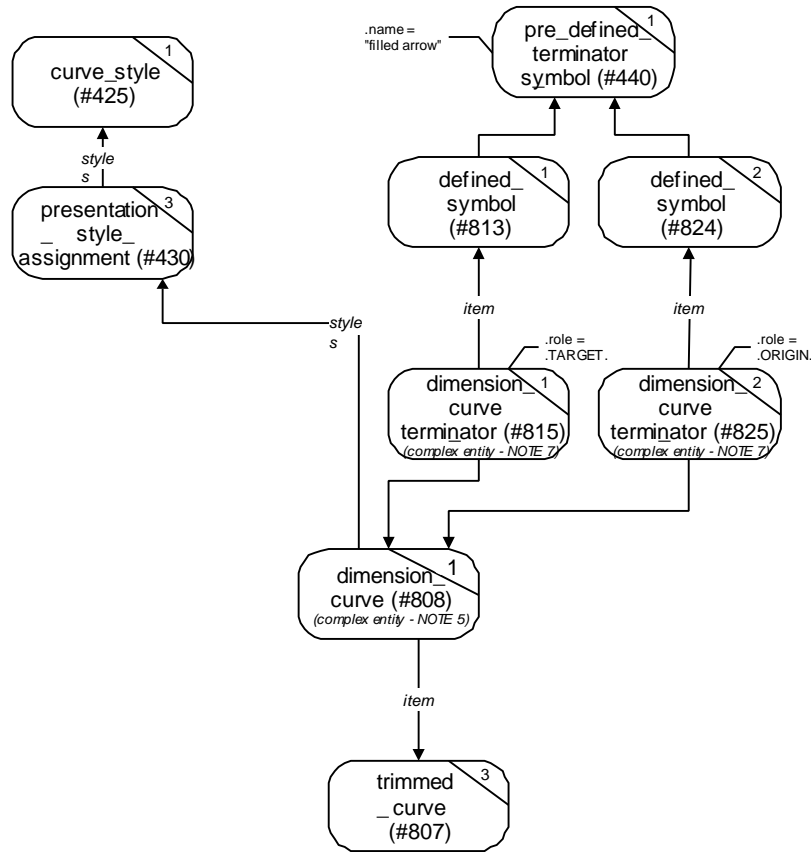


Figure 9 - Instances related to a dimension_curve

The two callouts, one explicitly presenting the measurements, the other directing the information to the shape, are linked via the entity **dimension_callout_relationship**. A **dimension_callout_relationship** is a subtype of **draughting_callout_relationship**. The **dimension_callout_relationship.name** of the relationship can either be 'primary' or 'secondary'. 'Primary' is used if the *related_draughting_callout* presents the measurement in the primary unit of measure.

3.4.1 Entities and Attributes

Name	Explanation
draughting_callout	Presents product requirements or information used to interpret a drawing.
name	Contents vary depending on the subtype being instantiated.
contents	Any combination of annotation curves, symbols and text.
structured_dimension_callout	Presents type, value, tolerance, and units information associated with a dimension.
linear_dimension	Presents a value of distance between two elements or the length of a linear element.
dimension_curve	An annotation_curve that – along with related terminator symbols – presents the extent and direction of a measurement.

name	Due to no requirement defined, it is recommended to instantiate with an empty string.
styles	The style applied to the curve.
item	The underlying curve.
projection_curve	An annotation_curve that results from projection.
dimension_curve_terminator	A symbol representing the beginning or end of a dimension_curve .
name	Due to no requirement defined, it is recommended to instantiate with an empty string.
styles	The styling of the symbol. This style only includes color characteristics.
item	The symbol used.
annotation_curve	The related dimension_curve .
role	Either .ORIGIN. (start terminator) or .TARGET. (end terminator).
defined_symbol	An implicitly defined symbol.
name	Due to no requirement defined, it is recommended to instantiate with an empty string.
definition	The implicit description of the symbol, either a pre-defined or externally defined symbol.
target	Scaling, placement and orientation of the symbol.
dimension_callout_relationship	Relates the presentation of the dimension (dimension_curve and projection_curve) to the presentation of the associated information (e.g. text presenting measurement and tolerances).
name	If specifications are in the primary unit of measure then 'primary'; else 'secondary'.
description	Due to no requirement defined, it is recommended to instantiate with an empty string.
relating_draughting_callout	The dimension.
related_draughting_callout	The dimension callout.

3.5 Associativity of dimension value to visual presentation in callout

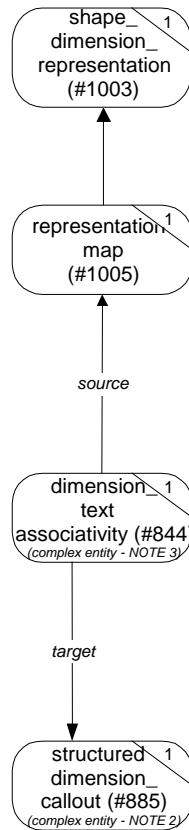


Figure 10 - Associativity between dimension value and its presentation in the callout

The **shape_dimension_representation** specifying the dimension value is mapped onto the **structured_dimension_callout** via a **dimension_text_associativity** entity. **Dimension_text_associativity** is a subtype of **mapped_item** and **text_literal**. The **text_literal** specifies the string to be used as an indication of the measure in the callout. That does not necessarily need to be exactly matching the numerical dimension value. An instance diagram depicting the entities that are related to a **dimension_text_associativity** is shown in *Figure 10*.

3.5.1 Entities and Attributes

Name	Explanation
dimension_text_associativity	A subtype of text_literal and mapped_item that maps a shape_dimension_representation onto the callout which presents the measurement.
name	Due to no requirement defined, it is recommended to instantiate with an empty string.
literal	The character string to present the measurement.
placement	The location of the string within the coordinate system within which it is defined.
alignment	The alignment of the string relative to its position. This could either be 'baseline left', 'baseline centre', or 'baseline right'.

path	The writing direction of the string. This could either be .LEFT., .RIGHT., .UP., or .DOWN..
font	The font that will be used to present the string.
mapping_source	A representation_map with the <i>.mapped_representation</i> being a shape_dimension_representation .
mapping_target	The dimension callout.

3.6 Tolerance information

To specify the limits within which the value of a dimension may vary **plus_minus_tolerance** can be used. A **plus_minus_tolerance** may have a range either specified by a **tolerance_value** or **limits_and_fits**. **Limits_and_fits** is a pre_defined fit system for specifying the tolerances associated with the assembly of mating product features. **Tolerance_value** represents the plus-minus tolerances for a dimension. The range is derived by adding *upper_bound* resp. subtracting *lower_bound* from the nominal value of the dimension. An instance diagram depicting the entities that may be related to a **plus_minus_tolerance** is shown in *Figure 11*.

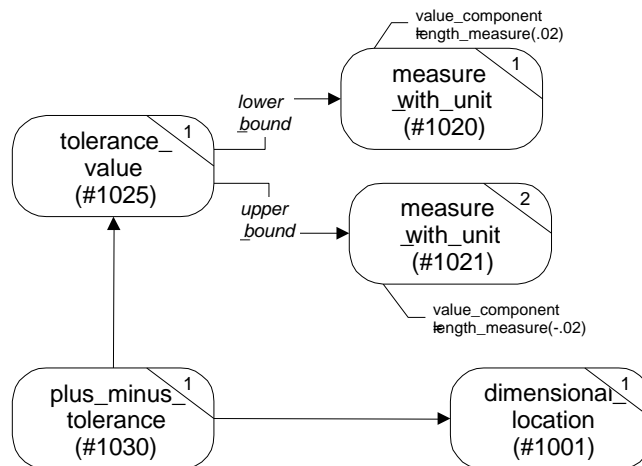


Figure 11 - Instances depicting a dimension related to a plus-minus tolerance

3.6.1 Entities and Attributes

Name	Explanation
plus_minus_tolerance	Specification of limits within which a dimension may vary.
range	A tolerance_value in the scope of this effort.
toleranced_dimension	The dimension being toleranced.
tolerance_value	A representation of plus-minus tolerances for a dimension.
upper_bound	The value to be added to nominal dimension value to derive maximum.
lower_bound	The value to be added to dimension to derive minimum.

4 Part 21 file examples

This section presents part 21 file instantiation examples of the concepts discussed. The files are provided separately in an AP214 and an AP203 with modular extension conformant way. The differences relate to application protocol specifics. These specifics do not relate to the capability described in this document, i.e. the files are exactly identical in respect to the entities discussed herein.

There is an example provided with associative dimensions and another example (derived from the first example) in which the same dimensions are modelled as non_associative.

4.1 Example with associative dimensions

A diagram depicting the geometric model used for this example, along with the view that includes different types of dimensions, is shown in *Figure 12*.

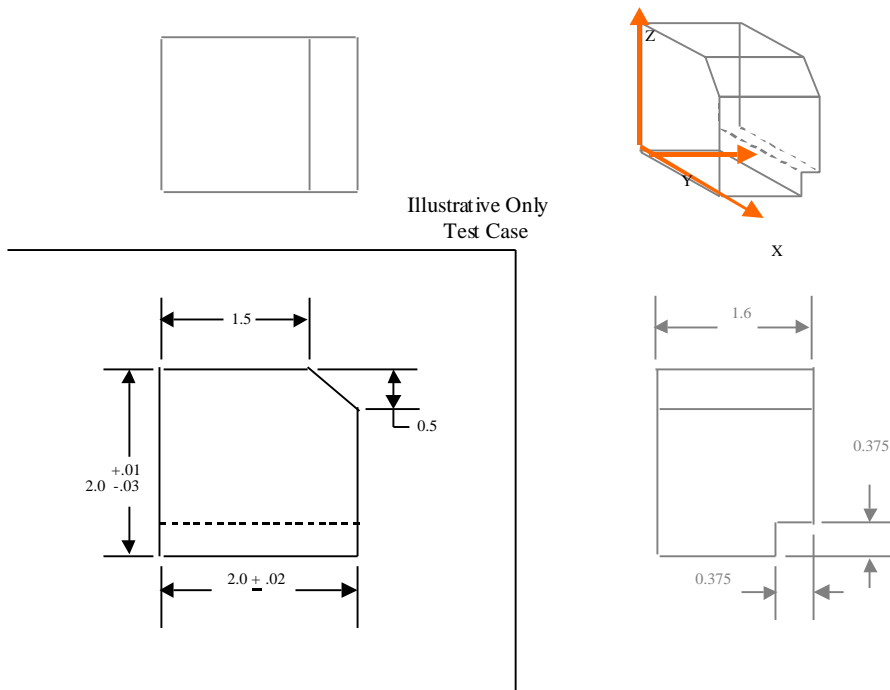


Figure 12 - Associative dimension example

4.1.1 Instance diagram for associative dimensions example

This section provides an overview of the structures used for the different capabilities defined in this complex example by combining the individual figures of the above descriptions.

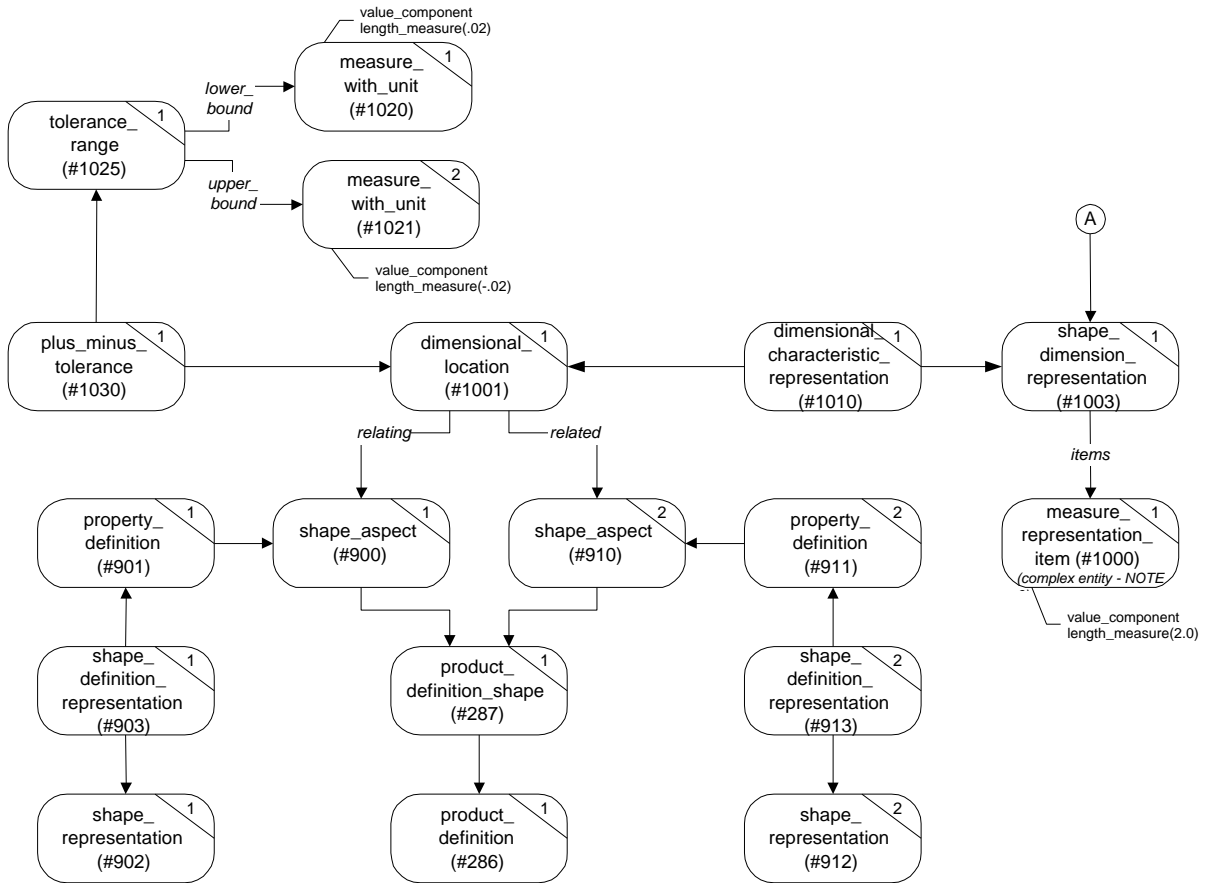


Figure 13 - Diagram for geometric location dimension

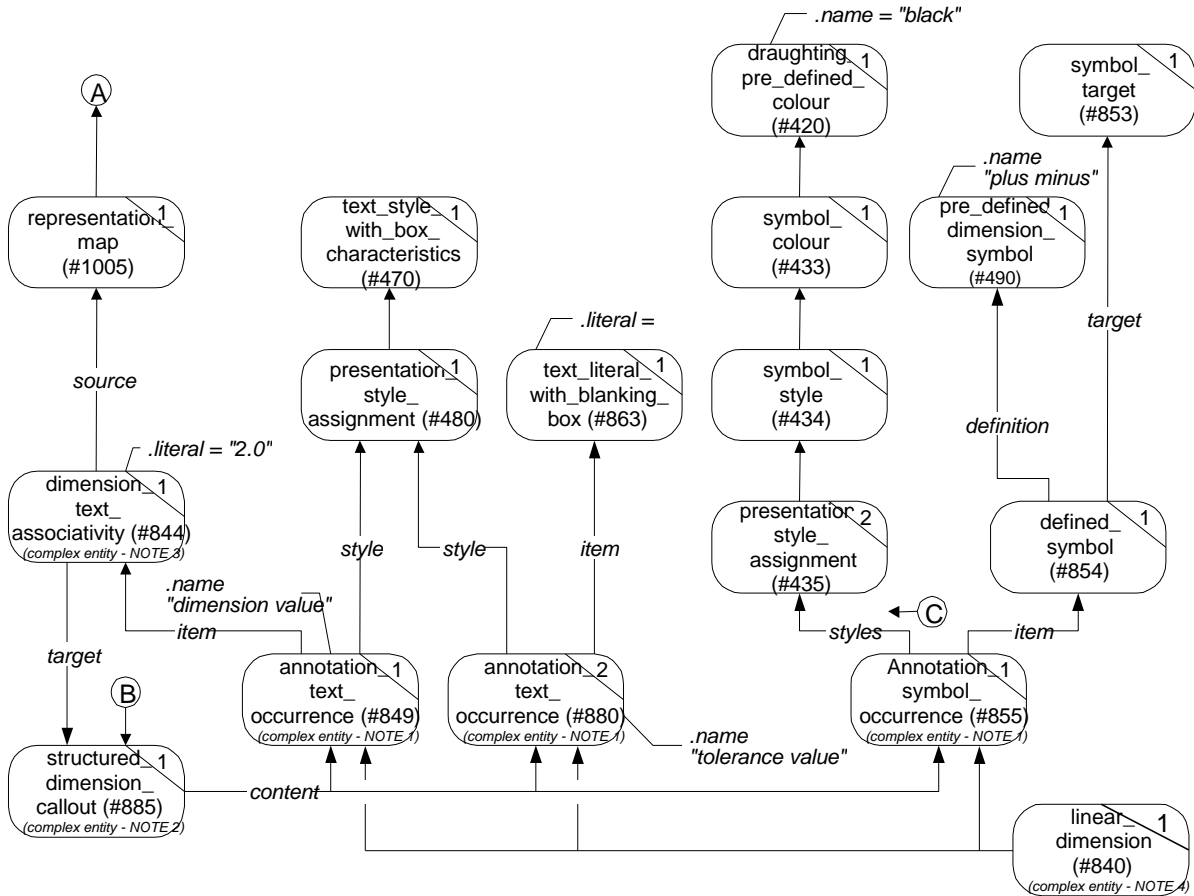


Figure 14 - Diagram for associated structured_dimension_callout

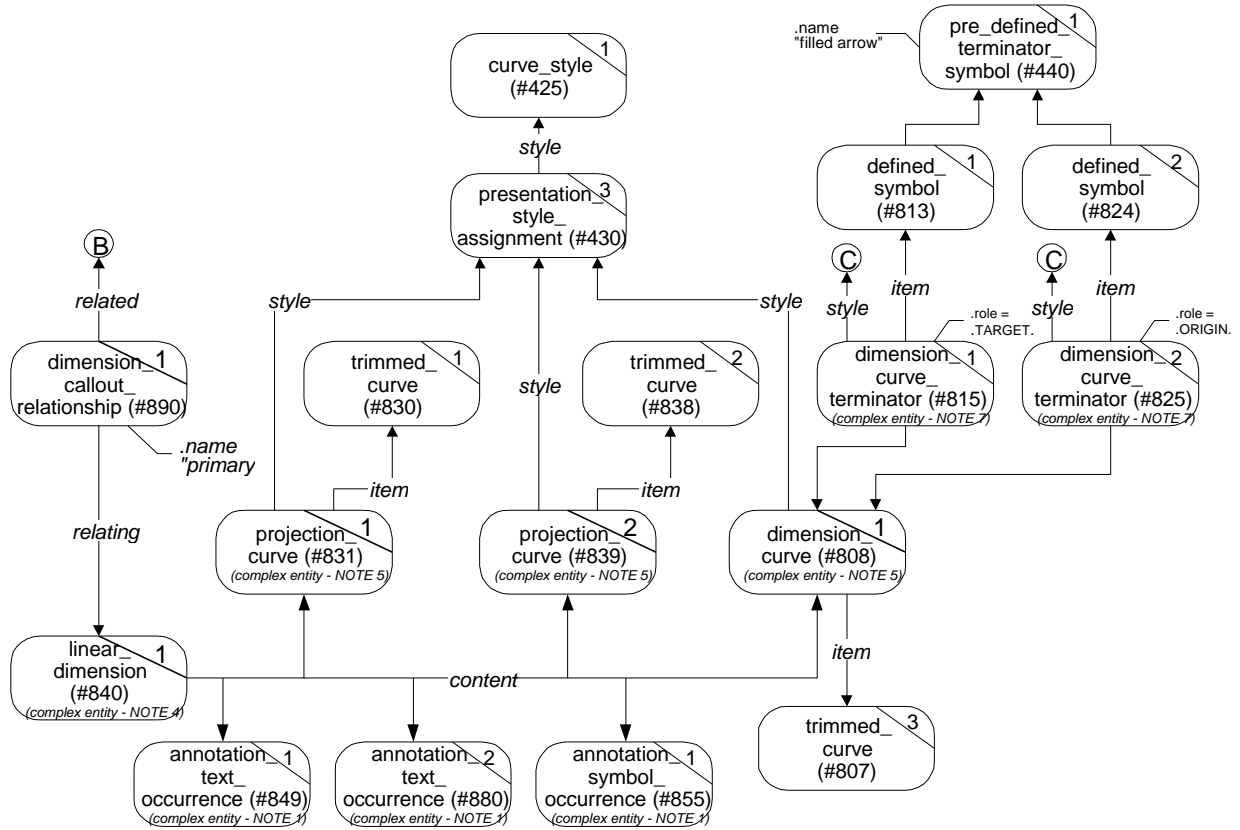


Figure 15 - Diagram for linear_dimension

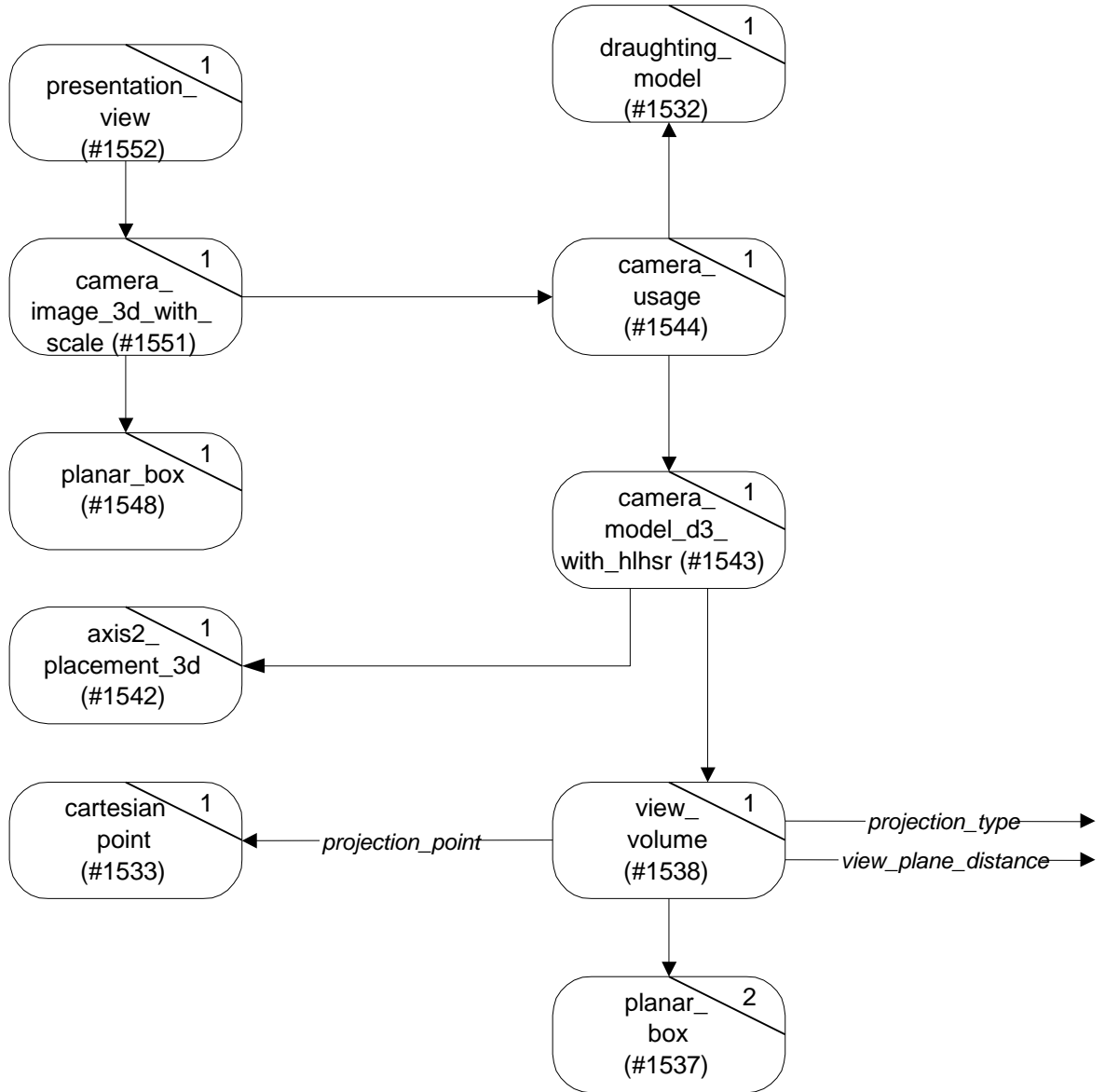


Figure 16 - Diagram for camera model

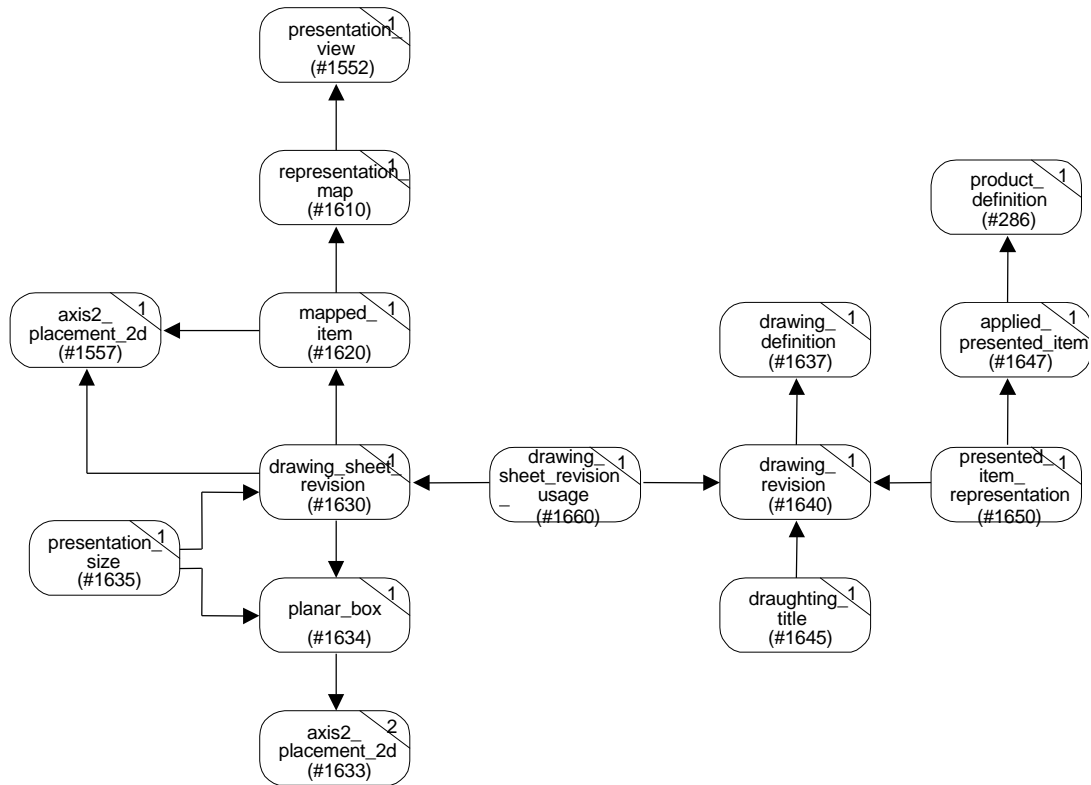


Figure 17 - Diagram for basic drawing organisation

4.1.1.1 Notes to the diagrams

- Note 1 Complex entity since its a subtype of **annotation_occurrence** and **draughting_-annotation_occurrence**.
- Note 2 Complex entity since its a subtype of **draughting_callout** and **draughting_elements**.
- Note 3 Complex entity since its a subtype of **mapped_item** and **text_literal**.
- Note 4 Complex entity since its a subtype of **dimension_curve_directed_callout** and **draughting_elements**.
- Note 5 Complex entity since its a subtype of **annotation_curve_occurrence** and **draughting_annotation_occurrence**.
- Note 6 Complex entity since its a subtype of **measure_with_unit** and **representation_item**.
- Note 7 Complex entity since its a subtype of **terminator_symbol** and **draughting_-annotation_occurrence**.

4.1.2 Associative dimensions example conforming to AP214

```
ISO-10303-21;
HEADER;
FILE_DESCRIPTION(('associative dimension example',''),'1');
FILE_NAME('assoc_dim.stp',
```

```

'1999-02-26 T12:00:00',
('Linas Polikaitis','Rogerio Barra','Mark Lobo','Markus Hauser'),
(' ',' ',' '),
'',
'',
'',
'');
FILE_SCHEMA(('AUTOMOTIVE_DESIGN {1 2 10303 214 0 1 1 1}'));
ENDSEC;
DATA;

/*****
* Instances #10-#274 define the model. These include
* the definition of the default units for the context of the
* representation (#10-#19), the context itself (#20), all of the
* geometrical and topological entity instances that define the model
* (#25-273), and finally the advanced_brep_shape_representation (#274).*
*****/

#10=(LENGTH_UNIT()NAMED_UNIT(*)SI_UNIT(.MILLI.,.METRE.));
#11=LENGTH_MEASURE_WITH_UNIT(LENGTH_MEASURE(25.4),#10);
#12=DIMENSIONAL_EXPONENTS(1.,0.,0.,0.,0.,0.,0.);
#13=(CONVERSION_BASED_UNIT('INCH',#11)LENGTH_UNIT()NAMED_UNIT(#12));
#14=(NAMED_UNIT(*)PLANE_ANGLE_UNIT()SI_UNIT($,.RADIAN.));
#15=PLANE_ANGLE_MEASURE_WITH_UNIT(PLANE_ANGLE_MEASURE(0.0174532925),#14);
#16=DIMENSIONAL_EXPONENTS(0.,0.,0.,0.,0.,0.,0.);
#17=(CONVERSION_BASED_UNIT('DEGREE',#15)NAMED_UNIT(#16)PLANE_ANGLE_UNIT());
#18=(NAMED_UNIT(*)SI_UNIT($,.STERADIAN.)SOLID_ANGLE_UNIT());
#19=UNCERTAINTY_MEASURE_WITH_UNIT(
    LENGTH_MEASURE(7.8740157480315E-07),#13,
    'DISTANCE_ACCURACY_VALUE','Maximum Tolerance applied to model');
#20=(GEOMETRIC_REPRESENTATION_CONTEXT(3)
    GLOBAL_UNCERTAINTY_ASSIGNED_CONTEXT((#19))
    GLOBAL_UNIT_ASSIGNED_CONTEXT((#13,#17,#18))
    REPRESENTATION_CONTEXT('3D coordinate system context','3D'));
#25=CARTESIAN_POINT('',(1.,0.,2.));
#26=DIRECTION('',(-1.,0.,0.));
#27=VECTOR('',#26,1.);
#28=LINE('',#25,#27);
#29=EDGE_CURVE('',#31,#33,#28,.T.);
#30=CARTESIAN_POINT('',(1.5,0.,2.));
#31=VERTEX_POINT('',#30);
#32=CARTESIAN_POINT('',(0.,0.,2.));
#33=VERTEX_POINT('',#32);
#34=ORIENTED_EDGE('',*,*,#29,.F.);
#35=CARTESIAN_POINT('',(1.5,0.8,2.));
#36=DIRECTION('',(0.,1.,0.));
#37=VECTOR('',#36,1.);
#38=LINE('',#35,#37);
#39=EDGE_CURVE('',#31,#41,#38,.T.);
#40=CARTESIAN_POINT('',(1.5,1.6,2.));
#41=VERTEX_POINT('',#40);
#42=ORIENTED_EDGE('',*,*,#39,.T.);
#43=CARTESIAN_POINT('',(1.,1.6,2.));
#44=DIRECTION('',(1.,0.,0.));
#45=VECTOR('',#44,1.);
#46=LINE('',#43,#45);
#47=EDGE_CURVE('',#49,#41,#46,.T.);

```

```
#48=CARTESIAN_POINT(' ',(0.,1.6,2.));
#49=VERTEX_POINT(' ',#48);
#50=ORIENTED_EDGE(' ',*,*,#47,.F.);
#51=CARTESIAN_POINT(' ',(0.,0.8,2.));
#52=DIRECTION(' ',(0.,1.,0.));
#53=VECTOR(' ',#52,1.);
#54=LINE(' ',#51,#53);
#55=EDGE_CURVE(' ',#33,#49,#54,.T.);
#56=ORIENTED_EDGE(' ',*,*,#55,.F.);
#57=EDGE_LOOP(' ',(#34,#42,#50,#56));
#58=FACE_BOUND(' ',#57,.T.);
#59=CARTESIAN_POINT(' ',(1.,0.8,2.));
#60=DIRECTION(' ',(0.,0.,1.));
#61=DIRECTION(' ',(1.,0.,0.));
#62=AXIS2_PLACEMENT_3D(' ',#59,#60,#61);
#63=PLANE(' ',#62);
#64=ADVANCED_FACE(' ',(#58),#63,.T.);
#65=CARTESIAN_POINT(' ',(2.,0.,0.));
#66=DIRECTION(' ',(0.,0.,1.));
#67=VECTOR(' ',#66,1.);
#68=LINE(' ',#65,#67);
#69=EDGE_CURVE(' ',#71,#73,#68,.T.);
#70=CARTESIAN_POINT(' ',(2.,0.,0.));
#71=VERTEX_POINT(' ',#70);
#72=CARTESIAN_POINT(' ',(2.,0.,1.5));
#73=VERTEX_POINT(' ',#72);
#74=ORIENTED_EDGE(' ',*,*,#69,.T.);
#75=CARTESIAN_POINT(' ',(2.25,0.,1.25));
#76=DIRECTION(' ',(-0.707106781186548,0.,0.707106781186548));
#77=VECTOR(' ',#76,1.);
#78=LINE(' ',#75,#77);
#79=EDGE_CURVE(' ',#73,#31,#78,.T.);
#80=ORIENTED_EDGE(' ',*,*,#79,.T.);
#81=ORIENTED_EDGE(' ',*,*,#29,.T.);
#82=CARTESIAN_POINT(' ',(0.,0.,0.));
#83=DIRECTION(' ',(0.,0.,1.));
#84=VECTOR(' ',#83,1.);
#85=LINE(' ',#82,#84);
#86=EDGE_CURVE(' ',#88,#33,#85,.T.);
#87=CARTESIAN_POINT(' ',(0.,0.,0.));
#88=VERTEX_POINT(' ',#87);
#89=ORIENTED_EDGE(' ',*,*,#86,.F.);
#90=CARTESIAN_POINT(' ',(1.,0.,0.));
#91=DIRECTION(' ',(1.,0.,0.));
#92=VECTOR(' ',#91,1.);
#93=LINE(' ',#90,#92);
#94=EDGE_CURVE(' ',#88,#71,#93,.T.);
#95=ORIENTED_EDGE(' ',*,*,#94,.T.);
#96=EDGE_LOOP(' ',(#74,#80,#81,#89,#95));
#97=FACE_BOUND(' ',#96,.T.);
#98=CARTESIAN_POINT(' ',(1.,0.,0.));
#99=DIRECTION(' ',(0.,-1.,0.));
#100=DIRECTION(' ',(0.,0.,-1.));
#101=AXIS2_PLACEMENT_3D(' ',#98,#99,#100);
#102=PLANE(' ',#101);
#103=ADVANCED_FACE(' ',(#97),#102,.T.);
#104=CARTESIAN_POINT(' ',(0.,1.4125,0.375));
```

```
#105=DIRECTION(' ',(0.,1.,0.));
#106=VECTOR(' ',#105,1.);
#107=LINE(' ',#104,#106);
#108=EDGE_CURVE(' ',#110,#112,#107,.T.);
#109=CARTESIAN_POINT(' ',(0.,1.225,0.375));
#110=VERTEX_POINT(' ',#109);
#111=CARTESIAN_POINT(' ',(0.,1.6,0.375));
#112=VERTEX_POINT(' ',#111);
#113=ORIENTED_EDGE(' ',*,*,#108,.F.);
#114=CARTESIAN_POINT(' ',(0.,1.225,0.));
#115=DIRECTION(' ',(0.,0.,1.));
#116=VECTOR(' ',#115,1.);
#117=LINE(' ',#114,#116);
#118=EDGE_CURVE(' ',#120,#110,#117,.T.);
#119=CARTESIAN_POINT(' ',(0.,1.225,0.));
#120=VERTEX_POINT(' ',#119);
#121=ORIENTED_EDGE(' ',*,*,#118,.F.);
#122=CARTESIAN_POINT(' ',(0.,0.8,0.));
#123=DIRECTION(' ',(0.,-1.,0.));
#124=VECTOR(' ',#123,1.);
#125=LINE(' ',#122,#124);
#126=EDGE_CURVE(' ',#120,#88,#125,.T.);
#127=ORIENTED_EDGE(' ',*,*,#126,.T.);
#128=ORIENTED_EDGE(' ',*,*,#86,.T.);
#129=ORIENTED_EDGE(' ',*,*,#55,.T.);
#130=CARTESIAN_POINT(' ',(0.,1.6,0.));
#131=DIRECTION(' ',(0.,0.,1.));
#132=VECTOR(' ',#131,1.);
#133=LINE(' ',#130,#132);
#134=EDGE_CURVE(' ',#112,#49,#133,.T.);
#135=ORIENTED_EDGE(' ',*,*,#134,.F.);
#136=EDGE_LOOP(' ',(#113,#121,#127,#128,#129,#135));
#137=FACE_BOUND(' ',#136,.T.);
#138=CARTESIAN_POINT(' ',(0.,0.8,0.));
#139=DIRECTION(' ',(-1.,0.,0.));
#140=DIRECTION(' ',(0.,0.,1.));
#141=AXIS2_PLACEMENT_3D(' ',#138,#139,#140);
#142=PLANE(' ',#141);
#143=ADVANCED_FACE(' ',(#137),#142,.T.);
#144=CARTESIAN_POINT(' ',(1.5,1.6,0.375));
#145=DIRECTION(' ',(1.,0.,0.));
#146=VECTOR(' ',#145,1.);
#147=LINE(' ',#144,#146);
#148=EDGE_CURVE(' ',#112,#150,#147,.T.);
#149=CARTESIAN_POINT(' ',(2.,1.6,0.375));
#150=VERTEX_POINT(' ',#149);
#151=ORIENTED_EDGE(' ',*,*,#148,.F.);
#152=ORIENTED_EDGE(' ',*,*,#134,.T.);
#153=ORIENTED_EDGE(' ',*,*,#47,.T.);
#154=CARTESIAN_POINT(' ',(2.25,1.6,1.25));
#155=DIRECTION(' ',(0.707106781186548,0.,-0.707106781186548));
#156=VECTOR(' ',#155,1.);
#157=LINE(' ',#154,#156);
#158=EDGE_CURVE(' ',#41,#160,#157,.T.);
#159=CARTESIAN_POINT(' ',(2.,1.6,1.5));
#160=VERTEX_POINT(' ',#159);
#161=ORIENTED_EDGE(' ',*,*,#158,.T.);
```

```
#162=CARTESIAN_POINT(' ',(2.,1.6,0.));
#163=DIRECTION(' ',(0.,0.,1.));
#164=VECTOR(' ',#163,1.);
#165=LINE(' ',#162,#164);
#166=EDGE_CURVE(' ',#150,#160,#165,.T.);
#167=ORIENTED_EDGE(' ',*,*,#166,.F.);
#168=EDGE_LOOP(' ',(#151,#152,#153,#161,#167));
#169=FACE_BOUND(' ',#168,.T.);
#170=CARTESIAN_POINT(' ',(1.,1.6,0.));
#171=DIRECTION(' ',(0.,1.,0.));
#172=DIRECTION(' ',(0.,0.,1.));
#173=AXIS2_PLACEMENT_3D(' ',#170,#171,#172);
#174=PLANE(' ',#173);
#175=ADVANCED_FACE(' ',(#169),#174,.T.);
#176=CARTESIAN_POINT(' ',(1.5,1.225,0.));
#177=DIRECTION(' ',(1.,0.,0.));
#178=VECTOR(' ',#177,1.);
#179=LINE(' ',#176,#178);
#180=EDGE_CURVE(' ',#120,#182,#179,.T.);
#181=CARTESIAN_POINT(' ',(2.,1.225,0.));
#182=VERTEX_POINT(' ',#181);
#183=ORIENTED_EDGE(' ',*,*,#180,.T.);
#184=CARTESIAN_POINT(' ',(2.,0.8,0.));
#185=DIRECTION(' ',(0.,1.,0.));
#186=VECTOR(' ',#185,1.);
#187=LINE(' ',#184,#186);
#188=EDGE_CURVE(' ',#71,#182,#187,.T.);
#189=ORIENTED_EDGE(' ',*,*,#188,.F.);
#190=ORIENTED_EDGE(' ',*,*,#94,.F.);
#191=ORIENTED_EDGE(' ',*,*,#126,.F.);
#192=EDGE_LOOP(' ',(#183,#189,#190,#191));
#193=FACE_BOUND(' ',#192,.T.);
#194=CARTESIAN_POINT(' ',(1.,0.8,0.));
#195=DIRECTION(' ',(0.,0.,-1.));
#196=DIRECTION(' ',(-1.,0.,0.));
#197=AXIS2_PLACEMENT_3D(' ',#194,#195,#196);
#198=PLANE(' ',#197);
#199=ADVANCED_FACE(' ',(#193),#198,.T.);
#200=CARTESIAN_POINT(' ',(2.,0.8,0.375));
#201=DIRECTION(' ',(0.,-1.,0.));
#202=VECTOR(' ',#201,1.);
#203=LINE(' ',#200,#202);
#204=EDGE_CURVE(' ',#150,#206,#203,.T.);
#205=CARTESIAN_POINT(' ',(2.,1.225,0.375));
#206=VERTEX_POINT(' ',#205);
#207=ORIENTED_EDGE(' ',*,*,#204,.F.);
#208=ORIENTED_EDGE(' ',*,*,#166,.T.);
#209=CARTESIAN_POINT(' ',(2.,0.8,1.5));
#210=DIRECTION(' ',(0.,-1.,0.));
#211=VECTOR(' ',#210,1.);
#212=LINE(' ',#209,#211);
#213=EDGE_CURVE(' ',#160,#73,#212,.T.);
#214=ORIENTED_EDGE(' ',*,*,#213,.T.);
#215=ORIENTED_EDGE(' ',*,*,#69,.F.);
#216=ORIENTED_EDGE(' ',*,*,#188,.T.);
#217=CARTESIAN_POINT(' ',(2.,1.225,0.));
#218=DIRECTION(' ',(0.,0.,-1.));
```

```
#219=VECTOR(' ',#218,1.);
#220=LINE(' ',#217,#219);
#221=EDGE_CURVE(' ',#206,#182,#220,.T.);
#222=ORIENTED_EDGE(' ',*,*,#221,.F.);
#223=EDGE_LOOP(' ',(#207,#208,#214,#215,#216,#222));
#224=FACE_BOUND(' ',#223,.T.);
#225=CARTESIAN_POINT(' ',(2.,0.8,0.));
#226=DIRECTION(' ',(1.,0.,0.));
#227=DIRECTION(' ',(0.,0.,-1.));
#228=AXIS2_PLACEMENT_3D(' ',#225,#226,#227);
#229=PLANE(' ',#228);
#230=ADVANCED_FACE(' ',(#224),#229,.T.);
#231=ORIENTED_EDGE(' ',*,*,#158,.F.);
#232=ORIENTED_EDGE(' ',*,*,#39,.F.);
#233=ORIENTED_EDGE(' ',*,*,#79,.F.);
#234=ORIENTED_EDGE(' ',*,*,#213,.F.);
#235=EDGE_LOOP(' ',(#231,#232,#233,#234));
#236=FACE_BOUND(' ',#235,.T.);
#237=CARTESIAN_POINT(' ',(2.,0.8,1.5));
#238=DIRECTION(' ',(-0.707106781186547,0.,-0.707106781186547));
#239=DIRECTION(' ',(-0.707106781186548,0.,0.707106781186548));
#240=AXIS2_PLACEMENT_3D(' ',#237,#238,#239);
#241=PLANE(' ',#240);
#242=ADVANCED_FACE(' ',(#236),#241,.F.);
#243=ORIENTED_EDGE(' ',*,*,#204,.T.);
#244=CARTESIAN_POINT(' ',(1.5,1.225,0.375));
#245=DIRECTION(' ',(-1.,0.,0.));
#246=VECTOR(' ',#245,1.);
#247=LINE(' ',#244,#246);
#248=EDGE_CURVE(' ',#206,#110,#247,.T.);
#249=ORIENTED_EDGE(' ',*,*,#248,.T.);
#250=ORIENTED_EDGE(' ',*,*,#108,.T.);
#251=ORIENTED_EDGE(' ',*,*,#148,.T.);
#252=EDGE_LOOP(' ',(#243,#249,#250,#251));
#253=FACE_BOUND(' ',#252,.T.);
#254=CARTESIAN_POINT(' ',(1.5,1.4125,0.375));
#255=DIRECTION(' ',(0.,0.,1.));
#256=DIRECTION(' ',(1.,0.,0.));
#257=AXIS2_PLACEMENT_3D(' ',#254,#255,#256);
#258=PLANE(' ',#257);
#259=ADVANCED_FACE(' ',(#253),#258,.F.);
#260=ORIENTED_EDGE(' ',*,*,#221,.T.);
#261=ORIENTED_EDGE(' ',*,*,#180,.F.);
#262=ORIENTED_EDGE(' ',*,*,#118,.T.);
#263=ORIENTED_EDGE(' ',*,*,#248,.F.);
#264=EDGE_LOOP(' ',(#260,#261,#262,#263));
#265=FACE_BOUND(' ',#264,.T.);
#266=CARTESIAN_POINT(' ',(1.5,1.225,0.));
#267=DIRECTION(' ',(0.,-1.,0.));
#268=DIRECTION(' ',(0.,0.,-1.));
#269=AXIS2_PLACEMENT_3D(' ',#266,#267,#268);
#270=PLANE(' ',#269);
#271=ADVANCED_FACE(' ',(#265),#270,.F.);
#272=CLOSED_SHELL(' ',(#64,#103,#143,#175,#199,#230,#242,#259,#271));
#273=MANIFOLD_SOLID_BREP(' ',#272);
#274=ADVANCED_BREP_SHAPE_REPRESENTATION(' ',(#273),#20);
```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```

/*****
 * Instances #275-#288 define the product that the model defined
 * above represents, as well as the contexts for the application,
 * the product, and its definition. Lastly it provides the link
 * to the advanced_brep_shape_representation/#274.
 *****/

#275=APPLICATION_CONTEXT('AUTOMOTIVE_DESIGN');
#276=APPLICATION_PROTOCOL_DEFINITION('COMMITTEE_DRAFT','automotive_design',
1999, #275);
#277=PRODUCT_CONTEXT(' ',#275,'mechanical');
#281=PRODUCT('product_0','',',',(#277));
#282=PRODUCT_RELATED_PRODUCT_CATEGORY('part','',(#281));
#284=PRODUCT_DEFINITION_FORMATION(' ',' ',#281);
#285=PRODUCT_DEFINITION_CONTEXT(' ',#275,'design');
#286=PRODUCT_DEFINITION(' ',' ',#284,#285);
#287=PRODUCT_DEFINITION_SHAPE(' ',' ',#286);
#288=SHAPE_DEFINITION_REPRESENTATION(#287,#274);

/*****
 * Instances #400-#430 define pre-defined common appearance
 * characteristics.
 *****/

#400=DRAUGHTING_PRE_DEFINED_CURVE_FONT('continuous');
#410=LENGTH_MEASURE_WITH_UNIT(POSITIVE_LENGTH_MEASURE(.01),#13);
#420=DRAUGHTING_PRE_DEFINED_COLOUR('black');
#425=CURVE_STYLE('black-continuous',#400,#410,#420);
#430=PRESENTATION_STYLE_ASSIGNMENT((#425));
#433=SYMBOL_COLOUR(#420);
#434=SYMBOL_STYLE('black',#433);
#435=PRESENTATION_STYLE_ASSIGNMENT((#434));
#440=PRE_DEFINED_TERMINATOR_SYMBOL('filled arrow');
#450=DRAUGHTING_PRE_DEFINED_TEXT_FONT('ISO 3098-1 font A');
#460=TEXT_STYLE_FOR_DEFINED_FONT(#420);
#470=TEXT_STYLE_WITH_BOX_CHARACTERISTICS(' ',#460,
    (BOX_WIDTH(.125),
    BOX_SLANT_ANGLE(0.),
    BOX_ROTATE_ANGLE(0.),
    BOX_HEIGHT(.15625)));
#480=PRESENTATION_STYLE_ASSIGNMENT((#470));
#490=PRE_DEFINED_DIMENSION_SYMBOL('plus minus');

/*****
 * Instances #503-#508 define the dimension curve associated with the
 * left edge dimension depicted within the view.
 *****/

#503=DIRECTION(' ',(0.,1.));
#504=VECTOR(' ',#503,2.);
#505=CARTESIAN_POINT(' ',(1.155177038627,1.915571351931));
#506=LINE(' ',#505,#504);
#507=TRIMMED_CURVE(' ',#506,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#508=(ANNOTATION_CURVE_OCCURRENCE()
    ANNOTATION_OCCURRENCE()
    DIMENSION_CURVE())
```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```

    DRAUGHTING_ANNOTATION_OCCURRENCE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#430),#507));

/*****
* Instances #509-#515 and #520-#525 define the dimension curve      *
* terminators (first one assigned as the origin of the dimension curve *
* and the second assigned as its target) associated with the left edge *
* dimension depicted within the view.                                *
*****/

#509=CARTESIAN_POINT('',(1.155177038627,3.915571351931));
#510=DIRECTION('',(0.,1.));
#511=AXIS2_PLACEMENT_2D('',#509,#510);
#512=SYMBOL_TARGET('',#511,7.5,2.5);
#513=DEFINED_SYMBOL('',#440,#512);
#515=(ANNOTATION_OCCURRENCE()
    ANNOTATION_SYMBOL_OCCURRENCE()
    DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
    DRAUGHTING_ANNOTATION_OCCURRENCE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#435),#513)
    TERMINATOR_SYMBOL(#508));
#520=CARTESIAN_POINT('',(1.155177038627,1.915571351931));
#521=DIRECTION('',(0.,-1.));
#522=AXIS2_PLACEMENT_2D('',#520,#521);
#523=SYMBOL_TARGET('',#522,7.5,2.5);
#524=DEFINED_SYMBOL('',#440,#523);
#525=(ANNOTATION_OCCURRENCE()
    ANNOTATION_SYMBOL_OCCURRENCE()
    DIMENSION_CURVE_TERMINATOR(.TARGET.)
    DRAUGHTING_ANNOTATION_OCCURRENCE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#435),#524)
    TERMINATOR_SYMBOL(#508));

/*****
* Instances #526-#531 and #534-#539 define the projection curves    *
* associated with the left edge dimension depicted within the view.    *
*****/

#526=DIRECTION('',(-1.,0.));
#527=VECTOR('',#526,1.);
#528=CARTESIAN_POINT('',(1.967609978541,3.915571351931));
#529=LINE('',#528,#527);
#530=TRIMMED_CURVE('',#529,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#531=(ANNOTATION_CURVE_OCCURRENCE()
    ANNOTATION_OCCURRENCE()
    DRAUGHTING_ANNOTATION_OCCURRENCE()
    PROJECTION_CURVE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#430),#530));

```

```

#534=DIRECTION(' ',(-1.,0.));
#535=VECTOR(' ',#534,1.);
#536=CARTESIAN_POINT(' ',(1.967609978541,1.915571351931));
#537=LINE(' ',#536,#535);
#538=TRIMMED_CURVE(' ',#537,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#539=(ANNOTATION_CURVE_OCCURRENCE(
  ANNOTATION_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      PROJECTION_CURVE(
        REPRESENTATION_ITEM(' ')
        GEOMETRIC_REPRESENTATION_ITEM(
          STYLED_ITEM((#430),#538));

/*****
* Instance #540 defines the linear dimension for the left edge      *
* dimension depicted within the view. This linear dimension has as its *
* elements the previously defined dimension_curve (#508), both of its *
* associated dimension_curve_terminators (#515 and #525), and both *
* projection_curves (#531 and #539).                                *
*****/

#540=(DIMENSION_CURVE_DIRECTED_CALLOUT(
  DRAUGHTING_CALLOUT((#508,#515,#525,#531,#539,#549,#580))
  DRAUGHTING_ELEMENTS(
    GEOMETRIC_REPRESENTATION_ITEM(
      LINEAR_DIMENSION(
        REPRESENTATION_ITEM(''));

/*****
* Instances #541-#549 define the dimension value text string, which *
* has a blanking box surrounding it, that is part of the           *
* dimension_callout associated with the left edge dimension depicted *
* within the view. This text string is explicitly associated with the *
* value of a geometric location dimension (#700, by way of #705).   *
*****/

#541=CARTESIAN_POINT(' ',(.6551770386266,2.937030579399));
#542=DIRECTION(' ',(1.,0.));
#543=AXIS2_PLACEMENT_2D(' ',#541,#542);
#544=(DIMENSION_TEXT_ASSOCIATIVITY(
  GEOMETRIC_REPRESENTATION_ITEM(
    MAPPED_ITEM(#705,#585)
    REPRESENTATION_ITEM(' ')
    TEXT_LITERAL('2.0',#543,'baseline left',.RIGHT.,#450)
    TEXT_LITERAL_WITH_BLANKING_BOX(#548));
#545=CARTESIAN_POINT(' ',(.6238781252458,2.9057549763387));
#546=DIRECTION(' ',(1.,0.));
#547=AXIS2_PLACEMENT_2D(' ',#545,#546);
#548=PLANAR_BOX(' ',0.5,0.21885,#547);
#549=(ANNOTATION_OCCURRENCE(
  ANNOTATION_TEXT_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      REPRESENTATION_ITEM('dimension value')
      GEOMETRIC_REPRESENTATION_ITEM(
        STYLED_ITEM((#480),#544));

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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/*****
 * Instances #560-#580 define the separate text strings, each of which
 * are elements of a composite_text (which is surrounded by a blanking
 * box), that, combined, portray the tolerance value of the
 * dimension_callout associated with the left edge dimension depicted
 * within the view.
 *****/

#560=CARTESIAN_POINT('',(1.155177038627,3.054218079399));
#561=DIRECTION('',(1.,0.));
#562=AXIS2_PLACEMENT_2D('','#560,#561);
#563=TEXT_LITERAL('','+0.01',#562,'baseline left',.RIGHT.,#450);
#570=CARTESIAN_POINT('',(1.155177038627,2.819843079399));
#571=DIRECTION('',(1.,0.));
#572=AXIS2_PLACEMENT_2D('','#570,#571);
#573=TEXT_LITERAL('','-0.03',#572,'baseline left',.RIGHT.,#450);
#574=CARTESIAN_POINT('',(1.1238771252458,2.78854549763387));
#575=DIRECTION('',(1.,0.));
#576=AXIS2_PLACEMENT_2D('','#574,#575);
#577=PLANAR_BOX('',0.666667,0.484525,#576);
#578=COMPOSITE_TEXT_WITH_BLANKING_BOX('',( #563,#573),#577);
#580=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('tolerance value')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#480),#578));

/*****
 * Instance #585 defines the structured_dimension_callout for the left
 * edge dimension depicted within the view. This callout has as its
 * elements the previously defined dimension value text string (#549)
 * and the tolerance value composite text (#580).
 *****/

#585=(DRAUGHTING_CALLOUT((#549,#580))
    DRAUGHTING_ELEMENTS(
        GEOMETRIC_REPRESENTATION_ITEM(
            REPRESENTATION_ITEM('')
            STRUCTURED_DIMENSION_CALLOUT());

/*****
 * Instance #590 defines the primary callout relationship between the
 * previously defined linear_dimension (#540) and
 * structured_dimension_callout (#585) for the left edge dimension
 * depicted within the view.
 *****/

#590=DIMENSION_CALLOUT_RELATIONSHIP('primary','',#540,#585);

/*****
 * Instances #600-#613 define the two shape aspects that will be
 * related by a location dimension. Each shape aspect refers to a
 * separate corner of the left side dimension of the model depicted in
 * the view.
 *****/

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#600=SHAPE_ASPECT('',' ',#287,.U.);
#601=PROPERTY_DEFINITION('','',#600);
#602=SHAPE_REPRESENTATION('',( #88),#20);
#603=SHAPE_DEFINITION_REPRESENTATION(#601,#602);
#610=SHAPE_ASPECT('','',#287,.U.);
#611=PROPERTY_DEFINITION('','',#610);
#612=SHAPE_REPRESENTATION('',( #33),#20);
#613=SHAPE_DEFINITION_REPRESENTATION(#611,#612);

/*****
 * Instances #700-#710 define the location dimension of the
 * relationship between the shape aspects defined above (#600 and #610).
 *****/

#700=MEASURE_REPRESENTATION_ITEM('location dimension from (0,0,0) and
(0,0,2)',
LENGTH_MEASURE(2.0),#13);
#701=DIMENSIONAL_LOCATION('','',#600,#610);
#703=SHAPE_DIMENSION_REPRESENTATION('',( #700),#20);
#705=REPRESENTATION_MAP(#700,#703);
#710=DIMENSIONAL_CHARACTERISTIC_REPRESENTATION(#701,#703);

/*****
 * Instances #720-#730 define the tolerance range for the previously
 * defined location dimension (#701).
 *****/

#720=MEASURE_WITH_UNIT(LENGTH_MEASURE(.01),#13);
#721=MEASURE_WITH_UNIT(LENGTH_MEASURE(-0.03),#13);
#725=TOLERANCE_VALUE(#721,#720);
#730=PLUS_MINUS_TOLERANCE(#725,#701);

/*****
 * Instances #803-#808 define the dimension curve associated with the
 * bottom edge dimension depicted within the view.
 *****/

#803=DIRECTION('',(1.,0.));
#804=VECTOR('',#803,2.);
#805=CARTESIAN_POINT('',(1.967609978541,1.401891094421));
#806=LINE('',#805,#804);
#807=TRIMMED_CURVE('',#806,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#808=(ANNOTATION_CURVE_OCCURRENCE(
    ANNOTATION_OCCURRENCE(
        DIMENSION_CURVE(
            DRAUGHTING_ANNOTATION_OCCURRENCE(
                REPRESENTATION_ITEM('')
                GEOMETRIC_REPRESENTATION_ITEM(
                    STYLED_ITEM((#430),#807)));
            );
        );
    );
);

/*****
 * Instances #809-#815 and #820-#825 define the dimension curve
 * terminators (first one assigned as the origin of the dimension curve
 * and the second assigned as its target) associated with the bottom
 * edge dimension depicted within the view.
 *****/

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```

#809=CARTESIAN_POINT(' ', (1.967609978541, 1.401891094421));
#810=DIRECTION(' ', (1., 0.));
#811=AXIS2_PLACEMENT_2D(' ', #809, #810);
#812=SYMBOL_TARGET(' ', #811, 7.5, 2.5);
#813=DEFINED_SYMBOL(' ', #440, #812);
#815=(ANNOTATION_OCCURRENCE(
  ANNOTATION_SYMBOL_OCCURRENCE(
    DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      REPRESENTATION_ITEM(' ')
      GEOMETRIC_REPRESENTATION_ITEM(
        STYLED_ITEM((#435), #813)
        TERMINATOR_SYMBOL(#808));
#820=CARTESIAN_POINT(' ', (3.967609978541, 1.401891094421));
#821=DIRECTION(' ', (-1., 0.));
#822=AXIS2_PLACEMENT_2D(' ', #820, #821);
#823=SYMBOL_TARGET(' ', #822, 7.5, 2.5);
#824=DEFINED_SYMBOL(' ', #440, #823);
#825=(ANNOTATION_OCCURRENCE(
  ANNOTATION_SYMBOL_OCCURRENCE(
    DIMENSION_CURVE_TERMINATOR(.TARGET.)
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      REPRESENTATION_ITEM(' ')
      GEOMETRIC_REPRESENTATION_ITEM(
        STYLED_ITEM((#435), #824)
        TERMINATOR_SYMBOL(#808));

/*****
 * Instances #826-#831 and #834-#839 define the projection curves      *
 * associated with the bottom edge dimension depicted within the view.  *
 *****/

#826=DIRECTION(' ', (0., -1.));
#827=VECTOR(' ', #826, 1.);
#828=CARTESIAN_POINT(' ', (1.967609978541, 1.915571351931));
#829=LINE(' ', #828, #827);
#830=TRIMMED_CURVE(' ', #829, (PARAMETER_VALUE(0.)), (PARAMETER_VALUE(1.)), .T., .UN
SPECIFIED.);
#831=(ANNOTATION_CURVE_OCCURRENCE(
  ANNOTATION_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      PROJECTION_CURVE(
        REPRESENTATION_ITEM(' ')
        GEOMETRIC_REPRESENTATION_ITEM(
          STYLED_ITEM((#430), #830));
#834=DIRECTION(' ', (0., -1.));
#835=VECTOR(' ', #834, 1.);
#836=CARTESIAN_POINT(' ', (3.967609978541, 1.915571351931));
#837=LINE(' ', #836, #835);
#838=TRIMMED_CURVE(' ', #837, (PARAMETER_VALUE(0.)), (PARAMETER_VALUE(1.)), .T., .UN
SPECIFIED.);
#839=(ANNOTATION_CURVE_OCCURRENCE(
  ANNOTATION_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      PROJECTION_CURVE(
        REPRESENTATION_ITEM(' ')

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#430),#838));

/*****
 * Instance #840 defines the linear dimension for the bottom edge      *
 * dimension depicted within the view. This linear dimension has as its *
 * elements the previously defined dimension_curve (#808), both of its *
 * associated dimension_curve_terminators (#815 and #825), and both    *
 * projection_curves (#831 and #839).                                  *
 *****/

#840=(DIMENSION_CURVE_DIRECTED_CALLOUT(
    DRAUGHTING_CALLOUT((#808,#815,#825,#831,#839,#849,#855,#880))
    DRAUGHTING_ELEMENTS()
    GEOMETRIC_REPRESENTATION_ITEM()
    LINEAR_DIMENSION()
    REPRESENTATION_ITEM(''));

/*****
 * Instances #841-#849 define the dimension value text string, which    *
 * has a blanking box surrounding it, that is part of the              *
 * dimension_callout associated with the bottom edge dimension depicted *
 * within the view. This text string is explicitly associated with the *
 * value of a geometric location dimension (#1000, by way of #1005).    *
 *****/

#841=CARTESIAN_POINT('',(2.478797836195,1.323766094421));
#842=DIRECTION('',(1.,0.));
#843=AXIS2_PLACEMENT_2D('','#841,#842);
#844=(DIMENSION_TEXT_ASSOCIATIVITY(
    GEOMETRIC_REPRESENTATION_ITEM()
    MAPPED_ITEM(#1005,#885)
    REPRESENTATION_ITEM('')
    TEXT_LITERAL('2.0',#843,'baseline left',.RIGHT.,#450)
    TEXT_LITERAL_WITH_BLANKING_BOX(#848));
#845=CARTESIAN_POINT('',(2.447497836195,1.292466094421));
#846=DIRECTION('',(1.,0.));
#847=AXIS2_PLACEMENT_2D('','#845,#846);
#848=PLANAR_BOX('',0.5,0.21885,#847);
#849=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
    REPRESENTATION_ITEM('dimension value')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#480),#844));

/*****
 * Instances #850-#855 define the dimension plus minus symbol that is  *
 * part of the dimension callout associated with the bottom edge      *
 * dimension depicted within the view.                                  *
 *****/

#850=CARTESIAN_POINT('',(2.978797836195,1.323766094421));
#851=DIRECTION('',(1.,0.));
#852=AXIS2_PLACEMENT_2D('','#850,#851);
#853=SYMBOL_TARGET('','#852,1.,1.);
#854=DEFINED_SYMBOL('','#490,#853);

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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#855=(ANNOTATION_OCCURRENCE(
    ANNOTATION_SYMBOL_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#435),#854));

/*****
* Instances #856-#880 define the tolerance value text string, which
* has a blanking box surrounding it, that is part of the
* dimension_callout associated with the bottom edge dimension depicted
* within the view.
*****/

#856=CARTESIAN_POINT('',(3.229799502861,1.292466094421));
#857=DIRECTION('',(1.,0.));
#858=AXIS2_PLACEMENT_2D('',#856,#857);
#859=PLANAR_BOX('',0.5,0.21885,#858);
#860=CARTESIAN_POINT('',(3.261089502861,1.323766094421));
#861=DIRECTION('',(1.,0.));
#862=AXIS2_PLACEMENT_2D('',#860,#861);
#863=TEXT_LITERAL_WITH_BLANKING_BOX('','.02',#862,'baseline
left',.RIGHT.,#450,#859);
#880=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('tolerance value')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#480),#863));

/*****
* Instance #885 defines the structured_dimension_callout for the
* bottom edge dimension depicted within the view. This callout has as
* its elements the previously defined dimension value text string
* (#849), the dimension plus minus symbol (#855), and the tolerance
* value text string (#880).
*****/

#885=(DRAUGHTING_CALLOUT((#849,#855,#880))
    DRAUGHTING_ELEMENTS(
        GEOMETRIC_REPRESENTATION_ITEM(
            REPRESENTATION_ITEM('')
            STRUCTURED_DIMENSION_CALLOUT());

/*****
* Instance #890 defines the primary callout relationship between the
* previously defined linear_dimension (#840) and
* structured_dimension_callout (#885) for the bottom edge dimension
* depicted within the view.
*****/

#890=DIMENSION_CALLOUT_RELATIONSHIP('primary','',#840,#885);

/*****
* Instances #900-#913 define the two shape aspects that will be
* related by a location dimension. Each shape aspect refers to a
* separate corner of the bottom side dimension of the model depicted

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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* in the view.
***** /

#900=SHAPE_ASPECT('','',#287,.U.);
#901=PROPERTY_DEFINITION('','',#900);
#902=SHAPE_REPRESENTATION('',(88),#20);
#903=SHAPE_DEFINITION_REPRESENTATION(#901,#902);
#910=SHAPE_ASPECT('','',#287,.U.);
#911=PROPERTY_DEFINITION('','',#910);
#912=SHAPE_REPRESENTATION('',(71),#20);
#913=SHAPE_DEFINITION_REPRESENTATION(#911,#912);

/*****
* Instances #1000-#1010 define the location dimension of the
* relationship between the shape aspects defined above (#900 and #910).
***** /

#1000=MEASURE_REPRESENTATION_ITEM('location dimension from (0,0,0) and
(2,0,0)',
LENGTH_MEASURE(2.0),#13);
#1001=DIMENSIONAL_LOCATION('','',#900,#910);
#1003=SHAPE_DIMENSION_REPRESENTATION('',(1000),#20);
#1005=REPRESENTATION_MAP(#1000,#1003);
#1010=DIMENSIONAL_CHARACTERISTIC_REPRESENTATION(#1001,#1003);

/*****
* Instances #1020-#1030 define the tolerance range for the previously
* defined location dimension (#1001).
***** /

#1020=MEASURE_WITH_UNIT(LENGTH_MEASURE(.02),#13);
#1021=MEASURE_WITH_UNIT(LENGTH_MEASURE(-0.02),#13);
#1025=TOLERANCE_VALUE(#1021,#1020);
#1030=PLUS_MINUS_TOLERANCE(#1025,#1001);

/*****
* Instances #1103-#1108 define the dimension curve associated with the
* top right corner dimension depicted within the view.
***** /

#1103=DIRECTION('',(0.,1.));
#1104=VECTOR('',#1103,.5);
#1105=CARTESIAN_POINT('',(4.263866413585,3.915571351931));
#1106=LINE('',#1105,#1104);
#1107=TRIMMED_CURVE('',#1106,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1108=(ANNOTATION_CURVE_OCCURRENCE()
ANNOTATION_OCCURRENCE()
DIMENSION_CURVE()
DRAUGHTING_ANNOTATION_OCCURRENCE()
REPRESENTATION_ITEM('')
GEOMETRIC_REPRESENTATION_ITEM()
STYLED_ITEM((#430),#1107));

/*****
* Instances #1109-#1115 and #1120-#1125 define the dimension curve
* terminators (first one assigned as the origin of the dimension curve

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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* and the second assigned as its target) associated with the top right *
* corner dimension depicted within the view. *
*****/

#1109=CARTESIAN_POINT('',(4.263866413585,3.915571351931));
#1110=DIRECTION('',(1.,0.));
#1111=AXIS2_PLACEMENT_2D('','#1109,#1110);
#1112=SYMBOL_TARGET('','#1111,7.5,2.5);
#1113=DEFINED_SYMBOL('','#440,#1112);
#1115=(ANNOTATION_OCCURRENCE()
      ANNOTATION_SYMBOL_OCCURRENCE()
      DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#435),#1113)
      TERMINATOR_SYMBOL(#1108));
#1120=CARTESIAN_POINT('',(4.263866413585,3.415571351931));
#1121=DIRECTION('',(1.,0.));
#1122=AXIS2_PLACEMENT_2D('','#1120,#1121);
#1123=SYMBOL_TARGET('','#1122,7.5,2.5);
#1124=DEFINED_SYMBOL('','#440,#1123);
#1125=(ANNOTATION_OCCURRENCE()
      ANNOTATION_SYMBOL_OCCURRENCE()
      DIMENSION_CURVE_TERMINATOR(.TARGET.)
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#435),#1124)
      TERMINATOR_SYMBOL(#1108));

/*****
* Instances #1126-#1131 and #1132-#1137 define the projection curves *
* associated with the top right corner dimension depicted within the *
* view. *
*****/

#1126=DIRECTION('',(1.,0.));
#1127=VECTOR('','#1126,1.);
#1128=CARTESIAN_POINT('',(3.467609978541,3.915571351931));
#1129=LINE('','#1128,#1127);
#1130=TRIMMED_CURVE('','#1129,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1131=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      PROJECTION_CURVE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430),#1130));
#1132=DIRECTION('',(1.,0.));
#1133=VECTOR('','#1132,.5);
#1134=CARTESIAN_POINT('',(3.967609978541,3.415571351931));
#1135=LINE('','#1134,#1133);
#1136=TRIMMED_CURVE('','#1135,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1137=(ANNOTATION_CURVE_OCCURRENCE()

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        ANNOTATION_OCCURRENCE()
        DRAUGHTING_ANNOTATION_OCCURRENCE()
        PROJECTION_CURVE()
        REPRESENTATION_ITEM('')
        GEOMETRIC_REPRESENTATION_ITEM()
        STYLED_ITEM((#430),#1136));

/*****
* Instances #1140-#1159 define the leader curve, a composite curve      *
* made up of two segments, associated with the top right corner        *
* dimension depicted within the view.                                  *
*****/

#1140=DIRECTION('',(0.,-1.));
#1141=VECTOR('',#1140,.3);
#1142=CARTESIAN_POINT('',(4.263866413585,3.415571351931));
#1143=LINE('',#1142,#1141);
#1144=TRIMMED_CURVE('',#1143,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1145=COMPOSITE_CURVE_SEGMENT(.CONTINUOUS.,.F.,#1144);
#1146=DIRECTION('',(1.,0.));
#1147=VECTOR('',#1146,.3);
#1148=CARTESIAN_POINT('',(4.263866413585,3.115571351931));
#1149=LINE('',#1148,#1147);
#1150=TRIMMED_CURVE('',#1149,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1151=COMPOSITE_CURVE_SEGMENT(.CONTINUOUS.,.F.,#1150);
#1155=COMPOSITE_CURVE('',(#1145,#1151),.F.);
#1159=(ANNOTATION_CURVE_OCCURRENCE()
        ANNOTATION_OCCURRENCE()
        DRAUGHTING_ANNOTATION_OCCURRENCE()
        LEADER_CURVE()
        REPRESENTATION_ITEM('')
        GEOMETRIC_REPRESENTATION_ITEM()
        STYLED_ITEM((#430),#1155));

/*****
* Instance #1170 defines the combination of a leader directed          *
* and linear dimension for the top right corner dimension depicted     *
* within the view. This dimension has as its elements the previously   *
* defined dimension_curve (#1108), both of its associated              *
* dimension_curve_terminators (#1115 and #1125), both projection      *
* curves (#1131 and #1137), and the leader curve (1159).              *
*****/

#1170=(DRAUGHTING_CALLOUT((#1108,#1115,#1125,#1131,#1137,#1159,#1180))
        DRAUGHTING_ELEMENTS()
        GEOMETRIC_REPRESENTATION_ITEM()
        LEADER_DIRECTED_CALLOUT()
        LEADER_DIRECTED_DIMENSION()
        LINEAR_DIMENSION()
        DIMENSION_CURVE_DIRECTED_CALLOUT()
        REPRESENTATION_ITEM(''));

/*****
* Instances #1176-#1180 define the dimension value text string that    *
* makes up the dimension_callout associated with the top right corner   *
*****/

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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* dimension depicted within the view. This text string is explicitly *
* associated with the value of a geometric location dimension (#1300, *
* by way of #1305). *
*****/

#1176=CARTESIAN_POINT('',(4.138866413585,3.587446351931));
#1177=DIRECTION('',(1.,0.));
#1178=AXIS2_PLACEMENT_2D('',#1176,#1177);
#1179=(DIMENSION_TEXT_ASSOCIATIVITY(
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM(
    TEXT_LITERAL('2.0',#1178,'baseline left',.RIGHT.,#450)
    MAPPED_ITEM(#1305,#1185));
#1180=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
    REPRESENTATION_ITEM('dimension value')
    GEOMETRIC_REPRESENTATION_ITEM(
    STYLED_ITEM((#480),#1179));

/*****
* Instance #1185 defines the structured_dimension_callout for the *
* top right corner dimension depicted within the view. This callout *
* has as its elements only the previously defined dimension value text *
* string (#1180). *
*****/

#1185=(DRAUGHTING_CALLOUT((#1180))
    DRAUGHTING_ELEMENTS(
    GEOMETRIC_REPRESENTATION_ITEM(
    REPRESENTATION_ITEM('')
    STRUCTURED_DIMENSION_CALLOUT());

/*****
* Instance #1190 defines the primary callout relationship between the *
* previously defined leader_directed_dimension (#1170) and *
* structured_dimension_callout (#1185) for the top right corner *
* dimension depicted within the view. *
*****/

#1190=DIMENSION_CALLOUT_RELATIONSHIP('primary','',#1170,#1185);

/*****
* Instances #1200-#1213 define the two shape aspects that will be *
* related by a location dimension. Each shape aspect refers to a *
* separate vertex point of the line being dimensioned in the top right *
* corner of the model depicted in the view. *
*****/

#1200=SHAPE_ASPECT('',',',#287,.U.);
#1201=PROPERTY_DEFINITION('',',',#1200);
#1202=SHAPE_REPRESENTATION('',(#73),#20);
#1203=SHAPE_DEFINITION_REPRESENTATION(#1201,#1202);
#1210=SHAPE_ASPECT('',',',#287,.U.);
#1211=PROPERTY_DEFINITION('',',',#1210);
#1212=SHAPE_REPRESENTATION('',(#31),#20);
#1213=SHAPE_DEFINITION_REPRESENTATION(#1211,#1212);

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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/*****
 * Instances #1300-#1310 define the location dimension of the
 * relationship between the shape aspects defined above (#1200 and
 * #1210).
 *****/

#1300=MEASURE_REPRESENTATION_ITEM('location dimension from (2,0,1.5) and
(1.5,0,2)',
LENGTH_MEASURE(.5),#13);
#1301=DIMENSIONAL_LOCATION('', '#1200,#1210);
#1303=SHAPE_DIMENSION_REPRESENTATION('', (#1300),#20);
#1305=REPRESENTATION_MAP(#1300,#1303);
#1310=DIMENSIONAL_CHARACTERISTIC_REPRESENTATION(#1301,#1303);

#1524=DIRECTION('', (0.,0.,1.));

/*****
 * Instances #1525-#1532 define draughting_model to be projected onto
 * the view. This model contains as its items an origin, a mapped_item
 * (which has as its representation the advanced brep model defined at
 * the beginning of this file), and a styled_item (whose associated
 * curve_style provides the appearance characteristics for the advanced
 * brep model).
 *****/

#1525=CARTESIAN_POINT('', (0.,0.,0.));
#1526=DIRECTION('', (0.,0.,1.));
#1527=DIRECTION('', (1.,0.,0.));
#1528=AXIS2_PLACEMENT_3D('', #1525,#1526,#1527);
#1529=REPRESENTATION_MAP(#1528,#274);
#1530=MAPPED_ITEM('', #1529,#1528);
#1531=STYLED_ITEM('', (#430),#1530);
#1532=DRAUGHTING_MODEL('DRAUGHTING_MODEL_1', (#1543,#1531,#1530,#1528),#20);

#1533=CARTESIAN_POINT('', (0.E0,0.E0,1.E2));

/*****
 * Instances #1534-#1537 define the area of the draughting_model (its
 * view window) to be projected onto the view.
 *****/

#1534=CARTESIAN_POINT('', (-1.5,-1.5,0.));
#1535=DIRECTION('', (1.,0.,0.));
#1536=AXIS2_PLACEMENT_3D('', #1534,#1524,#1535);
#1537=PLANAR_BOX('', 3.,3.,#1536);

/*****
 * Instance #1538 defines the view projection parameters.
 *****/

#1538=VIEW_VOLUME(.PARALLEL.,#1533,0.,10.,.T.,10.,.F.,.T.,#1537);

/*****
 * Instances #1539-#1542 define the view reference coordinate system.
 *****/
```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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*****/
#1539=CARTESIAN_POINT('',(1.,0.,1.));
#1540=DIRECTION('',(0.,-1.,0.));
#1541=DIRECTION('',(1.,0.,0.));
#1542=AXIS2_PLACEMENT_3D('',#1539,#1540,#1541);

/*****
* Instances #1543-#1543 link the view reference coordinate system and *
* the view projection parameters. This link also includes the *
* indication that hidden line removal will be performed within the *
* projection. *
*****/

#1543=CAMERA_MODEL_D3_WITH_HLHSR('',#1542,#1538,.T.);
#1544=CAMERA_USAGE(#1543,#1532);

/*****
* Instances #1545-#1548 define the projection area for the view. *
*****/
#1545=CARTESIAN_POINT('',(0.,0.));
#1546=DIRECTION('',(1.,0.));
#1547=AXIS2_PLACEMENT_2D('',#1545,#1546);
#1548=PLANAR_BOX('',5.,5.,#1547);

/*****
* Instances #1550-#1552 define the presentation view, which has as its *
* only elements the results of the view projection and the view origin.*
*****/

#1550=(GEOMETRIC_REPRESENTATION_CONTEXT(2)
      GLOBAL_UNIT_ASSIGNED_CONTEXT((#13,#17))
      REPRESENTATION_CONTEXT('2D coordinate system context','2D'));
#1551=(CAMERA_IMAGE_3D_WITH_SCALE()
      CAMERA_IMAGE()
      MAPPED_ITEM(#1544,#1548)
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM());
#1552=PRESENTATION_VIEW('Front
view',(#540,#585,#840,#885,#1170,#1185,#1547,#1551),#1550);

/*****
* Instances #1555-#1557 define the target location (0,0) on the sheet *
* for the placement of the view. *
*****/

#1555=CARTESIAN_POINT('',(0.0,0.0));
#1556=DIRECTION('',(1.0,0.0));
#1557=AXIS2_PLACEMENT_2D('',#1555,#1556);

/*****
* Instances #1610-#1620 map the view onto the sheet, with the mapping *
* origin defined as (0,0) within the view being mapped onto (0,0) *
* within the sheet coordinate system. *
*****/

#1610=REPRESENTATION_MAP(#1547,#1552);

```

```

#1620=MAPPED_ITEM(' ',#1610,#1557);

/*****
 * Instance #1630 defines the drawing sheet that contains the view.      *
 *****/

#1630=DRAWING_SHEET_REVISION('Sheet 1',(#1557,#1620,#1634),#1550,'-');

/*****
 * Instances #1631-#1635 define the sheet size for the drawing sheet.    *
 *****/

#1631=CARTESIAN_POINT(' ',(0.0,0.0));
#1632=DIRECTION(' ',(1.0,0.0));
#1633=AXIS2_PLACEMENT_2D(' ',#1631,#1632);
#1634=PLANAR_BOX(' ',10.0,10.0,#1633);
#1635=PRESENTATION_SIZE(#1630,#1634);

/*****
 * Instances #1637-#1660 define the drawing revision, its title, its      *
 * association to the product definition it presents (#286), and the      *
 * link between the drawing revision and the sheet previously defined.    *
 *****/

#1637=DRAWING_DEFINITION('Drawing of product_0',$);
#1640=DRAWING_REVISION('A',#1637,$);
#1645=DRAUGHTING_TITLE((#1640),'English','Associative dimension test part');
#1647=APPLIED_PRESENTED_ITEM((#286));
#1650=PRESENTED_ITEM_REPRESENTATION(#1640,#1647);
#1660=DRAWING_SHEET_REVISION_USAGE(#1630,#1640,'1');

ENDSEC;
END-ISO-10303-21;

```

4.1.3 Associative dimensions example conforming to AP203 with a modular extension

```

ISO-10303-21;
HEADER;
FILE_DESCRIPTION(('associative dimension example',''),'1');
FILE_NAME('assoc_dim.stp',
'1999-02-26 T12:00:00',
('Linas Polikaitis','Rogerio Barra','Mark Lobo','Markus Hauser'),
(' ',' ',' '),
' ',
' ',
' ');
FILE_SCHEMA(('assoc_dim203'));
ENDSEC;
DATA;

/*****
 * Instances #10-#274 define the model. These include                      *
 * the definition of the default units for the context of the              *
 *****/

```

```

* representation (#10-#19), the context itself (#20), all of the      *
* geometrical and topological entity instances that define the model *
* (#25-273), and finally the advanced_brep_shape_representation (#274).*
*****/

#10=(LENGTH_UNIT()NAMED_UNIT(*)SI_UNIT(.MILLI.,.METRE.));
#11=LENGTH_MEASURE_WITH_UNIT(LENGTH_MEASURE(25.4),#10);
#12=DIMENSIONAL_EXPONENTS(1.0,0.0,0.0,0.0,0.0,0.0,0.0);
#13=(CONVERSION_BASED_UNIT('INCH',#11)LENGTH_UNIT()NAMED_UNIT(#12));
#14=(NAMED_UNIT(*)PLANE_ANGLE_UNIT()SI_UNIT($,.RADIAN.));
#15=PLANE_ANGLE_MEASURE_WITH_UNIT(PLANE_ANGLE_MEASURE(0.0174532925),#14);
#16=DIMENSIONAL_EXPONENTS(0.0,0.0,0.0,0.0,0.0,0.0,0.0);
#17=(CONVERSION_BASED_UNIT('DEGREE',#15)NAMED_UNIT(#16)PLANE_ANGLE_UNIT());
#18=(NAMED_UNIT(*)SI_UNIT($,.STERADIAN.)SOLID_ANGLE_UNIT());
#19=UNCERTAINTY_MEASURE_WITH_UNIT(
    LENGTH_MEASURE(7.8740157480315E-07),#13,
    'DISTANCE_ACCURACY_VALUE','Maximum Tolerance applied to model');
#20=(GEOMETRIC_REPRESENTATION_CONTEXT(3)
    GLOBAL_UNCERTAINTY_ASSIGNED_CONTEXT((#19))
    GLOBAL_UNIT_ASSIGNED_CONTEXT((#13,#17,#18))
    REPRESENTATION_CONTEXT('3D coordinate system context','3D'));
#25=CARTESIAN_POINT('',(1.0,0.0,2.0));
#26=DIRECTION('',(-1.0,0.0,0.0));
#27=VECTOR('',#26,1.0);
#28=LINE('',#25,#27);
#29=EDGE_CURVE('',#31,#33,#28,.T.);
#30=CARTESIAN_POINT('',(1.5,0.0,2.0));
#31=VERTEX_POINT('',#30);
#32=CARTESIAN_POINT('',(0.0,0.0,2.0));
#33=VERTEX_POINT('',#32);
#34=ORIENTED_EDGE('',*,*,#29,.F.);
#35=CARTESIAN_POINT('',(1.5,0.8,2.0));
#36=DIRECTION('',(0.0,1.0,0.0));
#37=VECTOR('',#36,1.0);
#38=LINE('',#35,#37);
#39=EDGE_CURVE('',#31,#41,#38,.T.);
#40=CARTESIAN_POINT('',(1.5,1.6,2.0));
#41=VERTEX_POINT('',#40);
#42=ORIENTED_EDGE('',*,*,#39,.T.);
#43=CARTESIAN_POINT('',(1.0,1.6,2.0));
#44=DIRECTION('',(1.0,0.0,0.0));
#45=VECTOR('',#44,1.0);
#46=LINE('',#43,#45);
#47=EDGE_CURVE('',#49,#41,#46,.T.);
#48=CARTESIAN_POINT('',(0.0,1.6,2.0));
#49=VERTEX_POINT('',#48);
#50=ORIENTED_EDGE('',*,*,#47,.F.);
#51=CARTESIAN_POINT('',(0.0,0.8,2.0));
#52=DIRECTION('',(0.0,1.0,0.0));
#53=VECTOR('',#52,1.0);
#54=LINE('',#51,#53);
#55=EDGE_CURVE('',#33,#49,#54,.T.);
#56=ORIENTED_EDGE('',*,*,#55,.F.);
#57=EDGE_LOOP('',( #34,#42,#50,#56));
#58=FACE_BOUND('',#57,.T.);
#59=CARTESIAN_POINT('',(1.0,0.8,2.0));
#60=DIRECTION('',(0.0,0.0,1.0));

```

```
#61=DIRECTION(' ',(1.0,0.0,0.0));
#62=AXIS2_PLACEMENT_3D(' ',#59,#60,#61);
#63=PLANE(' ',#62);
#64=ADVANCED_FACE(' ',(#58),#63,.T.);
#65=CARTESIAN_POINT(' ',(2.0,0.0,0.0));
#66=DIRECTION(' ',(0.0,0.0,1.0));
#67=VECTOR(' ',#66,1.0);
#68=LINE(' ',#65,#67);
#69=EDGE_CURVE(' ',#71,#73,#68,.T.);
#70=CARTESIAN_POINT(' ',(2.0,0.0,0.0));
#71=VERTEX_POINT(' ',#70);
#72=CARTESIAN_POINT(' ',(2.0,0.0,1.5));
#73=VERTEX_POINT(' ',#72);
#74=ORIENTED_EDGE(' ',*,*,#69,.T.);
#75=CARTESIAN_POINT(' ',(2.25,0.0,1.25));
#76=DIRECTION(' ',(-0.707106781186548,0.0,0.707106781186548));
#77=VECTOR(' ',#76,1.0);
#78=LINE(' ',#75,#77);
#79=EDGE_CURVE(' ',#73,#31,#78,.T.);
#80=ORIENTED_EDGE(' ',*,*,#79,.T.);
#81=ORIENTED_EDGE(' ',*,*,#29,.T.);
#82=CARTESIAN_POINT(' ',(0.0,0.0,0.0));
#83=DIRECTION(' ',(0.0,0.0,1.0));
#84=VECTOR(' ',#83,1.0);
#85=LINE(' ',#82,#84);
#86=EDGE_CURVE(' ',#88,#33,#85,.T.);
#87=CARTESIAN_POINT(' ',(0.0,0.0,0.0));
#88=VERTEX_POINT(' ',#87);
#89=ORIENTED_EDGE(' ',*,*,#86,.F.);
#90=CARTESIAN_POINT(' ',(1.0,0.0,0.0));
#91=DIRECTION(' ',(1.0,0.0,0.0));
#92=VECTOR(' ',#91,1.0);
#93=LINE(' ',#90,#92);
#94=EDGE_CURVE(' ',#88,#71,#93,.T.);
#95=ORIENTED_EDGE(' ',*,*,#94,.T.);
#96=EDGE_LOOP(' ',(#74,#80,#81,#89,#95));
#97=FACE_BOUND(' ',#96,.T.);
#98=CARTESIAN_POINT(' ',(1.0,0.0,0.0));
#99=DIRECTION(' ',(0.0,-1.0,0.0));
#100=DIRECTION(' ',(0.0,0.0,-1.0));
#101=AXIS2_PLACEMENT_3D(' ',#98,#99,#100);
#102=PLANE(' ',#101);
#103=ADVANCED_FACE(' ',(#97),#102,.T.);
#104=CARTESIAN_POINT(' ',(0.0,1.4125,0.375));
#105=DIRECTION(' ',(0.0,1.0,0.0));
#106=VECTOR(' ',#105,1.0);
#107=LINE(' ',#104,#106);
#108=EDGE_CURVE(' ',#110,#112,#107,.T.);
#109=CARTESIAN_POINT(' ',(0.0,1.225,0.375));
#110=VERTEX_POINT(' ',#109);
#111=CARTESIAN_POINT(' ',(0.0,1.6,0.375));
#112=VERTEX_POINT(' ',#111);
#113=ORIENTED_EDGE(' ',*,*,#108,.F.);
#114=CARTESIAN_POINT(' ',(0.0,1.225,0.0));
#115=DIRECTION(' ',(0.0,0.0,1.0));
#116=VECTOR(' ',#115,1.0);
#117=LINE(' ',#114,#116);
```

```
#118=EDGE_CURVE(' ', #120, #110, #117, .T.);
#119=CARTESIAN_POINT(' ', (0.0, 1.225, 0.0));
#120=VERTEX_POINT(' ', #119);
#121=ORIENTED_EDGE(' ', *, *, #118, .F.);
#122=CARTESIAN_POINT(' ', (0.0, 0.8, 0.0));
#123=DIRECTION(' ', (0.0, -1.0, 0.0));
#124=VECTOR(' ', #123, 1.0);
#125=LINE(' ', #122, #124);
#126=EDGE_CURVE(' ', #120, #88, #125, .T.);
#127=ORIENTED_EDGE(' ', *, *, #126, .T.);
#128=ORIENTED_EDGE(' ', *, *, #86, .T.);
#129=ORIENTED_EDGE(' ', *, *, #55, .T.);
#130=CARTESIAN_POINT(' ', (0.0, 1.6, 0.0));
#131=DIRECTION(' ', (0.0, 0.0, 1.0));
#132=VECTOR(' ', #131, 1.0);
#133=LINE(' ', #130, #132);
#134=EDGE_CURVE(' ', #112, #49, #133, .T.);
#135=ORIENTED_EDGE(' ', *, *, #134, .F.);
#136=EDGE_LOOP(' ', (#113, #121, #127, #128, #129, #135));
#137=FACE_BOUND(' ', #136, .T.);
#138=CARTESIAN_POINT(' ', (0.0, 0.8, 0.0));
#139=DIRECTION(' ', (-1.0, 0.0, 0.0));
#140=DIRECTION(' ', (0.0, 0.0, 1.0));
#141=AXIS2_PLACEMENT_3D(' ', #138, #139, #140);
#142=PLANE(' ', #141);
#143=ADVANCED_FACE(' ', (#137), #142, .T.);
#144=CARTESIAN_POINT(' ', (1.5, 1.6, 0.375));
#145=DIRECTION(' ', (1.0, 0.0, 0.0));
#146=VECTOR(' ', #145, 1.0);
#147=LINE(' ', #144, #146);
#148=EDGE_CURVE(' ', #112, #150, #147, .T.);
#149=CARTESIAN_POINT(' ', (2.0, 1.6, 0.375));
#150=VERTEX_POINT(' ', #149);
#151=ORIENTED_EDGE(' ', *, *, #148, .F.);
#152=ORIENTED_EDGE(' ', *, *, #134, .T.);
#153=ORIENTED_EDGE(' ', *, *, #47, .T.);
#154=CARTESIAN_POINT(' ', (2.25, 1.6, 1.25));
#155=DIRECTION(' ', (0.707106781186548, 0.0, -0.707106781186548));
#156=VECTOR(' ', #155, 1.0);
#157=LINE(' ', #154, #156);
#158=EDGE_CURVE(' ', #41, #160, #157, .T.);
#159=CARTESIAN_POINT(' ', (2.0, 1.6, 1.5));
#160=VERTEX_POINT(' ', #159);
#161=ORIENTED_EDGE(' ', *, *, #158, .T.);
#162=CARTESIAN_POINT(' ', (2.0, 1.6, 0.0));
#163=DIRECTION(' ', (0.0, 0.0, 1.0));
#164=VECTOR(' ', #163, 1.0);
#165=LINE(' ', #162, #164);
#166=EDGE_CURVE(' ', #150, #160, #165, .T.);
#167=ORIENTED_EDGE(' ', *, *, #166, .F.);
#168=EDGE_LOOP(' ', (#151, #152, #153, #161, #167));
#169=FACE_BOUND(' ', #168, .T.);
#170=CARTESIAN_POINT(' ', (1.0, 1.6, 0.0));
#171=DIRECTION(' ', (0.0, 1.0, 0.0));
#172=DIRECTION(' ', (0.0, 0.0, 1.0));
#173=AXIS2_PLACEMENT_3D(' ', #170, #171, #172);
#174=PLANE(' ', #173);
```

```
#175=ADVANCED_FACE(' ', (#169), #174, .T.);
#176=CARTESIAN_POINT(' ', (1.5, 1.225, 0.0));
#177=DIRECTION(' ', (1.0, 0.0, 0.0));
#178=VECTOR(' ', #177, 1.0);
#179=LINE(' ', #176, #178);
#180=EDGE_CURVE(' ', #120, #182, #179, .T.);
#181=CARTESIAN_POINT(' ', (2.0, 1.225, 0.0));
#182=VERTEX_POINT(' ', #181);
#183=ORIENTED_EDGE(' ', *, *, #180, .T.);
#184=CARTESIAN_POINT(' ', (2.0, 0.8, 0.0));
#185=DIRECTION(' ', (0.0, 1.0, 0.0));
#186=VECTOR(' ', #185, 1.0);
#187=LINE(' ', #184, #186);
#188=EDGE_CURVE(' ', #71, #182, #187, .T.);
#189=ORIENTED_EDGE(' ', *, *, #188, .F.);
#190=ORIENTED_EDGE(' ', *, *, #94, .F.);
#191=ORIENTED_EDGE(' ', *, *, #126, .F.);
#192=EDGE_LOOP(' ', (#183, #189, #190, #191));
#193=FACE_BOUND(' ', #192, .T.);
#194=CARTESIAN_POINT(' ', (1.0, 0.8, 0.0));
#195=DIRECTION(' ', (0.0, 0.0, -1.0));
#196=DIRECTION(' ', (-1.0, 0.0, 0.0));
#197=AXIS2_PLACEMENT_3D(' ', #194, #195, #196);
#198=PLANE(' ', #197);
#199=ADVANCED_FACE(' ', (#193), #198, .T.);
#200=CARTESIAN_POINT(' ', (2.0, 0.8, 0.375));
#201=DIRECTION(' ', (0.0, -1.0, 0.0));
#202=VECTOR(' ', #201, 1.0);
#203=LINE(' ', #200, #202);
#204=EDGE_CURVE(' ', #150, #206, #203, .T.);
#205=CARTESIAN_POINT(' ', (2.0, 1.225, 0.375));
#206=VERTEX_POINT(' ', #205);
#207=ORIENTED_EDGE(' ', *, *, #204, .F.);
#208=ORIENTED_EDGE(' ', *, *, #166, .T.);
#209=CARTESIAN_POINT(' ', (2.0, 0.8, 1.5));
#210=DIRECTION(' ', (0.0, -1.0, 0.0));
#211=VECTOR(' ', #210, 1.0);
#212=LINE(' ', #209, #211);
#213=EDGE_CURVE(' ', #160, #73, #212, .T.);
#214=ORIENTED_EDGE(' ', *, *, #213, .T.);
#215=ORIENTED_EDGE(' ', *, *, #69, .F.);
#216=ORIENTED_EDGE(' ', *, *, #188, .T.);
#217=CARTESIAN_POINT(' ', (2.0, 1.225, 0.0));
#218=DIRECTION(' ', (0.0, 0.0, -1.0));
#219=VECTOR(' ', #218, 1.0);
#220=LINE(' ', #217, #219);
#221=EDGE_CURVE(' ', #206, #182, #220, .T.);
#222=ORIENTED_EDGE(' ', *, *, #221, .F.);
#223=EDGE_LOOP(' ', (#207, #208, #214, #215, #216, #222));
#224=FACE_BOUND(' ', #223, .T.);
#225=CARTESIAN_POINT(' ', (2.0, 0.8, 0.0));
#226=DIRECTION(' ', (1.0, 0.0, 0.0));
#227=DIRECTION(' ', (0.0, 0.0, -1.0));
#228=AXIS2_PLACEMENT_3D(' ', #225, #226, #227);
#229=PLANE(' ', #228);
#230=ADVANCED_FACE(' ', (#224), #229, .T.);
#231=ORIENTED_EDGE(' ', *, *, #158, .F.);
```

```

#232=ORIENTED_EDGE(' ',*,*,#39,.F.);
#233=ORIENTED_EDGE(' ',*,*,#79,.F.);
#234=ORIENTED_EDGE(' ',*,*,#213,.F.);
#235=EDGE_LOOP(' ',(#231,#232,#233,#234));
#236=FACE_BOUND(' ',#235,.T.);
#237=CARTESIAN_POINT(' ',(2.0,0.8,1.5));
#238=DIRECTION(' ',(-0.707106781186547,0.0,-0.707106781186547));
#239=DIRECTION(' ',(-0.707106781186548,0.0,0.707106781186548));
#240=AXIS2_PLACEMENT_3D(' ',#237,#238,#239);
#241=PLANE(' ',#240);
#242=ADVANCED_FACE(' ',(#236),#241,.F.);
#243=ORIENTED_EDGE(' ',*,*,#204,.T.);
#244=CARTESIAN_POINT(' ',(1.5,1.225,0.375));
#245=DIRECTION(' ',(-1.0,0.0,0.0));
#246=VECTOR(' ',#245,1.0);
#247=LINE(' ',#244,#246);
#248=EDGE_CURVE(' ',#206,#110,#247,.T.);
#249=ORIENTED_EDGE(' ',*,*,#248,.T.);
#250=ORIENTED_EDGE(' ',*,*,#108,.T.);
#251=ORIENTED_EDGE(' ',*,*,#148,.T.);
#252=EDGE_LOOP(' ',(#243,#249,#250,#251));
#253=FACE_BOUND(' ',#252,.T.);
#254=CARTESIAN_POINT(' ',(1.5,1.4125,0.375));
#255=DIRECTION(' ',(0.0,0.0,1.0));
#256=DIRECTION(' ',(1.0,0.0,0.0));
#257=AXIS2_PLACEMENT_3D(' ',#254,#255,#256);
#258=PLANE(' ',#257);
#259=ADVANCED_FACE(' ',(#253),#258,.F.);
#260=ORIENTED_EDGE(' ',*,*,#221,.T.);
#261=ORIENTED_EDGE(' ',*,*,#180,.F.);
#262=ORIENTED_EDGE(' ',*,*,#118,.T.);
#263=ORIENTED_EDGE(' ',*,*,#248,.F.);
#264=EDGE_LOOP(' ',(#260,#261,#262,#263));
#265=FACE_BOUND(' ',#264,.T.);
#266=CARTESIAN_POINT(' ',(1.5,1.225,0.0));
#267=DIRECTION(' ',(0.0,-1.0,0.0));
#268=DIRECTION(' ',(0.0,0.0,-1.0));
#269=AXIS2_PLACEMENT_3D(' ',#266,#267,#268);
#270=PLANE(' ',#269);
#271=ADVANCED_FACE(' ',(#265),#270,.F.);
#272=CLOSED_SHELL(' ',(#64,#103,#143,#175,#199,#230,#242,#259,#271));
#273=MANIFOLD_SOLID_BREP(' ',#272);
#274=ADVANCED_BREP_SHAPE_REPRESENTATION(' ',(#273),#20);

/*****
* Instances #275-#288 define the product that the model defined      *
* above represents, as well as the contexts for the application,      *
* the product, and its definition. Lastly it provides the link      *
* to the advanced_brep_shape_representation/#274.                    *
*****/

#275=APPLICATION_CONTEXT('3d associative dimension');
#276=APPLICATION_PROTOCOL_DEFINITION('Working
Draft','associative_dimension',1999,#275);
#277=MECHANICAL_CONTEXT(' ',#275,'mechanical');
#281=PRODUCT('product_0',' ',',',(#277));
#282=PRODUCT_RELATED_PRODUCT_CATEGORY('detail',' ',(#281));

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```
#284=PRODUCT_DEFINITION_FORMATION(' ', '#281');
#285=DESIGN_CONTEXT(' ', #275, 'design');
#286=PRODUCT_DEFINITION(' ', '#284, #285');
#287=PRODUCT_DEFINITION_SHAPE(' ', '#286');
#288=SHAPE_DEFINITION_REPRESENTATION(#287, #274);

/*****
 * Instances #289-#356 define administrative information that are
 * included to avoid violating AP203 global rules.
 *****/

#289=PERSON('UNSPECIFIED', 'UNSPECIFIED', '$, $, $, $');
#290=ORGANIZATION('UNSPECIFIED', 'UNSPECIFIED', 'UNSPECIFIED');
#291=PERSON_AND_ORGANIZATION(#289, #290);
#292=PERSON_AND_ORGANIZATION_ROLE('creator');
#293=CC_DESIGN_PERSON_AND_ORGANIZATION_ASSIGNMENT(#291, #292, (#286, #284));
#294=ORGANIZATION('UNSPECIFIED', 'UNSPECIFIED', 'UNSPECIFIED');
#295=PERSON_AND_ORGANIZATION(#289, #294);
#296=PERSON_AND_ORGANIZATION_ROLE('design_owner');
#297=CC_DESIGN_PERSON_AND_ORGANIZATION_ASSIGNMENT(#295, #296, (#281));
#298=ORGANIZATION('UNSPECIFIED', 'UNSPECIFIED', 'UNSPECIFIED');
#299=PERSON_AND_ORGANIZATION(#289, #298);
#300=PERSON_AND_ORGANIZATION_ROLE('design_supplier');
#301=CC_DESIGN_PERSON_AND_ORGANIZATION_ASSIGNMENT(#299, #300, (#284));
#302=CALENDAR_DATE(1999, 19, 2);
#303=COORDINATED_UNIVERSAL_TIME_OFFSET(0, 0, .BEHIND.);
#304=LOCAL_TIME(0, 0, 0.0, #303);
#305=DATE_AND_TIME(#302, #304);
#306=DATE_TIME_ROLE('creation_date');
#307=CC_DESIGN_DATE_AND_TIME_ASSIGNMENT(#305, #306, (#286));
#308=SECURITY_CLASSIFICATION_LEVEL('confidential');
#309=SECURITY_CLASSIFICATION(' ', '#308');
#310=CC_DESIGN_SECURITY_CLASSIFICATION(#309, (#284));
#311=ORGANIZATION('UNSPECIFIED', 'UNSPECIFIED', 'UNSPECIFIED');
#312=PERSON_AND_ORGANIZATION(#289, #311);
#313=PERSON_AND_ORGANIZATION_ROLE('classification_officer');
#314=CC_DESIGN_PERSON_AND_ORGANIZATION_ASSIGNMENT(#312, #313, (#309));
#315=CALENDAR_DATE(1999, 19, 2);
#316=COORDINATED_UNIVERSAL_TIME_OFFSET(0, 0, .BEHIND.);
#317=LOCAL_TIME(0, 0, 0.0, #316);
#318=DATE_AND_TIME(#315, #317);
#319=DATE_TIME_ROLE('classification_date');
#320=CC_DESIGN_DATE_AND_TIME_ASSIGNMENT(#318, #319, (#309));
#321=ORGANIZATION('UNSPECIFIED', 'UNSPECIFIED', 'UNSPECIFIED');
#322=PERSON_AND_ORGANIZATION(#289, #321);
#323=APPROVAL_STATUS('not_yet_approved');
#324=APPROVAL(#323, ' ');
#325=CALENDAR_DATE(1999, 19, 2);
#326=COORDINATED_UNIVERSAL_TIME_OFFSET(0, 0, .BEHIND.);
#327=LOCAL_TIME(0, 0, 0.0, #326);
#328=DATE_AND_TIME(#325, #327);
#329=APPROVAL_DATE_TIME(#328, #324);
#330=APPROVAL_ROLE('APPROVER');
#331=APPROVAL_PERSON_ORGANIZATION(#322, #324, #330);
#332=CC_DESIGN_APPROVAL(#324, (#286));
#333=ORGANIZATION('UNSPECIFIED', 'UNSPECIFIED', 'UNSPECIFIED');
#334=PERSON_AND_ORGANIZATION(#289, #333);
```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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#335=APPROVAL_STATUS('not_yet_approved');
#336=APPROVAL(#335,' ');
#337=CALENDAR_DATE(1999,19,2);
#338=COORDINATED_UNIVERSAL_TIME_OFFSET(0,0,.BEHIND.);
#339=LOCAL_TIME(0,0,0.0,#338);
#340=DATE_AND_TIME(#337,#339);
#341=APPROVAL_DATE_TIME(#340,#336);
#342=APPROVAL_ROLE('APPROVER');
#343=APPROVAL_PERSON_ORGANIZATION(#334,#336,#342);
#344=CC_DESIGN_APPROVAL(#336,(#284));
#345=ORGANIZATION('UNSPECIFIED','UNSPECIFIED','UNSPECIFIED');
#346=PERSON_AND_ORGANIZATION(#289,#345);
#347=APPROVAL_STATUS('not_yet_approved');
#348=APPROVAL(#347,' ');
#349=CALENDAR_DATE(1999,19,2);
#350=COORDINATED_UNIVERSAL_TIME_OFFSET(0,0,.BEHIND.);
#351=LOCAL_TIME(0,0,0.0,#350);
#352=DATE_AND_TIME(#349,#351);
#353=APPROVAL_DATE_TIME(#352,#348);
#354=APPROVAL_ROLE('APPROVER');
#355=APPROVAL_PERSON_ORGANIZATION(#346,#348,#354);
#356=CC_DESIGN_APPROVAL(#348,(#309));

/*****
* Instances #400-#430 define pre-defined common appearance      *
* characteristics.                                             *
*****/

#400=DRAUGHTING_PRE_DEFINED_CURVE_FONT('continuous');
#410=LENGTH_MEASURE_WITH_UNIT(POSITIVE_LENGTH_MEASURE(.01),#13);
#420=DRAUGHTING_PRE_DEFINED_COLOUR('black');
#425=CURVE_STYLE('black-continuous',#400,#410,#420);
#430=PRESENTATION_STYLE_ASSIGNMENT((#425));
#433=SYMBOL_COLOUR(#420);
#434=SYMBOL_STYLE('black',#433);
#435=PRESENTATION_STYLE_ASSIGNMENT((#434));
#440=PRE_DEFINED_TERMINATOR_SYMBOL('filled arrow');
#450=DRAUGHTING_PRE_DEFINED_TEXT_FONT('ISO 3098-1 font A');
#460=TEXT_STYLE_FOR_DEFINED_FONT(#420);
#470=TEXT_STYLE_WITH_BOX_CHARACTERISTICS('',#460,
    (BOX_WIDTH(.125),
    BOX_SLANT_ANGLE(0.0),
    BOX_ROTATE_ANGLE(0.0),
    BOX_HEIGHT(.15625)));
#480=PRESENTATION_STYLE_ASSIGNMENT((#470));
#490=PRE_DEFINED_DIMENSION_SYMBOL('plus minus');

/*****
* Instances #503-#508 define the dimension curve associated with the *
* left edge dimension depicted within the view.                    *
*****/

#503=DIRECTION('',(0.0,1.0));
#504=VECTOR('',#503,2.0);
#505=CARTESIAN_POINT('',(1.155177038627,1.915571351931));
#506=LINE('',#505,#504);

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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#507=TRIMMED_CURVE(' ',#506,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.,.
UNSPECIFIED.);
#508=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DIMENSION_CURVE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM(' ')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430),#507));

/*****
 * Instances #509-#515 and #520-#525 define the dimension curve      *
 * terminators (first one assigned as the origin of the dimension curve *
 * and the second assigned as its target) associated with the left edge *
 * dimension depicted within the view.                                *
 *****/

#509=CARTESIAN_POINT(' ',(1.155177038627,3.915571351931));
#510=DIRECTION(' ',(0.0,1.0));
#511=AXIS2_PLACEMENT_2D(' ',#509,#510);
#512=SYMBOL_TARGET(' ',#511,7.5,2.5);
#513=DEFINED_SYMBOL(' ',#440,#512);
#515=(ANNOTATION_OCCURRENCE()
      ANNOTATION_SYMBOL_OCCURRENCE()
      DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM(' ')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#435),#513)
      TERMINATOR_SYMBOL(#508));
#520=CARTESIAN_POINT(' ',(1.155177038627,1.915571351931));
#521=DIRECTION(' ',(0.0,-1.0));
#522=AXIS2_PLACEMENT_2D(' ',#520,#521);
#523=SYMBOL_TARGET(' ',#522,7.5,2.5);
#524=DEFINED_SYMBOL(' ',#440,#523);
#525=(ANNOTATION_OCCURRENCE()
      ANNOTATION_SYMBOL_OCCURRENCE()
      DIMENSION_CURVE_TERMINATOR(.TARGET.)
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM(' ')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#435),#524)
      TERMINATOR_SYMBOL(#508));

/*****
 * Instances #526-#531 and #534-#539 define the projection curves    *
 * associated with the left edge dimension depicted within the view.  *
 *****/

#526=DIRECTION(' ',(-1.0,0.0));
#527=VECTOR(' ',#526,1.0);
#528=CARTESIAN_POINT(' ',(1.967609978541,3.915571351931));
#529=LINE(' ',#528,#527);
#530=TRIMMED_CURVE(' ',#529,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.,.
UNSPECIFIED.);
#531=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()

```

```

    DRAUGHTING_ANNOTATION_OCCURRENCE()
    PROJECTION_CURVE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#430),#530));
#534=DIRECTION('',(-1.0,0.0));
#535=VECTOR('',#534,1.0);
#536=CARTESIAN_POINT('',(1.967609978541,1.915571351931));
#537=LINE('',#536,#535);
#538=TRIMMED_CURVE('',#537,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.,.
UNSPECIFIED.);
#539=(ANNOTATION_CURVE_OCCURRENCE()
    ANNOTATION_OCCURRENCE()
    DRAUGHTING_ANNOTATION_OCCURRENCE()
    PROJECTION_CURVE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#430),#538));

/*****
 * Instance #540 defines the linear dimension for the left edge      *
 * dimension depicted within the view. This linear dimension has as its *
 * elements the previously defined dimension_curve (#508), both of its *
 * associated dimension_curve_terminators (#515 and #525), and both *
 * projection_curves (#531 and #539).                                *
 *****/

#540=(DIMENSION_CURVE_DIRECTED_CALLOUT()
    DRAUGHTING_CALLOUT((#508,#515,#525,#531,#539,#549,#580))
    DRAUGHTING_ELEMENTS()
    GEOMETRIC_REPRESENTATION_ITEM()
    LINEAR_DIMENSION()
    REPRESENTATION_ITEM(''));

/*****
 * Instances #541-#549 define the dimension value text string, which *
 * has a blanking box surrounding it, that is part of the           *
 * dimension_callout associated with the left edge dimension depicted *
 * within the view. This text string is explicitly associated with the *
 * value of a geometric location dimension (#700, by way of #705).   *
 *****/

#541=CARTESIAN_POINT('',( .6551770386266,2.937030579399));
#542=DIRECTION('',(1.0,0.0));
#543=AXIS2_PLACEMENT_2D('',#541,#542);
#544=(DIMENSION_TEXT_ASSOCIATIVITY()
    GEOMETRIC_REPRESENTATION_ITEM()
    MAPPED_ITEM(#705,#585)
    REPRESENTATION_ITEM('')
    TEXT_LITERAL('2.0',#543,'baseline left',.RIGHT.,#450)
    TEXT_LITERAL_WITH_BLANKING_BOX(#548));
#545=CARTESIAN_POINT('',( .6238781252458,2.9057549763387));
#546=DIRECTION('',(1.0,0.0));
#547=AXIS2_PLACEMENT_2D('',#545,#546);
#548=PLANAR_BOX('',0.5,0.21885,#547);
#549=(ANNOTATION_OCCURRENCE()
    ANNOTATION_TEXT_OCCURRENCE()

```

```

    DRAUGHTING_ANNOTATION_OCCURRENCE()
    REPRESENTATION_ITEM('dimension value')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#480),#544));

/*****
 * Instances #560-#580 define the separate text strings, each of which
 * are elements of a composite_text (which is surrounded by a blanking
 * box), that, combined, portray the tolerance value of the
 * dimension_callout associated with the left edge dimension depicted
 * within the view.
 *****/

#560=CARTESIAN_POINT('',(1.155177038627,3.054218079399));
#561=DIRECTION('',(1.0,0.0));
#562=AXIS2_PLACEMENT_2D('',#560,#561);
#563=TEXT_LITERAL('','+0.01',#562,'baseline left',.RIGHT.,#450);
#570=CARTESIAN_POINT('',(1.155177038627,2.819843079399));
#571=DIRECTION('',(1.0,0.0));
#572=AXIS2_PLACEMENT_2D('',#570,#571);
#573=TEXT_LITERAL('','-0.03',#572,'baseline left',.RIGHT.,#450);
#574=CARTESIAN_POINT('',(1.1238771252458,2.78854549763387));
#575=DIRECTION('',(1.0,0.0));
#576=AXIS2_PLACEMENT_2D('',#574,#575);
#577=PLANAR_BOX('',0.666667,0.484525,#576);
#578=COMPOSITE_TEXT_WITH_BLANKING_BOX('',(#563,#573),#577);
#580=(ANNOTATION_OCCURRENCE()
    ANNOTATION_TEXT_OCCURRENCE()
    DRAUGHTING_ANNOTATION_OCCURRENCE()
    REPRESENTATION_ITEM('tolerance value')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#480),#578));

/*****
 * Instance #585 defines the structured_dimension_callout for the left
 * edge dimension depicted within the view. This callout has as its
 * elements the previously defined dimension value text string (#549)
 * and the tolerance value composite text (#580).
 *****/

#585=(DRAUGHTING_CALLOUT((#549,#580))
    DRAUGHTING_ELEMENTS()
    GEOMETRIC_REPRESENTATION_ITEM()
    REPRESENTATION_ITEM('')
    STRUCTURED_DIMENSION_CALLOUT());

/*****
 * Instance #590 defines the primary callout relationship between the
 * previously defined linear_dimension (#540) and
 * structured_dimension_callout (#585) for the left edge dimension
 * depicted within the view.
 *****/

#590=DIMENSION_CALLOUT_RELATIONSHIP('primary','',#540,#585);

/*****
 * Instances #600-#613 define the two shape aspects that will be
 *****/

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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* related by a location dimension. Each shape aspect refers to a      *
* separate corner of the left side dimension of the model depicted in *
* the view.                                                           *
*****/

#600=SHAPE_ASPECT(' ', '#287, .U.);
#601=PROPERTY_DEFINITION(' ', '#600);
#602=SHAPE_REPRESENTATION(' ', (#88), #20);
#603=SHAPE_DEFINITION_REPRESENTATION(#601, #602);
#610=SHAPE_ASPECT(' ', '#287, .U.);
#611=PROPERTY_DEFINITION(' ', '#610);
#612=SHAPE_REPRESENTATION(' ', (#33), #20);
#613=SHAPE_DEFINITION_REPRESENTATION(#611, #612);

/*****
* Instances #700-#710 define the location dimension of the          *
* relationship between the shape aspects defined above (#600 and #610). *
*****/

#700=MEASURE_REPRESENTATION_ITEM('location dimension from (0,0,0) and
(0,0,2)',
LENGTH_MEASURE(2.0), #13);
#701=DIMENSIONAL_LOCATION(' ', '#600, #610);
#703=SHAPE_DIMENSION_REPRESENTATION(' ', (#700), #20);
#705=REPRESENTATION_MAP(#700, #703);
#710=DIMENSIONAL_CHARACTERISTIC_REPRESENTATION(#701, #703);

/*****
* Instances #720-#730 define the tolerance range for the previously *
* defined location dimension (#701).                                *
*****/

#720=MEASURE_WITH_UNIT(LENGTH_MEASURE(.01), #13);
#721=MEASURE_WITH_UNIT(LENGTH_MEASURE(-0.03), #13);
#725=TOLERANCE_VALUE(#721, #720);
#730=PLUS_MINUS_TOLERANCE(#725, #701);

/*****
* Instances #803-#808 define the dimension curve associated with the *
* bottom edge dimension depicted within the view.                  *
*****/

#803=DIRECTION(' ', (1.0, 0.0));
#804=VECTOR(' ', #803, 2.0);
#805=CARTESIAN_POINT(' ', (1.967609978541, 1.401891094421));
#806=LINE(' ', #805, #804);
#807=TRIMMED_CURVE(' ', #806, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T., .
UNSPECIFIED.);
#808=(ANNOTATION_CURVE_OCCURRENCE(
  ANNOTATION_OCCURRENCE(
    DIMENSION_CURVE(
      DRAUGHTING_ANNOTATION_OCCURRENCE(
        REPRESENTATION_ITEM(' ')
        GEOMETRIC_REPRESENTATION_ITEM(
          STYLED_ITEM((#430), #807));
        )
      )
    )
  )
)

/*****
```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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* Instances #809-#815 and #820-#825 define the dimension curve      *
* terminators (first one assigned as the origin of the dimension curve *
* and the second assigned as its target) associated with the bottom   *
* edge dimension depicted within the view.                            *
*****/

#809=CARTESIAN_POINT(' ',(1.967609978541,1.401891094421));
#810=DIRECTION(' ',(1.0,0.0));
#811=AXIS2_PLACEMENT_2D(' ',#809,#810);
#812=SYMBOL_TARGET(' ',#811,7.5,2.5);
#813=DEFINED_SYMBOL(' ',#440,#812);
#815=(ANNOTATION_OCCURRENCE(
    ANNOTATION_SYMBOL_OCCURRENCE(
        DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM(' ')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#435),#813)
                TERMINATOR_SYMBOL(#808));
#820=CARTESIAN_POINT(' ',(3.967609978541,1.401891094421));
#821=DIRECTION(' ',(-1.0,0.0));
#822=AXIS2_PLACEMENT_2D(' ',#820,#821);
#823=SYMBOL_TARGET(' ',#822,7.5,2.5);
#824=DEFINED_SYMBOL(' ',#440,#823);
#825=(ANNOTATION_OCCURRENCE(
    ANNOTATION_SYMBOL_OCCURRENCE(
        DIMENSION_CURVE_TERMINATOR(.TARGET.)
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM(' ')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#435),#824)
                TERMINATOR_SYMBOL(#808));

/*****
* Instances #826-#831 and #834-#839 define the projection curves    *
* associated with the bottom edge dimension depicted within the view. *
*****/

#826=DIRECTION(' ',(0.0,-1.0));
#827=VECTOR(' ',#826,1.0);
#828=CARTESIAN_POINT(' ',(1.967609978541,1.915571351931));
#829=LINE(' ',#828,#827);
#830=TRIMMED_CURVE(' ',#829,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.,.
UNSPECIFIED.);
#831=(ANNOTATION_CURVE_OCCURRENCE(
    ANNOTATION_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            PROJECTION_CURVE(
                REPRESENTATION_ITEM(' ')
                GEOMETRIC_REPRESENTATION_ITEM(
                    STYLED_ITEM((#430),#830));
#834=DIRECTION(' ',(0.0,-1.0));
#835=VECTOR(' ',#834,1.0);
#836=CARTESIAN_POINT(' ',(3.967609978541,1.915571351931));
#837=LINE(' ',#836,#835);
#838=TRIMMED_CURVE(' ',#837,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.,.
UNSPECIFIED.);

```

```
#839=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      PROJECTION_CURVE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430),#838));

/*****
 * Instance #840 defines the linear dimension for the bottom edge      *
 * dimension depicted within the view. This linear dimension has as its *
 * elements the previously defined dimension_curve (#808), both of its  *
 * associated dimension_curve_terminators (#815 and #825), and both    *
 * projection_curves (#831 and #839).                                  *
 *****/

#840=(DIMENSION_CURVE_DIRECTED_CALLOUT()
      DRAUGHTING_CALLOUT((#808,#815,#825,#831,#839,#849,#855,#880))
      DRAUGHTING_ELEMENTS()
      GEOMETRIC_REPRESENTATION_ITEM()
      LINEAR_DIMENSION()
      REPRESENTATION_ITEM(''));

/*****
 * Instances #841-#849 define the dimension value text string, which  *
 * has a blanking box surrounding it, that is part of the              *
 * dimension_callout associated with the bottom edge dimension depicted *
 * within the view. This text string is explicitly associated with the  *
 * value of a geometric location dimension (#1000, by way of #1005).   *
 *****/

#841=CARTESIAN_POINT('',(2.478797836195,1.323766094421));
#842=DIRECTION('',(1.0,0.0));
#843=AXIS2_PLACEMENT_2D('',#841,#842);
#844=(DIMENSION_TEXT_ASSOCIATIVITY()
      GEOMETRIC_REPRESENTATION_ITEM()
      MAPPED_ITEM(#1005,#885)
      REPRESENTATION_ITEM('')
      TEXT_LITERAL('2.0',#843,'baseline left',.RIGHT.,#450)
      TEXT_LITERAL_WITH_BLANKING_BOX(#848));
#845=CARTESIAN_POINT('',(2.447497836195,1.292466094421));
#846=DIRECTION('',(1.0,0.0));
#847=AXIS2_PLACEMENT_2D('',#845,#846);
#848=PLANAR_BOX('',0.5,0.21885,#847);
#849=(ANNOTATION_OCCURRENCE()
      ANNOTATION_TEXT_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM('dimension value')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#480),#844));

/*****
 * Instances #850-#855 define the dimension plus minus symbol that is  *
 * part of the dimension callout associated with the bottom edge      *
 * dimension depicted within the view.                                *
 *****/
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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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#850=CARTESIAN_POINT(' ', (2.978797836195,1.323766094421));
#851=DIRECTION(' ', (1.0,0.0));
#852=AXIS2_PLACEMENT_2D(' ', #850, #851);
#853=SYMBOL_TARGET(' ', #852, 1.0, 1.0);
#854=DEFINED_SYMBOL(' ', #490, #853);
#855=(ANNOTATION_OCCURRENCE(
    ANNOTATION_SYMBOL_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM(' ')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#435), #854));

/*****
 * Instances #856-#880 define the tolerance value text string, which
 * has a blanking box surrounding it, that is part of the
 * dimension_callout associated with the bottom edge dimension depicted
 * within the view.
 *****/

#856=CARTESIAN_POINT(' ', (3.229799502861,1.292466094421));
#857=DIRECTION(' ', (1.0,0.0));
#858=AXIS2_PLACEMENT_2D(' ', #856, #857);
#859=PLANAR_BOX(' ', 0.5, 0.21885, #858);
#860=CARTESIAN_POINT(' ', (3.261089502861,1.323766094421));
#861=DIRECTION(' ', (1.0,0.0));
#862=AXIS2_PLACEMENT_2D(' ', #860, #861);
#863=TEXT_LITERAL_WITH_BLANKING_BOX(' ', '.02', #862, 'baseline
left', .RIGHT., #450, #859);
#880=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('tolerance value')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#480), #863));

/*****
 * Instance #885 defines the structured_dimension_callout for the
 * bottom edge dimension depicted within the view. This callout has as
 * its elements the previously defined dimension value text string
 * (#849), the dimension plus minus symbol (#855), and the tolerance
 * value text string (#880).
 *****/

#885=(DRAUGHTING_CALLOUT((#849, #855, #880))
    DRAUGHTING_ELEMENTS(
        GEOMETRIC_REPRESENTATION_ITEM(
            REPRESENTATION_ITEM(' ')
            STRUCTURED_DIMENSION_CALLOUT());

/*****
 * Instance #890 defines the primary callout relationship between the
 * previously defined linear_dimension (#840) and
 * structured_dimension_callout (#885) for the bottom edge dimension
 * depicted within the view.
 *****/

#890=DIMENSION_CALLOUT_RELATIONSHIP('primary', ' ', #840, #885);

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```

/*****
 * Instances #900-#913 define the two shape aspects that will be
 * related by a location dimension. Each shape aspect refers to a
 * separate corner of the bottom side dimension of the model depicted
 * in the view.
 *****/

#900=SHAPE_ASPECT(' ', '#287, .U.);
#901=PROPERTY_DEFINITION(' ', '#900);
#902=SHAPE_REPRESENTATION(' ', (#88), #20);
#903=SHAPE_DEFINITION_REPRESENTATION(#901, #902);
#910=SHAPE_ASPECT(' ', '#287, .U.);
#911=PROPERTY_DEFINITION(' ', '#910);
#912=SHAPE_REPRESENTATION(' ', (#71), #20);
#913=SHAPE_DEFINITION_REPRESENTATION(#911, #912);

/*****
 * Instances #1000-#1010 define the location dimension of the
 * relationship between the shape aspects defined above (#900 and #910).
 *****/

#1000=MEASURE_REPRESENTATION_ITEM('location dimension from (0,0,0) and
(2,0,0)',
LENGTH_MEASURE(2.0), #13);
#1001=DIMENSIONAL_LOCATION(' ', '#900, #910);
#1003=SHAPE_DIMENSION_REPRESENTATION(' ', (#1000), #20);
#1005=REPRESENTATION_MAP(#1000, #1003);
#1010=DIMENSIONAL_CHARACTERISTIC_REPRESENTATION(#1001, #1003);

/*****
 * Instances #1020-#1030 define the tolerance range for the previously
 * defined location dimension (#1001).
 *****/

#1020=MEASURE_WITH_UNIT(LENGTH_MEASURE(.02), #13);
#1021=MEASURE_WITH_UNIT(LENGTH_MEASURE(-0.02), #13);
#1025=TOLERANCE_VALUE(#1021, #1020);
#1030=PLUS_MINUS_TOLERANCE(#1025, #1001);

/*****
 * Instances #1103-#1108 define the dimension curve associated with the
 * top right corner dimension depicted within the view.
 *****/

#1103=DIRECTION(' ', (0.0, 1.0));
#1104=VECTOR(' ', #1103, 0.5);
#1105=CARTESIAN_POINT(' ', (4.263866413585, 3.915571351931));
#1106=LINE(' ', #1105, #1104);
#1107=TRIMMED_CURVE(' ', #1106, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T.
, .UNSPECIFIED.);
#1108=(ANNOTATION_CURVE_OCCURRENCE(
    ANNOTATION_OCCURRENCE(
        DIMENSION_CURVE(
            DRAUGHTING_ANNOTATION_OCCURRENCE(
                REPRESENTATION_ITEM(' ')
                GEOMETRIC_REPRESENTATION_ITEM(
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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```

        STYLED_ITEM((#430),#1107));

/*****
 * Instances #1109-#1115 and #1120-#1125 define the dimension curve      *
 * terminators (first one assigned as the origin of the dimension curve  *
 * and the second assigned as its target) associated with the top right  *
 * corner dimension depicted within the view.                            *
 *****/

#1109=CARTESIAN_POINT('',(4.263866413585,3.915571351931));
#1110=DIRECTION('',(1.0,0.0));
#1111=AXIS2_PLACEMENT_2D('',#1109,#1110);
#1112=SYMBOL_TARGET('',#1111,7.5,2.5);
#1113=DEFINED_SYMBOL('',#440,#1112);
#1115=(ANNOTATION_OCCURRENCE(
    ANNOTATION_SYMBOL_OCCURRENCE(
        DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#435),#1113)
                TERMINATOR_SYMBOL(#1108));
#1120=CARTESIAN_POINT('',(4.263866413585,3.415571351931));
#1121=DIRECTION('',(1.0,0.0));
#1122=AXIS2_PLACEMENT_2D('',#1120,#1121);
#1123=SYMBOL_TARGET('',#1122,7.5,2.5);
#1124=DEFINED_SYMBOL('',#440,#1123);
#1125=(ANNOTATION_OCCURRENCE(
    ANNOTATION_SYMBOL_OCCURRENCE(
        DIMENSION_CURVE_TERMINATOR(.TARGET.)
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#435),#1124)
                TERMINATOR_SYMBOL(#1108));

/*****
 * Instances #1126-#1131 and #1132-#1137 define the projection curves  *
 * associated with the top right corner dimension depicted within the  *
 * view.                                                                    *
 *****/

#1126=DIRECTION('',(1.0,0.0));
#1127=VECTOR('',#1126,1.0);
#1128=CARTESIAN_POINT('',(3.467609978541,3.915571351931));
#1129=LINE('',#1128,#1127);
#1130=TRIMMED_CURVE('',#1129,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.
,.UNSPECIFIED.);
#1131=(ANNOTATION_CURVE_OCCURRENCE(
    ANNOTATION_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            PROJECTION_CURVE(
                REPRESENTATION_ITEM('')
                GEOMETRIC_REPRESENTATION_ITEM(
                    STYLED_ITEM((#430),#1130));
#1132=DIRECTION('',(1.0,0.0));
#1133=VECTOR('',#1132,0.5);

```

```

#1134=CARTESIAN_POINT(' ', (3.967609978541, 3.415571351931));
#1135=LINE(' ', #1134, #1133);
#1136=TRIMMED_CURVE(' ', #1135, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T.
, .UNSPECIFIED.);
#1137=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      PROJECTION_CURVE()
      REPRESENTATION_ITEM(' ')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430), #1136));

/*****
 * Instances #1140-#1159 define the leader curve, a composite curve      *
 * made up of two segments, associated with the top right corner        *
 * dimension depicted within the view.                                  *
 *****/

#1140=DIRECTION(' ', (0.0, -1.0));
#1141=VECTOR(' ', #1140, 0.3);
#1142=CARTESIAN_POINT(' ', (4.263866413585, 3.415571351931));
#1143=LINE(' ', #1142, #1141);
#1144=TRIMMED_CURVE(' ', #1143, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T.
, .UNSPECIFIED.);
#1145=COMPOSITE_CURVE_SEGMENT(.CONTINUOUS., .F., #1144);
#1146=DIRECTION(' ', (1.0, 0.0));
#1147=VECTOR(' ', #1146, 0.3);
#1148=CARTESIAN_POINT(' ', (4.263866413585, 3.115571351931));
#1149=LINE(' ', #1148, #1147);
#1150=TRIMMED_CURVE(' ', #1149, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T.
, .UNSPECIFIED.);
#1151=COMPOSITE_CURVE_SEGMENT(.CONTINUOUS., .F., #1150);
#1155=COMPOSITE_CURVE(' ', (#1145, #1151), .F.);
#1159=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      LEADER_CURVE()
      REPRESENTATION_ITEM(' ')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430), #1155));

/*****
 * Instance #1170 defines the combination of a leader directed          *
 * and linear dimension for the top right corner dimension depicted     *
 * within the view. This dimension has as its elements the previously   *
 * defined dimension_curve (#1108), both of its associated              *
 * dimension_curve_terminators (#1115 and #1125), both projection      *
 * curves (#1131 and #1137), and the leader curve (1159).              *
 *****/

#1170=(DRAUGHTING_CALLOUT((#1108, #1115, #1125, #1131, #1137, #1159, #1180))
      DRAUGHTING_ELEMENTS()
      GEOMETRIC_REPRESENTATION_ITEM()
      LEADER_DIRECTED_CALLOUT()
      LEADER_DIRECTED_DIMENSION()
      LINEAR_DIMENSION()
      DIMENSION_CURVE_DIRECTED_CALLOUT()

```

```

REPRESENTATION_ITEM(' ');

/*****
 * Instances #1176-#1180 define the dimension value text string that
 * makes up the dimension_callout associated with the top right corner
 * dimension depicted within the view. This text string is explicitly
 * associated with the value of a geometric location dimension (#1300,
 * by way of #1305).
 *****/

#1176=CARTESIAN_POINT('',(4.138866413585,3.587446351931));
#1177=DIRECTION('',(1.0,0.0));
#1178=AXIS2_PLACEMENT_2D('',#1176,#1177);
#1179=(DIMENSION_TEXT_ASSOCIATIVITY(
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM(
        TEXT_LITERAL('2.0',#1178,'baseline left',.RIGHT.,#450)
        MAPPED_ITEM(#1305,#1185));
#1180=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('dimension value')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#480),#1179));

/*****
 * Instance #1185 defines the structured_dimension_callout for the
 * top right corner dimension depicted within the view. This callout
 * has as its elements only the previously defined dimension value text
 * string (#1180).
 *****/

#1185=(DRAUGHTING_CALLOUT((#1180))
    DRAUGHTING_ELEMENTS(
        GEOMETRIC_REPRESENTATION_ITEM(
            REPRESENTATION_ITEM('')
            STRUCTURED_DIMENSION_CALLOUT());

/*****
 * Instance #1190 defines the primary callout relationship between the
 * previously defined leader_directed_dimension (#1170) and
 * structured_dimension_callout (#1185) for the top right corner
 * dimension depicted within the view.
 *****/

#1190=DIMENSION_CALLOUT_RELATIONSHIP('primary','',#1170,#1185);

/*****
 * Instances #1200-#1213 define the two shape aspects that will be
 * related by a location dimension. Each shape aspect refers to a
 * separate vertex point of the line being dimensioned in the top right
 * corner of the model depicted in the view.
 *****/

#1200=SHAPE_ASPECT('',',',#287,.U.);
#1201=PROPERTY_DEFINITION('',',',#1200);
#1202=SHAPE_REPRESENTATION('',(#73),#20);

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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#1203=SHAPE_DEFINITION_REPRESENTATION(#1201,#1202);
#1210=SHAPE_ASPECT('',' ',#287,.U.);
#1211=PROPERTY_DEFINITION('','',#1210);
#1212=SHAPE_REPRESENTATION('',( #31),#20);
#1213=SHAPE_DEFINITION_REPRESENTATION(#1211,#1212);

/*****
 * Instances #1300-#1310 define the location dimension of the      *
 * relationship between the shape aspects defined above (#1200 and *
 * #1210).                                                         *
 *****/

#1300=MEASURE_REPRESENTATION_ITEM('location dimension from (2,0,1.5) and
(1.5,0,2)',
LENGTH_MEASURE(.5),#13);
#1301=DIMENSIONAL_LOCATION('','',#1200,#1210);
#1303=SHAPE_DIMENSION_REPRESENTATION('',( #1300),#20);
#1305=REPRESENTATION_MAP(#1300,#1303);
#1310=DIMENSIONAL_CHARACTERISTIC_REPRESENTATION(#1301,#1303);

#1524=DIRECTION('',(0.0,0.0,1.0));

/*****
 * Instances #1525-#1532 define draughting_model to be projected onto *
 * the view. This model contains as its items an origin, a mapped_item *
 * (which has as its representation the advanced brep model defined at *
 * the beginning of this file), and a styled_item (whose associated *
 * curve_style provides the appearance characteristics for the advanced *
 * brep model).                                                   *
 *****/

#1525=CARTESIAN_POINT('',(0.0,0.0,0.0));
#1526=DIRECTION('',(0.0,0.0,1.0));
#1527=DIRECTION('',(1.0,0.0,0.0));
#1528=AXIS2_PLACEMENT_3D('',#1525,#1526,#1527);
#1529=REPRESENTATION_MAP(#1528,#274);
#1530=MAPPED_ITEM('',#1529,#1528);
#1531=STYLED_ITEM('',( #430),#1530);
#1532=DRAUGHTING_MODEL('DRAUGHTING_MODEL_1',(#1543,#1531,#1530,#1528),#20);

#1533=CARTESIAN_POINT('',(0.E0,0.E0,1.E2));

/*****
 * Instances #1534-#1537 define the area of the draughting_model (its *
 * view window) to be projected onto the view.                   *
 *****/

#1534=CARTESIAN_POINT('',(-1.5,-1.5,0.0));
#1535=DIRECTION('',(1.0,0.0,0.0));
#1536=AXIS2_PLACEMENT_3D('',#1534,#1524,#1535);
#1537=PLANAR_BOX('',3.0,3.0,#1536);

/*****
 * Instance #1538 defines the view projection parameters.        *
 *****/

```

```

#1538=VIEW_VOLUME(.PARALLEL.,#1533,0.0,10.,.T.,10.,.F.,.T.,#1537);

/*****
 * Instances #1539-#1542 define the view reference coordinate system.  *
 *****/

#1539=CARTESIAN_POINT('',(1.0,0.0,1.0));
#1540=DIRECTION('',(0.0,-1.0,0.0));
#1541=DIRECTION('',(1.0,0.0,0.0));
#1542=AXIS2_PLACEMENT_3D('',#1539,#1540,#1541);

/*****
 * Instances #1543-#1543 link the view reference coordinate system and *
 * the view projection parameters. This link also includes the      *
 * indication that hidden line removal will be performed within the  *
 * projection.                                                         *
 *****/

#1543=CAMERA_MODEL_D3_WITH_HLHSR('',#1542,#1538,.T.);
#1544=CAMERA_USAGE(#1543,#1532);

/*****
 * Instances #1545-#1548 define the projection area for the view.      *
 *****/

#1545=CARTESIAN_POINT('',(0.0,0.0));
#1546=DIRECTION('',(1.0,0.0));
#1547=AXIS2_PLACEMENT_2D('',#1545,#1546);
#1548=PLANAR_BOX('',5.,5.,#1547);

/*****
 * Instances #1550-#1552 define the presentation view, which has as its *
 * only elements the results of the view projection and the view origin.*
 *****/

#1550=(GEOMETRIC_REPRESENTATION_CONTEXT(2)
      GLOBAL_UNIT_ASSIGNED_CONTEXT((#13,#17))
      REPRESENTATION_CONTEXT('2D coordinate system context','2D'));
#1551=(CAMERA_IMAGE_3D_WITH_SCALE()
      CAMERA_IMAGE()
      MAPPED_ITEM(#1544,#1548)
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM());
#1552=PRESENTATION_VIEW('Front
view',(#540,#585,#840,#885,#1170,#1185,#1547,#1551),#1550);

/*****
 * Instances #1555-#1557 define the target location (0,0) on the sheet *
 * for the placement of the view.                                       *
 *****/

#1555=CARTESIAN_POINT('',(0.0,0.0));
#1556=DIRECTION('',(1.0,0.0));
#1557=AXIS2_PLACEMENT_2D('',#1555,#1556);

/*****
 * Instances #1610-#1620 map the view onto the sheet, with the mapping *
 *****/

```

```

* origin defined as (0,0) within the view being mapped onto (0,0)      *
* within the sheet coordinate system.                                  *
*****/

#1610=REPRESENTATION_MAP(#1547,#1552);
#1620=MAPPED_ITEM(' ',#1610,#1557);

/*****
* Instance #1630 defines the drawing sheet that contains the view.    *
*****/

#1630=DRAWING_SHEET_REVISION('Sheet 1',(#1557,#1620,#1634),#1550,'-');

/*****
* Instances #1631-#1635 define the sheet size for the drawing sheet.  *
*****/

#1631=CARTESIAN_POINT(' ',(0.0,0.0));
#1632=DIRECTION(' ',(1.0,0.0));
#1633=AXIS2_PLACEMENT_2D(' ',#1631,#1632);
#1634=PLANAR_BOX(' ',10.0,10.0,#1633);
#1635=PRESENTATION_SIZE(#1630,#1634);

/*****
* Instances #1637-#1660 define the drawing revision, its title, its    *
* association to the product definition it presents (#286), and the    *
* link between the drawing revision and the sheet previously defined.  *
*****/

#1637=DRAWING_DEFINITION('Drawing of product_0',$);
#1640=DRAWING_REVISION('A',#1637,$);
#1645=DRAUGHTING_TITLE((#1640),'English','Associative dimension test part');
#1647=APPLIED_PRESENTED_ITEM((#286));
#1650=PRESENTED_ITEM_REPRESENTATION(#1640,#1647);
#1660=DRAWING_SHEET_REVISION_USAGE(#1630,#1640,'1');

ENDSEC;
END-ISO-10303-21;

```

4.2 Example with non-associative dimensions

In respect to the appearance of the drawing on the sheet this files represent the same model as above. The difference is that the logical structure that associates the presentation of the dimension to their numerical values and to the corresponding geometry is omitted. Dimensioning capability is restricted to the presentation of text, symbology and annotation curves in the drawing views.

4.2.1 Non-associative dimensions example conforming to AP214

```

ISO-10303-21;
HEADER;
FILE_DESCRIPTION(('associative dimension example',''),'1');
FILE_NAME('assoc_dim.stp',

```

```
'1999-02-26 T12:00:00',
('Linas Polikaitis','Rogerio Barra','Mark Lobo','Markus Hauser'),
(' ',' ',' '),
'',
'',
'',
'');
FILE_SCHEMA(('AUTOMOTIVE_DESIGN {1 2 10303 214 0 1 1 1}'));
ENDSEC;
DATA;

/*****
 * Instances #10-#274 define the model. These include
 * the definition of the default units for the context of the
 * representation (#10-#19), the context itself (#20), all of the
 * geometrical and topological entity instances that define the model
 * (#25-273), and finally the advanced_brep_shape_representation (#274).*
 *****/

#10=(LENGTH_UNIT()NAMED_UNIT(*)SI_UNIT(.MILLI.,.METRE.));
#11=LENGTH_MEASURE_WITH_UNIT(LENGTH_MEASURE(25.4),#10);
#12=DIMENSIONAL_EXPONENTS(1.,0.,0.,0.,0.,0.,0.);
#13=(CONVERSION_BASED_UNIT('INCH',#11)LENGTH_UNIT()NAMED_UNIT(#12));
#14=(NAMED_UNIT(*)PLANE_ANGLE_UNIT()SI_UNIT($,.RADIAN.));
#15=PLANE_ANGLE_MEASURE_WITH_UNIT(PLANE_ANGLE_MEASURE(0.0174532925),#14);
#16=DIMENSIONAL_EXPONENTS(0.,0.,0.,0.,0.,0.,0.);
#17=(CONVERSION_BASED_UNIT('DEGREE',#15)NAMED_UNIT(#16)PLANE_ANGLE_UNIT());
#18=(NAMED_UNIT(*)SI_UNIT($,.STERADIAN.)SOLID_ANGLE_UNIT());
#19=UNCERTAINTY_MEASURE_WITH_UNIT(
    LENGTH_MEASURE(7.8740157480315E-07),#13,
    'DISTANCE_ACCURACY_VALUE','Maximum Tolerance applied to model');
#20=(GEOMETRIC_REPRESENTATION_CONTEXT(3)
    GLOBAL_UNCERTAINTY_ASSIGNED_CONTEXT((#19))
    GLOBAL_UNIT_ASSIGNED_CONTEXT((#13,#17,#18))
    REPRESENTATION_CONTEXT('3D coordinate system context','3D'));
#25=CARTESIAN_POINT('',(1.,0.,2.));
#26=DIRECTION('',(-1.,0.,0.));
#27=VECTOR('',#26,1.);
#28=LINE('',#25,#27);
#29=EDGE_CURVE('',#31,#33,#28,.T.);
#30=CARTESIAN_POINT('',(1.5,0.,2.));
#31=VERTEX_POINT('',#30);
#32=CARTESIAN_POINT('',(0.,0.,2.));
#33=VERTEX_POINT('',#32);
#34=ORIENTED_EDGE('',*,*,#29,.F.);
#35=CARTESIAN_POINT('',(1.5,0.8,2.));
#36=DIRECTION('',(0.,1.,0.));
#37=VECTOR('',#36,1.);
#38=LINE('',#35,#37);
#39=EDGE_CURVE('',#31,#41,#38,.T.);
#40=CARTESIAN_POINT('',(1.5,1.6,2.));
#41=VERTEX_POINT('',#40);
#42=ORIENTED_EDGE('',*,*,#39,.T.);
#43=CARTESIAN_POINT('',(1.,1.6,2.));
#44=DIRECTION('',(1.,0.,0.));
#45=VECTOR('',#44,1.);
#46=LINE('',#43,#45);
#47=EDGE_CURVE('',#49,#41,#46,.T.);
```

```

#48=CARTESIAN_POINT(' ',(0.,1.6,2.));
#49=VERTEX_POINT(' ',#48);
#50=ORIENTED_EDGE(' ',*,*,#47,.F.);
#51=CARTESIAN_POINT(' ',(0.,0.8,2.));
#52=DIRECTION(' ',(0.,1.,0.));
#53=VECTOR(' ',#52,1.);
#54=LINE(' ',#51,#53);
#55=EDGE_CURVE(' ',#33,#49,#54,.T.);
#56=ORIENTED_EDGE(' ',*,*,#55,.F.);
#57=EDGE_LOOP(' ',(#34,#42,#50,#56));
#58=FACE_BOUND(' ',#57,.T.);
#59=CARTESIAN_POINT(' ',(1.,0.8,2.));
#60=DIRECTION(' ',(0.,0.,1.));
#61=DIRECTION(' ',(1.,0.,0.));
#62=AXIS2_PLACEMENT_3D(' ',#59,#60,#61);
#63=PLANE(' ',#62);
#64=ADVANCED_FACE(' ',(#58),#63,.T.);
#65=CARTESIAN_POINT(' ',(2.,0.,0.));
#66=DIRECTION(' ',(0.,0.,1.));
#67=VECTOR(' ',#66,1.);
#68=LINE(' ',#65,#67);
#69=EDGE_CURVE(' ',#71,#73,#68,.T.);
#70=CARTESIAN_POINT(' ',(2.,0.,0.));
#71=VERTEX_POINT(' ',#70);
#72=CARTESIAN_POINT(' ',(2.,0.,1.5));
#73=VERTEX_POINT(' ',#72);
#74=ORIENTED_EDGE(' ',*,*,#69,.T.);
#75=CARTESIAN_POINT(' ',(2.25,0.,1.25));
#76=DIRECTION(' ',(-0.707106781186548,0.,0.707106781186548));
#77=VECTOR(' ',#76,1.);
#78=LINE(' ',#75,#77);
#79=EDGE_CURVE(' ',#73,#31,#78,.T.);
#80=ORIENTED_EDGE(' ',*,*,#79,.T.);
#81=ORIENTED_EDGE(' ',*,*,#29,.T.);
#82=CARTESIAN_POINT(' ',(0.,0.,0.));
#83=DIRECTION(' ',(0.,0.,1.));
#84=VECTOR(' ',#83,1.);
#85=LINE(' ',#82,#84);
#86=EDGE_CURVE(' ',#88,#33,#85,.T.);
#87=CARTESIAN_POINT(' ',(0.,0.,0.));
#88=VERTEX_POINT(' ',#87);
#89=ORIENTED_EDGE(' ',*,*,#86,.F.);
#90=CARTESIAN_POINT(' ',(1.,0.,0.));
#91=DIRECTION(' ',(1.,0.,0.));
#92=VECTOR(' ',#91,1.);
#93=LINE(' ',#90,#92);
#94=EDGE_CURVE(' ',#88,#71,#93,.T.);
#95=ORIENTED_EDGE(' ',*,*,#94,.T.);
#96=EDGE_LOOP(' ',(#74,#80,#81,#89,#95));
#97=FACE_BOUND(' ',#96,.T.);
#98=CARTESIAN_POINT(' ',(1.,0.,0.));
#99=DIRECTION(' ',(0.,-1.,0.));
#100=DIRECTION(' ',(0.,0.,-1.));
#101=AXIS2_PLACEMENT_3D(' ',#98,#99,#100);
#102=PLANE(' ',#101);
#103=ADVANCED_FACE(' ',(#97),#102,.T.);
#104=CARTESIAN_POINT(' ',(0.,1.4125,0.375));

```

```
#105=DIRECTION(' ',(0.,1.,0.));
#106=VECTOR(' ',#105,1.);
#107=LINE(' ',#104,#106);
#108=EDGE_CURVE(' ',#110,#112,#107,.T.);
#109=CARTESIAN_POINT(' ',(0.,1.225,0.375));
#110=VERTEX_POINT(' ',#109);
#111=CARTESIAN_POINT(' ',(0.,1.6,0.375));
#112=VERTEX_POINT(' ',#111);
#113=ORIENTED_EDGE(' ',*,*,#108,.F.);
#114=CARTESIAN_POINT(' ',(0.,1.225,0.));
#115=DIRECTION(' ',(0.,0.,1.));
#116=VECTOR(' ',#115,1.);
#117=LINE(' ',#114,#116);
#118=EDGE_CURVE(' ',#120,#110,#117,.T.);
#119=CARTESIAN_POINT(' ',(0.,1.225,0.));
#120=VERTEX_POINT(' ',#119);
#121=ORIENTED_EDGE(' ',*,*,#118,.F.);
#122=CARTESIAN_POINT(' ',(0.,0.8,0.));
#123=DIRECTION(' ',(0.,-1.,0.));
#124=VECTOR(' ',#123,1.);
#125=LINE(' ',#122,#124);
#126=EDGE_CURVE(' ',#120,#88,#125,.T.);
#127=ORIENTED_EDGE(' ',*,*,#126,.T.);
#128=ORIENTED_EDGE(' ',*,*,#86,.T.);
#129=ORIENTED_EDGE(' ',*,*,#55,.T.);
#130=CARTESIAN_POINT(' ',(0.,1.6,0.));
#131=DIRECTION(' ',(0.,0.,1.));
#132=VECTOR(' ',#131,1.);
#133=LINE(' ',#130,#132);
#134=EDGE_CURVE(' ',#112,#49,#133,.T.);
#135=ORIENTED_EDGE(' ',*,*,#134,.F.);
#136=EDGE_LOOP(' ',(#113,#121,#127,#128,#129,#135));
#137=FACE_BOUND(' ',#136,.T.);
#138=CARTESIAN_POINT(' ',(0.,0.8,0.));
#139=DIRECTION(' ',(-1.,0.,0.));
#140=DIRECTION(' ',(0.,0.,1.));
#141=AXIS2_PLACEMENT_3D(' ',#138,#139,#140);
#142=PLANE(' ',#141);
#143=ADVANCED_FACE(' ',(#137),#142,.T.);
#144=CARTESIAN_POINT(' ',(1.5,1.6,0.375));
#145=DIRECTION(' ',(1.,0.,0.));
#146=VECTOR(' ',#145,1.);
#147=LINE(' ',#144,#146);
#148=EDGE_CURVE(' ',#112,#150,#147,.T.);
#149=CARTESIAN_POINT(' ',(2.,1.6,0.375));
#150=VERTEX_POINT(' ',#149);
#151=ORIENTED_EDGE(' ',*,*,#148,.F.);
#152=ORIENTED_EDGE(' ',*,*,#134,.T.);
#153=ORIENTED_EDGE(' ',*,*,#47,.T.);
#154=CARTESIAN_POINT(' ',(2.25,1.6,1.25));
#155=DIRECTION(' ',(0.707106781186548,0.,-0.707106781186548));
#156=VECTOR(' ',#155,1.);
#157=LINE(' ',#154,#156);
#158=EDGE_CURVE(' ',#41,#160,#157,.T.);
#159=CARTESIAN_POINT(' ',(2.,1.6,1.5));
#160=VERTEX_POINT(' ',#159);
#161=ORIENTED_EDGE(' ',*,*,#158,.T.);
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#162=CARTESIAN_POINT(' ',(2.,1.6,0.));
#163=DIRECTION(' ',(0.,0.,1.));
#164=VECTOR(' ',#163,1.);
#165=LINE(' ',#162,#164);
#166=EDGE_CURVE(' ',#150,#160,#165,.T.);
#167=ORIENTED_EDGE(' ',*,*,#166,.F.);
#168=EDGE_LOOP(' ',(#151,#152,#153,#161,#167));
#169=FACE_BOUND(' ',#168,.T.);
#170=CARTESIAN_POINT(' ',(1.,1.6,0.));
#171=DIRECTION(' ',(0.,1.,0.));
#172=DIRECTION(' ',(0.,0.,1.));
#173=AXIS2_PLACEMENT_3D(' ',#170,#171,#172);
#174=PLANE(' ',#173);
#175=ADVANCED_FACE(' ',(#169),#174,.T.);
#176=CARTESIAN_POINT(' ',(1.5,1.225,0.));
#177=DIRECTION(' ',(1.,0.,0.));
#178=VECTOR(' ',#177,1.);
#179=LINE(' ',#176,#178);
#180=EDGE_CURVE(' ',#120,#182,#179,.T.);
#181=CARTESIAN_POINT(' ',(2.,1.225,0.));
#182=VERTEX_POINT(' ',#181);
#183=ORIENTED_EDGE(' ',*,*,#180,.T.);
#184=CARTESIAN_POINT(' ',(2.,0.8,0.));
#185=DIRECTION(' ',(0.,1.,0.));
#186=VECTOR(' ',#185,1.);
#187=LINE(' ',#184,#186);
#188=EDGE_CURVE(' ',#71,#182,#187,.T.);
#189=ORIENTED_EDGE(' ',*,*,#188,.F.);
#190=ORIENTED_EDGE(' ',*,*,#94,.F.);
#191=ORIENTED_EDGE(' ',*,*,#126,.F.);
#192=EDGE_LOOP(' ',(#183,#189,#190,#191));
#193=FACE_BOUND(' ',#192,.T.);
#194=CARTESIAN_POINT(' ',(1.,0.8,0.));
#195=DIRECTION(' ',(0.,0.,-1.));
#196=DIRECTION(' ',(-1.,0.,0.));
#197=AXIS2_PLACEMENT_3D(' ',#194,#195,#196);
#198=PLANE(' ',#197);
#199=ADVANCED_FACE(' ',(#193),#198,.T.);
#200=CARTESIAN_POINT(' ',(2.,0.8,0.375));
#201=DIRECTION(' ',(0.,-1.,0.));
#202=VECTOR(' ',#201,1.);
#203=LINE(' ',#200,#202);
#204=EDGE_CURVE(' ',#150,#206,#203,.T.);
#205=CARTESIAN_POINT(' ',(2.,1.225,0.375));
#206=VERTEX_POINT(' ',#205);
#207=ORIENTED_EDGE(' ',*,*,#204,.F.);
#208=ORIENTED_EDGE(' ',*,*,#166,.T.);
#209=CARTESIAN_POINT(' ',(2.,0.8,1.5));
#210=DIRECTION(' ',(0.,-1.,0.));
#211=VECTOR(' ',#210,1.);
#212=LINE(' ',#209,#211);
#213=EDGE_CURVE(' ',#160,#73,#212,.T.);
#214=ORIENTED_EDGE(' ',*,*,#213,.T.);
#215=ORIENTED_EDGE(' ',*,*,#69,.F.);
#216=ORIENTED_EDGE(' ',*,*,#188,.T.);
#217=CARTESIAN_POINT(' ',(2.,1.225,0.));
#218=DIRECTION(' ',(0.,0.,-1.));

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```
#219=VECTOR(' ',#218,1.);
#220=LINE(' ',#217,#219);
#221=EDGE_CURVE(' ',#206,#182,#220,.T.);
#222=ORIENTED_EDGE(' ',*,*,#221,.F.);
#223=EDGE_LOOP(' ',(#207,#208,#214,#215,#216,#222));
#224=FACE_BOUND(' ',#223,.T.);
#225=CARTESIAN_POINT(' ',(2.,0.8,0.));
#226=DIRECTION(' ',(1.,0.,0.));
#227=DIRECTION(' ',(0.,0.,-1.));
#228=AXIS2_PLACEMENT_3D(' ',#225,#226,#227);
#229=PLANE(' ',#228);
#230=ADVANCED_FACE(' ',(#224),#229,.T.);
#231=ORIENTED_EDGE(' ',*,*,#158,.F.);
#232=ORIENTED_EDGE(' ',*,*,#39,.F.);
#233=ORIENTED_EDGE(' ',*,*,#79,.F.);
#234=ORIENTED_EDGE(' ',*,*,#213,.F.);
#235=EDGE_LOOP(' ',(#231,#232,#233,#234));
#236=FACE_BOUND(' ',#235,.T.);
#237=CARTESIAN_POINT(' ',(2.,0.8,1.5));
#238=DIRECTION(' ',(-0.707106781186547,0.,-0.707106781186547));
#239=DIRECTION(' ',(-0.707106781186548,0.,0.707106781186548));
#240=AXIS2_PLACEMENT_3D(' ',#237,#238,#239);
#241=PLANE(' ',#240);
#242=ADVANCED_FACE(' ',(#236),#241,.F.);
#243=ORIENTED_EDGE(' ',*,*,#204,.T.);
#244=CARTESIAN_POINT(' ',(1.5,1.225,0.375));
#245=DIRECTION(' ',(-1.,0.,0.));
#246=VECTOR(' ',#245,1.);
#247=LINE(' ',#244,#246);
#248=EDGE_CURVE(' ',#206,#110,#247,.T.);
#249=ORIENTED_EDGE(' ',*,*,#248,.T.);
#250=ORIENTED_EDGE(' ',*,*,#108,.T.);
#251=ORIENTED_EDGE(' ',*,*,#148,.T.);
#252=EDGE_LOOP(' ',(#243,#249,#250,#251));
#253=FACE_BOUND(' ',#252,.T.);
#254=CARTESIAN_POINT(' ',(1.5,1.4125,0.375));
#255=DIRECTION(' ',(0.,0.,1.));
#256=DIRECTION(' ',(1.,0.,0.));
#257=AXIS2_PLACEMENT_3D(' ',#254,#255,#256);
#258=PLANE(' ',#257);
#259=ADVANCED_FACE(' ',(#253),#258,.F.);
#260=ORIENTED_EDGE(' ',*,*,#221,.T.);
#261=ORIENTED_EDGE(' ',*,*,#180,.F.);
#262=ORIENTED_EDGE(' ',*,*,#118,.T.);
#263=ORIENTED_EDGE(' ',*,*,#248,.F.);
#264=EDGE_LOOP(' ',(#260,#261,#262,#263));
#265=FACE_BOUND(' ',#264,.T.);
#266=CARTESIAN_POINT(' ',(1.5,1.225,0.));
#267=DIRECTION(' ',(0.,-1.,0.));
#268=DIRECTION(' ',(0.,0.,-1.));
#269=AXIS2_PLACEMENT_3D(' ',#266,#267,#268);
#270=PLANE(' ',#269);
#271=ADVANCED_FACE(' ',(#265),#270,.F.);
#272=CLOSED_SHELL(' ',(#64,#103,#143,#175,#199,#230,#242,#259,#271));
#273=MANIFOLD_SOLID_BREP(' ',#272);
#274=ADVANCED_BREP_SHAPE_REPRESENTATION(' ',(#273),#20);
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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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/*****
 * Instances #275-#288 define the product that the model defined
 * above represents, as well as the contexts for the application,
 * the product, and its definition. Lastly it provides the link
 * to the advanced_brep_shape_representation/#274.
 *****/

#275=APPLICATION_CONTEXT('AUTOMOTIVE_DESIGN');
#276=APPLICATION_PROTOCOL_DEFINITION('DRAFT_INTERNATIONAL_STANDARD','automotive_design',1999,#275);
#277=PRODUCT_CONTEXT('','#275,'mechanical');
#281=PRODUCT('product_0','','',(#277));
#282=PRODUCT_RELATED_PRODUCT_CATEGORY('part','',(#281));
#284=PRODUCT_DEFINITION_FORMATION('','',#281);
#285=PRODUCT_DEFINITION_CONTEXT('','#275,'design');
#286=PRODUCT_DEFINITION('','',#284,#285);
#287=PRODUCT_DEFINITION_SHAPE('','',#286);
#288=SHAPE_DEFINITION_REPRESENTATION(#287,#274);

/*****
 * Instances #400-#430 define pre-defined common appearance
 * characteristics.
 *****/

#400=DRAUGHTING_PRE_DEFINED_CURVE_FONT('continuous');
#410=LENGTH_MEASURE_WITH_UNIT(POSITIVE_LENGTH_MEASURE(0.01),#13);
#420=DRAUGHTING_PRE_DEFINED_COLOUR('black');
#425=CURVE_STYLE('black-continuous',#400,#410,#420);
#430=PRESENTATION_STYLE_ASSIGNMENT((#425));
#433=SYMBOL_COLOUR(#420);
#434=SYMBOL_STYLE('black',#433);
#435=PRESENTATION_STYLE_ASSIGNMENT((#434));
#440=PRE_DEFINED_TERMINATOR_SYMBOL('filled arrow');
#450=DRAUGHTING_PRE_DEFINED_TEXT_FONT('ISO 3098-1 font A');
#460=TEXT_STYLE_FOR_DEFINED_FONT(#420);
#470=TEXT_STYLE_WITH_BOX_CHARACTERISTICS('','#460,
    (BOX_WIDTH(0.125),
    BOX_SLANT_ANGLE(0.0),
    BOX_ROTATE_ANGLE(0.0),
    BOX_HEIGHT(0.15625));
#480=PRESENTATION_STYLE_ASSIGNMENT((#470));
#490=PRE_DEFINED_DIMENSION_SYMBOL('plus minus');

/*****
 * Instances #503-#508 define the dimension curve associated with the
 * left edge dimension depicted within the view.
 *****/

#503=DIRECTION('',(0.0,1.0));
#504=VECTOR('','#503,2.0);
#505=CARTESIAN_POINT('',(1.155177038627,1.915571351931));
#506=LINE('','#505,#504);
#507=TRIMMED_CURVE('','#506,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#508=(ANNOTATION_CURVE_OCCURRENCE()
    ANNOTATION_OCCURRENCE()
    DIMENSION_CURVE()

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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    DRAUGHTING_ANNOTATION_OCCURRENCE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#430),#507));

/*****
 * Instances #509-#515 and #520-#525 define the dimension curve      *
 * terminators (first one assigned as the origin of the dimension curve *
 * and the second assigned as its target) associated with the left edge *
 * dimension depicted within the view.                                *
 *****/

#509=CARTESIAN_POINT('',(1.155177038627,3.915571351931));
#510=DIRECTION('',(0.0,1.0));
#511=AXIS2_PLACEMENT_2D('',#509,#510);
#512=SYMBOL_TARGET('',#511,7.5,2.5);
#513=DEFINED_SYMBOL('',#440,#512);
#515=(ANNOTATION_OCCURRENCE()
      ANNOTATION_SYMBOL_OCCURRENCE()
      DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#435),#513)
      TERMINATOR_SYMBOL(#508));
#520=CARTESIAN_POINT('',(1.155177038627,1.915571351931));
#521=DIRECTION('',(0.0,-1.0));
#522=AXIS2_PLACEMENT_2D('',#520,#521);
#523=SYMBOL_TARGET('',#522,7.5,2.5);
#524=DEFINED_SYMBOL('',#440,#523);
#525=(ANNOTATION_OCCURRENCE()
      ANNOTATION_SYMBOL_OCCURRENCE()
      DIMENSION_CURVE_TERMINATOR(.TARGET.)
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#435),#524)
      TERMINATOR_SYMBOL(#508));

/*****
 * Instances #526-#531 and #534-#539 define the projection curves    *
 * associated with the left edge dimension depicted within the view.    *
 *****/

#526=DIRECTION('',(-1.0,0.0));
#527=VECTOR('',#526,1.0);
#528=CARTESIAN_POINT('',(1.967609978541,3.915571351931));
#529=LINE('',#528,#527);
#530=TRIMMED_CURVE('',#529,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#531=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      PROJECTION_CURVE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430),#530));

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#534=DIRECTION(' ',(-1.0,0.0));
#535=VECTOR(' ',#534,1.0);
#536=CARTESIAN_POINT(' ',(1.967609978541,1.915571351931));
#537=LINE(' ',#536,#535);
#538=TRIMMED_CURVE(' ',#537,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#539=(ANNOTATION_CURVE_OCCURRENCE(
  ANNOTATION_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      PROJECTION_CURVE(
        REPRESENTATION_ITEM(' ')
        GEOMETRIC_REPRESENTATION_ITEM(
          STYLED_ITEM((#430),#538));

/*****
* Instance #540 defines the linear dimension for the left edge      *
* dimension depicted within the view. This linear dimension has as its *
* elements the previously defined dimension_curve (#508), both of its *
* associated dimension_curve_terminators (#515 and #525), and both *
* projection_curves (#531 and #539).                                *
*****/

#540=(DIMENSION_CURVE_DIRECTED_CALLOUT(
  DRAUGHTING_CALLOUT((#508,#515,#525,#531,#539,#549,#580))
  DRAUGHTING_ELEMENTS(
    GEOMETRIC_REPRESENTATION_ITEM(
      LINEAR_DIMENSION(
        REPRESENTATION_ITEM(''));

/*****
* Instances #541-#549 define the dimension value text string, which *
* has a blanking box surrounding it, that is part of the *
* dimension_callout associated with the left edge dimension depicted *
* within the view.                                               *
*****/

#541=CARTESIAN_POINT(' ',(0.6551770386266,2.937030579399));
#542=DIRECTION(' ',(1.0,0.0));
#543=AXIS2_PLACEMENT_2D(' ',#541,#542);
#544=TEXT_LITERAL_WITH_BLANKING_BOX(' ','2.0',#543,'baseline
left',.RIGHT.,#450,#548);
#545=CARTESIAN_POINT(' ',(0.6238781252458,2.9057549763387));
#546=DIRECTION(' ',(1.0,0.0));
#547=AXIS2_PLACEMENT_2D(' ',#545,#546);
#548=PLANAR_BOX(' ',0.5,0.21885,#547);
#549=(ANNOTATION_OCCURRENCE(
  ANNOTATION_TEXT_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      REPRESENTATION_ITEM('dimension value')
      GEOMETRIC_REPRESENTATION_ITEM(
        STYLED_ITEM((#480),#544));

/*****
* Instances #560-#580 define the separate text strings, each of which *
* are elements of a composite_text (which is surrounded by a blanking *
* box), that, combined, portray the tolerance value of the *
* dimension_callout associated with the left edge dimension depicted *

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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* within the view.
*****/

#560=CARTESIAN_POINT('',(1.155177038627,3.054218079399));
#561=DIRECTION('',(1.0,0.0));
#562=AXIS2_PLACEMENT_2D('','#560,#561);
#563=TEXT_LITERAL('','+0.01',#562,'baseline left',.RIGHT.,#450);
#570=CARTESIAN_POINT('',(1.155177038627,2.819843079399));
#571=DIRECTION('',(1.0,0.0));
#572=AXIS2_PLACEMENT_2D('','#570,#571);
#573=TEXT_LITERAL('','-0.03',#572,'baseline left',.RIGHT.,#450);
#574=CARTESIAN_POINT('',(1.1238771252458,2.78854549763387));
#575=DIRECTION('',(1.,0.));
#576=AXIS2_PLACEMENT_2D('','#574,#575);
#577=PLANAR_BOX('',0.666667,0.484525,#576);
#578=COMPOSITE_TEXT_WITH_BLANKING_BOX('',( #563,#573),#577);
#580=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('tolerance value')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#480),#578));

/*****
* Instance #585 defines the callout for the left
* edge dimension depicted within the view. This callout has as its
* elements the previously defined dimension value text string (#549)
* and the tolerance value composite text (#580).
*****/

#585=DRAUGHTING_CALLOUT('',( #549,#580));

/*****
* Instance #590 defines the primary callout relationship between the
* previously defined linear_dimension (#540) and
* the callout (#585) for the left edge dimension
* depicted within the view.
*****/

#590=DIMENSION_CALLOUT_RELATIONSHIP('primary','',#540,#585);

/*****
* Instances #803-#808 define the dimension curve associated with the
* bottom edge dimension depicted within the view.
*****/

#803=DIRECTION('',(1.,0.));
#804=VECTOR('','#803,2.);
#805=CARTESIAN_POINT('',(1.967609978541,1.401891094421));
#806=LINE('','#805,#804);
#807=TRIMMED_CURVE('','#806,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#808=(ANNOTATION_CURVE_OCCURRENCE(
    ANNOTATION_OCCURRENCE(
        DIMENSION_CURVE(

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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    DRAUGHTING_ANNOTATION_OCCURRENCE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#430),#807));

/*****
* Instances #809-#815 and #820-#825 define the dimension curve      *
* terminators (first one assigned as the origin of the dimension curve *
* and the second assigned as its target) associated with the bottom  *
* edge dimension depicted within the view.                          *
*****/

#809=CARTESIAN_POINT('',(1.967609978541,1.401891094421));
#810=DIRECTION('',(1.,0.));
#811=AXIS2_PLACEMENT_2D('',#809,#810);
#812=SYMBOL_TARGET('',#811,7.5,2.5);
#813=DEFINED_SYMBOL('',#440,#812);
#815=(ANNOTATION_OCCURRENCE()
    ANNOTATION_SYMBOL_OCCURRENCE()
    DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
    DRAUGHTING_ANNOTATION_OCCURRENCE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#435),#813)
    TERMINATOR_SYMBOL(#808));
#820=CARTESIAN_POINT('',(3.967609978541,1.401891094421));
#821=DIRECTION('',(-1.,0.));
#822=AXIS2_PLACEMENT_2D('',#820,#821);
#823=SYMBOL_TARGET('',#822,7.5,2.5);
#824=DEFINED_SYMBOL('',#440,#823);
#825=(ANNOTATION_OCCURRENCE()
    ANNOTATION_SYMBOL_OCCURRENCE()
    DIMENSION_CURVE_TERMINATOR(.TARGET.)
    DRAUGHTING_ANNOTATION_OCCURRENCE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#435),#824)
    TERMINATOR_SYMBOL(#808));

/*****
* Instances #826-#831 and #834-#839 define the projection curves   *
* associated with the bottom edge dimension depicted within the view. *
*****/

#826=DIRECTION('',(0.,-1.));
#827=VECTOR('',#826,1.);
#828=CARTESIAN_POINT('',(1.967609978541,1.915571351931));
#829=LINE('',#828,#827);
#830=TRIMMED_CURVE('',#829,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#831=(ANNOTATION_CURVE_OCCURRENCE()
    ANNOTATION_OCCURRENCE()
    DRAUGHTING_ANNOTATION_OCCURRENCE()
    PROJECTION_CURVE()
    REPRESENTATION_ITEM('')
    GEOMETRIC_REPRESENTATION_ITEM()
    STYLED_ITEM((#430),#830));

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#834=DIRECTION(' ',(0.,-1.));
#835=VECTOR(' ',#834,1.);
#836=CARTESIAN_POINT(' ',(3.967609978541,1.915571351931));
#837=LINE(' ',#836,#835);
#838=TRIMMED_CURVE(' ',#837,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.UN
SPECIFIED.);
#839=(ANNOTATION_CURVE_OCCURRENCE(
  ANNOTATION_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      PROJECTION_CURVE(
        REPRESENTATION_ITEM(' ')
        GEOMETRIC_REPRESENTATION_ITEM(
          STYLED_ITEM((#430),#838));

/*****
* Instance #840 defines the linear dimension for the bottom edge      *
* dimension depicted within the view. This linear dimension has as its *
* elements the previously defined dimension_curve (#808), both of its *
* associated dimension_curve_terminators (#815 and #825), and both *
* projection_curves (#831 and #839).                                  *
*****/

#840=(DIMENSION_CURVE_DIRECTED_CALLOUT(
  DRAUGHTING_CALLOUT((#808,#815,#825,#831,#839,#849,#855,#880))
  DRAUGHTING_ELEMENTS(
    GEOMETRIC_REPRESENTATION_ITEM(
      LINEAR_DIMENSION(
        REPRESENTATION_ITEM(''));

/*****
* Instances #841-#849 define the dimension value text string, which *
* has a blanking box surrounding it, that is part of the *
* dimension_callout associated with the bottom edge dimension depicted *
* within the view. This text string is explicitly associated with the *
* value of a geometric location dimension (#1000, by way of #1005). *
*****/

#841=CARTESIAN_POINT(' ',(2.478797836195,1.323766094421));
#842=DIRECTION(' ',(1.,0.));
#843=AXIS2_PLACEMENT_2D(' ',#841,#842);
#844=TEXT_LITERAL_WITH_BLANKING_BOX(' ','2.0',#843,'baseline
left',.RIGHT.,#450,#848);
#845=CARTESIAN_POINT(' ',(2.447497836195,1.292466094421));
#846=DIRECTION(' ',(1.,0.));
#847=AXIS2_PLACEMENT_2D(' ',#845,#846);
#848=PLANAR_BOX(' ',0.5,0.21885,#847);
#849=(ANNOTATION_OCCURRENCE(
  ANNOTATION_TEXT_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      REPRESENTATION_ITEM('dimension value')
      GEOMETRIC_REPRESENTATION_ITEM(
        STYLED_ITEM((#480),#844));

/*****
* Instances #850-#855 define the dimension plus minus symbol that is *
* part of the dimension callout associated with the bottom edge *
* dimension depicted within the view.                                  *
*****/

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```

*****/
#850=CARTESIAN_POINT('',(2.978797836195,1.323766094421));
#851=DIRECTION('',(1.,0.));
#852=AXIS2_PLACEMENT_2D('','#850,#851);
#853=SYMBOL_TARGET('','#852,1.,1.);
#854=DEFINED_SYMBOL('','#490,#853);
#855=(ANNOTATION_OCCURRENCE(
    ANNOTATION_SYMBOL_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#435),#854));

/*****
* Instances #856-#880 define the tolerance value text string, which      *
* has a blanking box surrounding it, that is part of the                  *
* dimension_callout associated with the bottom edge dimension depicted    *
* within the view.                                                        *
*****/
#856=CARTESIAN_POINT('',(3.229799502861,1.292466094421));
#857=DIRECTION('',(1.,0.));
#858=AXIS2_PLACEMENT_2D('','#856,#857);
#859=PLANAR_BOX('',0.5,0.21885,#858);
#860=CARTESIAN_POINT('',(3.261089502861,1.323766094421));
#861=DIRECTION('',(1.,0.));
#862=AXIS2_PLACEMENT_2D('','#860,#861);
#863=TEXT_LITERAL_WITH_BLANKING_BOX('',''.02',#862,'baseline
left',.RIGHT.,#450,#859);
#880=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('tolerance value')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#480),#863));

/*****
* Instance #885 defines the callout for the                               *
* bottom edge dimension depicted within the view. This callout has as    *
* its elements the previously defined dimension value text string        *
* (#849), the dimension plus minus symbol (#855), and the tolerance     *
* value text string (#880).                                              *
*****/
#885=DRAUGHTING_CALLOUT('',( #849,#855,#880));

/*****
* Instance #890 defines the primary callout relationship between the      *
* previously defined linear_dimension (#840) and                          *
* the callout (#885) for the bottom edge dimension                        *
* depicted within the view.                                              *
*****/
#890=DIMENSION_CALLOUT_RELATIONSHIP('primary','',#840,#885);

/*****

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```

* Instances #1103-#1108 define the dimension curve associated with the *
* top right corner dimension depicted within the view. *
*****/

#1103=DIRECTION('',(0.,1.));
#1104=VECTOR('',#1103,0.5);
#1105=CARTESIAN_POINT('',(4.263866413585,3.915571351931));
#1106=LINE('',#1105,#1104);
#1107=TRIMMED_CURVE('',#1106,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1108=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DIMENSION_CURVE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430),#1107));

/*****
* Instances #1109-#1115 and #1120-#1125 define the dimension curve *
* terminators (first one assigned as the origin of the dimension curve *
* and the second assigned as its target) associated with the top right *
* corner dimension depicted within the view. *
*****/

#1109=CARTESIAN_POINT('',(4.263866413585,3.915571351931));
#1110=DIRECTION('',(1.,0.));
#1111=AXIS2_PLACEMENT_2D('',#1109,#1110);
#1112=SYMBOL_TARGET('',#1111,7.5,2.5);
#1113=DEFINED_SYMBOL('',#440,#1112);
#1115=(ANNOTATION_OCCURRENCE()
      ANNOTATION_SYMBOL_OCCURRENCE()
      DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#435),#1113)
      TERMINATOR_SYMBOL(#1108));
#1120=CARTESIAN_POINT('',(4.263866413585,3.415571351931));
#1121=DIRECTION('',(1.,0.));
#1122=AXIS2_PLACEMENT_2D('',#1120,#1121);
#1123=SYMBOL_TARGET('',#1122,7.5,2.5);
#1124=DEFINED_SYMBOL('',#440,#1123);
#1125=(ANNOTATION_OCCURRENCE()
      ANNOTATION_SYMBOL_OCCURRENCE()
      DIMENSION_CURVE_TERMINATOR(.TARGET.)
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#435),#1124)
      TERMINATOR_SYMBOL(#1108));

/*****
* Instances #1126-#1131 and #1132-#1137 define the projection curves *
* associated with the top right corner dimension depicted within the *
* view. *
*****/

```

```

#1126=DIRECTION('',(1.,0.));
#1127=VECTOR('','#1126,1.);
#1128=CARTESIAN_POINT('',(3.467609978541,3.915571351931));
#1129=LINE('','#1128,#1127);
#1130=TRIMMED_CURVE('','#1129,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1131=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      PROJECTION_CURVE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430),#1130));
#1132=DIRECTION('',(1.,0.));
#1133=VECTOR('','#1132,0.5);
#1134=CARTESIAN_POINT('',(3.967609978541,3.415571351931));
#1135=LINE('','#1134,#1133);
#1136=TRIMMED_CURVE('','#1135,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1137=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      PROJECTION_CURVE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430),#1136));

/*****
 * Instances #1140-#1159 define the leader curve, a composite curve      *
 * made up of two segments, associated with the top right corner        *
 * dimension depicted within the view.                                  *
 *****/

#1140=DIRECTION('',(0.,-1.));
#1141=VECTOR('','#1140,0.3);
#1142=CARTESIAN_POINT('',(4.263866413585,3.415571351931));
#1143=LINE('','#1142,#1141);
#1144=TRIMMED_CURVE('','#1143,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1145=COMPOSITE_CURVE_SEGMENT(.CONTINUOUS.,.F.,#1144);
#1146=DIRECTION('',(1.,0.));
#1147=VECTOR('','#1146,0.3);
#1148=CARTESIAN_POINT('',(4.263866413585,3.115571351931));
#1149=LINE('','#1148,#1147);
#1150=TRIMMED_CURVE('','#1149,(PARAMETER_VALUE(0.)),(PARAMETER_VALUE(1.)),.T.,.
UNSPECIFIED.);
#1151=COMPOSITE_CURVE_SEGMENT(.CONTINUOUS.,.F.,#1150);
#1155=COMPOSITE_CURVE('',(1145,#1151),.F.);
#1159=(ANNOTATION_CURVE_OCCURRENCE()
      ANNOTATION_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      LEADER_CURVE()
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#430),#1155));

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```

/*****
* Instance #1170 defines the combination of a leader directed
* and linear dimension for the top right corner dimension depicted
* within the view. This dimension has as its elements the previously
* defined dimension_curve (#1108), both of its associated
* dimension_curve_terminators (#1115 and #1125), both projection
* curves (#1131 and #1137), and the leader curve (1159).
*****/

#1170=(DRAUGHTING_CALLOUT((#1108,#1115,#1125,#1131,#1137,#1159,#1180))
      DRAUGHTING_ELEMENTS()
      GEOMETRIC_REPRESENTATION_ITEM()
      LEADER_DIRECTED_CALLOUT()
      LEADER_DIRECTED_DIMENSION()
      LINEAR_DIMENSION()
      DIMENSION_CURVE_DIRECTED_CALLOUT()
      REPRESENTATION_ITEM(' '));

/*****
* Instances #1176-#1180 define the dimension value text string that
* makes up the dimension_callout associated with the top right corner
* dimension depicted within the view. This text string is explicitly
* associated with the value of a geometric location dimension (#1300,
* by way of #1305).
*****/

#1176=CARTESIAN_POINT('',(4.138866413585,3.587446351931));
#1177=DIRECTION('',(1.,0.));
#1178=AXIS2_PLACEMENT_2D('',#1176,#1177);
#1179=TEXT_LITERAL('','2.0',#1178,'baseline left',.RIGHT.,#450);
#1180=(ANNOTATION_OCCURRENCE()
      ANNOTATION_TEXT_OCCURRENCE()
      DRAUGHTING_ANNOTATION_OCCURRENCE()
      REPRESENTATION_ITEM('dimension value')
      GEOMETRIC_REPRESENTATION_ITEM()
      STYLED_ITEM((#480),#1179));

/*****
* Instance #1185 defines the callout for the
* top right corner dimension depicted within the view. This callout
* has as its elements only the previously defined dimension value text
* string (#1180).
*****/

#1185=DRAUGHTING_CALLOUT('',(#1180));

/*****
* Instance #1190 defines the primary callout relationship between the
* previously defined leader_directed_dimension (#1170) and
* callout (#1185) for the top right corner
* dimension depicted within the view.
*****/

#1190=DIMENSION_CALLOUT_RELATIONSHIP('primary','',#1170,#1185);

/*****
* Instances #1524-#1532 define draughting_model to be projected onto

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```
* the view. This model contains as its items an origin, a mapped_item *
* (which has as its representation the advanced brep model defined at *
* the beginning of this file), and a styled_item (whose associated *
* curve_style provides the appearance characteristics for the advanced *
* brep model). *
*****/

#1524=DIRECTION('',(0.,0.,1.));
#1525=CARTESIAN_POINT('',(0.,0.,0.));
#1526=DIRECTION('',(0.,0.,1.));
#1527=DIRECTION('',(1.,0.,0.));
#1528=AXIS2_PLACEMENT_3D('','#1525,#1526,#1527);
#1529=REPRESENTATION_MAP(#1528,#274);
#1530=MAPPED_ITEM('','#1529,#1528);
#1531=STYLED_ITEM('',(430),#1530);
#1532=DRAUGHTING_MODEL('DRAUGHTING_MODEL_1',(#1543,#1531,#1530,#1528),#20);

#1533=CARTESIAN_POINT('',(0.E0,0.E0,1.E2));

/*****
 * Instances #1534-#1537 define the area of the draughting_model (its *
 * view window) to be projected onto the view. *
*****/

#1534=CARTESIAN_POINT('',(-1.5,-1.5,0.));
#1535=DIRECTION('',(1.,0.,0.));
#1536=AXIS2_PLACEMENT_3D('','#1534,#1524,#1535);
#1537=PLANAR_BOX('',3.,3.,#1536);

/*****
 * Instance #1538 defines the view projection parameters. *
*****/

#1538=VIEW_VOLUME(.PARALLEL.,#1533,0.,10.,.T.,10.,.F.,.T.,#1537);

/*****
 * Instances #1539-#1542 define the view reference coordinate system. *
*****/

#1539=CARTESIAN_POINT('',(1.,0.,1.));
#1540=DIRECTION('',(0.,-1.,0.));
#1541=DIRECTION('',(1.,0.,0.));
#1542=AXIS2_PLACEMENT_3D('','#1539,#1540,#1541);

/*****
 * Instances #1543-#1544 link the view reference coordinate system and *
 * the view projection parameters. This link also includes the *
 * indication that hidden line removal will be performed within the *
 * projection. *
*****/

#1543=CAMERA_MODEL_D3_WITH_HLHSR('','#1542,#1538,.T.);
#1544=CAMERA_USAGE(#1543,#1532);

/*****
 * Instances #1545-#1548 define the projection area for the view. *
*****/
```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```
#1545=CARTESIAN_POINT('',(0.,0.));
#1546=DIRECTION('',(1.,0.));
#1547=AXIS2_PLACEMENT_2D('',#1545,#1546);
#1548=PLANAR_BOX('',5.,5.,#1547);

/*****
 * Instances #1550-#1552 define the presentation view, which has as its *
 * only elements the results of the view projection and the view origin.*
 *****/

#1550=(GEOMETRIC_REPRESENTATION_CONTEXT(2)
      GLOBAL_UNIT_ASSIGNED_CONTEXT((#13,#17))
      REPRESENTATION_CONTEXT('2D coordinate system context','2D'));
#1551=(CAMERA_IMAGE_3D_WITH_SCALE()
      CAMERA_IMAGE()
      MAPPED_ITEM(#1544,#1548)
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM());
#1552=PRESENTATION_VIEW('Front
view',(#540,#585,#840,#885,#1170,#1185,#1547,#1551),#1550);

/*****
 * Instances #1555-#1557 define the target location (0,0) on the sheet *
 * for the placement of the view. *
 *****/

#1555=CARTESIAN_POINT('',(0.0,0.0));
#1556=DIRECTION('',(1.0,0.0));
#1557=AXIS2_PLACEMENT_2D('',#1555,#1556);

/*****
 * Instances #1610-#1620 map the view onto the sheet, with the mapping *
 * origin defined as (0,0) within the view being mapped onto (0,0) *
 * within the sheet coordinate system. *
 *****/

#1610=REPRESENTATION_MAP(#1547,#1552);
#1620=MAPPED_ITEM('',#1610,#1557);

/*****
 * Instance #1630 defines the drawing sheet that contains the view. *
 *****/

#1630=DRAWING_SHEET_REVISION('Sheet 1',(#1557,#1620,#1634),#1550,'-');

/*****
 * Instances #1631-#1635 define the sheet size for the drawing sheet. *
 *****/

#1631=CARTESIAN_POINT('',(0.0,0.0));
#1632=DIRECTION('',(1.0,0.0));
#1633=AXIS2_PLACEMENT_2D('',#1631,#1632);
#1634=PLANAR_BOX('',10.0,10.0,#1633);
#1635=PRESENTATION_SIZE(#1630,#1634);

/*****
 * Instances #1637-#1660 define the drawing revision, its title, its *
 *****/
```

```
* association to the product definition it presents (#286), and the      *
* link between the drawing revision and the sheet previously defined.    *
*****/
```

```
#1637=DRAWING_DEFINITION('Drawing of product_0',$);
#1640=DRAWING_REVISION('A',#1637,$);
#1645=DRAUGHTING_TITLE((#1640),'English','Associative dimension test part');
#1647=APPLIED_PRESENTED_ITEM((#286));
#1650=PRESENTED_ITEM_REPRESENTATION(#1640,#1647);
#1660=DRAWING_SHEET_REVISION_USAGE(#1630,#1640,'1');
ENDSEC;
END-ISO-10303-21;
```

4.2.2 Non-associative dimensions example conforming to AP203 with a modular extension

```
ISO-10303-21;
HEADER;
FILE_DESCRIPTION(('non-associative dimensions example',''),'1');
FILE_NAME('non_assoc_dim.stp',
'1999-02-26 T12:00:00',
('Linas Polikaitis','Rogerio Barra','Mark Lobo','Markus Hauser'),
('',''),
'',
'',
'');
FILE_SCHEMA(('assoc_dim203'));
ENDSEC;
DATA;

/*****
* Instances #10-#274 define the model. These include                      *
* the definition of the default units for the context of the            *
* representation (#10-#19), the context itself (#20), all of the        *
* geometrical and topological entity instances that define the model    *
* (#25-273), and finally the advanced_brep_shape_representation (#274). *
*****/

#10=(LENGTH_UNIT()NAMED_UNIT(*)SI_UNIT(.MILLI.,.METRE.));
#11=LENGTH_MEASURE_WITH_UNIT(LENGTH_MEASURE(25.4),#10);
#12=DIMENSIONAL_EXPONENTS(1.0,0.0,0.0,0.0,0.0,0.0,0.0);
#13=(CONVERSION_BASED_UNIT('INCH',#11)LENGTH_UNIT()NAMED_UNIT(#12));
#14=(NAMED_UNIT(*)PLANE_ANGLE_UNIT()SI_UNIT($,.RADIAN.));
#15=PLANE_ANGLE_MEASURE_WITH_UNIT(PLANE_ANGLE_MEASURE(0.0174532925),#14);
#16=DIMENSIONAL_EXPONENTS(0.0,0.0,0.0,0.0,0.0,0.0,0.0);
#17=(CONVERSION_BASED_UNIT('DEGREE',#15)NAMED_UNIT(#16)PLANE_ANGLE_UNIT());
#18=(NAMED_UNIT(*)SI_UNIT($,.STERADIAN.)SOLID_ANGLE_UNIT());
#19=UNCERTAINTY_MEASURE_WITH_UNIT(
    LENGTH_MEASURE(7.8740157480315E-07),#13,
    'DISTANCE_ACCURACY_VALUE','Maximum Tolerance applied to model');
#20=(GEOMETRIC_REPRESENTATION_CONTEXT(3)
    GLOBAL_UNCERTAINTY_ASSIGNED_CONTEXT((#19))
    GLOBAL_UNIT_ASSIGNED_CONTEXT((#13,#17,#18))
    REPRESENTATION_CONTEXT('3D coordinate system context','3D'));
#25=CARTESIAN_POINT('',(1.0,0.0,2.0));
#26=DIRECTION('',(-1.0,0.0,0.0));
#27=VECTOR('',#26,1.0);
```

```

#28=LINE(' ',#25,#27);
#29=EDGE_CURVE(' ',#31,#33,#28,.T.);
#30=CARTESIAN_POINT(' ',(1.5,0.0,2.0));
#31=VERTEX_POINT(' ',#30);
#32=CARTESIAN_POINT(' ',(0.0,0.0,2.0));
#33=VERTEX_POINT(' ',#32);
#34=ORIENTED_EDGE(' ',*,*,#29,.F.);
#35=CARTESIAN_POINT(' ',(1.5,0.8,2.0));
#36=DIRECTION(' ',(0.0,1.0,0.0));
#37=VECTOR(' ',#36,1.0);
#38=LINE(' ',#35,#37);
#39=EDGE_CURVE(' ',#31,#41,#38,.T.);
#40=CARTESIAN_POINT(' ',(1.5,1.6,2.0));
#41=VERTEX_POINT(' ',#40);
#42=ORIENTED_EDGE(' ',*,*,#39,.T.);
#43=CARTESIAN_POINT(' ',(1.0,1.6,2.0));
#44=DIRECTION(' ',(1.0,0.0,0.0));
#45=VECTOR(' ',#44,1.0);
#46=LINE(' ',#43,#45);
#47=EDGE_CURVE(' ',#49,#41,#46,.T.);
#48=CARTESIAN_POINT(' ',(0.0,1.6,2.0));
#49=VERTEX_POINT(' ',#48);
#50=ORIENTED_EDGE(' ',*,*,#47,.F.);
#51=CARTESIAN_POINT(' ',(0.0,0.8,2.0));
#52=DIRECTION(' ',(0.0,1.0,0.0));
#53=VECTOR(' ',#52,1.0);
#54=LINE(' ',#51,#53);
#55=EDGE_CURVE(' ',#33,#49,#54,.T.);
#56=ORIENTED_EDGE(' ',*,*,#55,.F.);
#57=EDGE_LOOP(' ',(#34,#42,#50,#56));
#58=FACE_BOUND(' ',#57,.T.);
#59=CARTESIAN_POINT(' ',(1.0,0.8,2.0));
#60=DIRECTION(' ',(0.0,0.0,1.0));
#61=DIRECTION(' ',(1.0,0.0,0.0));
#62=AXIS2_PLACEMENT_3D(' ',#59,#60,#61);
#63=PLANE(' ',#62);
#64=ADVANCED_FACE(' ',(#58),#63,.T.);
#65=CARTESIAN_POINT(' ',(2.0,0.0,0.0));
#66=DIRECTION(' ',(0.0,0.0,1.0));
#67=VECTOR(' ',#66,1.0);
#68=LINE(' ',#65,#67);
#69=EDGE_CURVE(' ',#71,#73,#68,.T.);
#70=CARTESIAN_POINT(' ',(2.0,0.0,0.0));
#71=VERTEX_POINT(' ',#70);
#72=CARTESIAN_POINT(' ',(2.0,0.0,1.5));
#73=VERTEX_POINT(' ',#72);
#74=ORIENTED_EDGE(' ',*,*,#69,.T.);
#75=CARTESIAN_POINT(' ',(2.25,0.0,1.25));
#76=DIRECTION(' ',(-0.707106781186548,0.,0.707106781186548));
#77=VECTOR(' ',#76,1.0);
#78=LINE(' ',#75,#77);
#79=EDGE_CURVE(' ',#73,#31,#78,.T.);
#80=ORIENTED_EDGE(' ',*,*,#79,.T.);
#81=ORIENTED_EDGE(' ',*,*,#29,.T.);
#82=CARTESIAN_POINT(' ',(0.0,0.0,0.0));
#83=DIRECTION(' ',(0.0,0.0,1.0));
#84=VECTOR(' ',#83,1.0);

```

```
#85=LINE(' ', #82, #84);
#86=EDGE_CURVE(' ', #88, #33, #85, .T.);
#87=CARTESIAN_POINT(' ', (0.0, 0.0, 0.0));
#88=VERTEX_POINT(' ', #87);
#89=ORIENTED_EDGE(' ', *, *, #86, .F.);
#90=CARTESIAN_POINT(' ', (1.0, 0.0, 0.0));
#91=DIRECTION(' ', (1.0, 0.0, 0.0));
#92=VECTOR(' ', #91, 1.0);
#93=LINE(' ', #90, #92);
#94=EDGE_CURVE(' ', #88, #71, #93, .T.);
#95=ORIENTED_EDGE(' ', *, *, #94, .T.);
#96=EDGE_LOOP(' ', (#74, #80, #81, #89, #95));
#97=FACE_BOUND(' ', #96, .T.);
#98=CARTESIAN_POINT(' ', (1.0, 0.0, 0.0));
#99=DIRECTION(' ', (0.0, -1.0, 0.0));
#100=DIRECTION(' ', (0.0, 0.0, -1.0));
#101=AXIS2_PLACEMENT_3D(' ', #98, #99, #100);
#102=PLANE(' ', #101);
#103=ADVANCED_FACE(' ', (#97), #102, .T.);
#104=CARTESIAN_POINT(' ', (0.0, 1.4125, 0.375));
#105=DIRECTION(' ', (0.0, 1.0, 0.0));
#106=VECTOR(' ', #105, 1.0);
#107=LINE(' ', #104, #106);
#108=EDGE_CURVE(' ', #110, #112, #107, .T.);
#109=CARTESIAN_POINT(' ', (0.0, 1.225, 0.375));
#110=VERTEX_POINT(' ', #109);
#111=CARTESIAN_POINT(' ', (0.0, 1.6, 0.375));
#112=VERTEX_POINT(' ', #111);
#113=ORIENTED_EDGE(' ', *, *, #108, .F.);
#114=CARTESIAN_POINT(' ', (0.0, 1.225, 0.0));
#115=DIRECTION(' ', (0.0, 0.0, 1.0));
#116=VECTOR(' ', #115, 1.0);
#117=LINE(' ', #114, #116);
#118=EDGE_CURVE(' ', #120, #110, #117, .T.);
#119=CARTESIAN_POINT(' ', (0.0, 1.225, 0.0));
#120=VERTEX_POINT(' ', #119);
#121=ORIENTED_EDGE(' ', *, *, #118, .F.);
#122=CARTESIAN_POINT(' ', (0.0, 0.8, 0.0));
#123=DIRECTION(' ', (0.0, -1.0, 0.0));
#124=VECTOR(' ', #123, 1.0);
#125=LINE(' ', #122, #124);
#126=EDGE_CURVE(' ', #120, #88, #125, .T.);
#127=ORIENTED_EDGE(' ', *, *, #126, .T.);
#128=ORIENTED_EDGE(' ', *, *, #86, .T.);
#129=ORIENTED_EDGE(' ', *, *, #55, .T.);
#130=CARTESIAN_POINT(' ', (0.0, 1.6, 0.0));
#131=DIRECTION(' ', (0.0, 0.0, 1.0));
#132=VECTOR(' ', #131, 1.0);
#133=LINE(' ', #130, #132);
#134=EDGE_CURVE(' ', #112, #49, #133, .T.);
#135=ORIENTED_EDGE(' ', *, *, #134, .F.);
#136=EDGE_LOOP(' ', (#113, #121, #127, #128, #129, #135));
#137=FACE_BOUND(' ', #136, .T.);
#138=CARTESIAN_POINT(' ', (0.0, 0.8, 0.0));
#139=DIRECTION(' ', (-1.0, 0.0, 0.0));
#140=DIRECTION(' ', (0.0, 0.0, 1.0));
#141=AXIS2_PLACEMENT_3D(' ', #138, #139, #140);
```

```
#142=PLANE(' ',#141);
#143=ADVANCED_FACE(' ',(#137),#142,.T.);
#144=CARTESIAN_POINT(' ',(1.5,1.6,0.375));
#145=DIRECTION(' ',(1.0,0.0,0.0));
#146=VECTOR(' ',#145,1.0);
#147=LINE(' ',#144,#146);
#148=EDGE_CURVE(' ',#112,#150,#147,.T.);
#149=CARTESIAN_POINT(' ',(2.0,1.6,0.375));
#150=VERTEX_POINT(' ',#149);
#151=ORIENTED_EDGE(' ',*,*,#148,.F.);
#152=ORIENTED_EDGE(' ',*,*,#134,.T.);
#153=ORIENTED_EDGE(' ',*,*,#47,.T.);
#154=CARTESIAN_POINT(' ',(2.25,1.6,1.25));
#155=DIRECTION(' ',(0.707106781186548,0.0,-0.707106781186548));
#156=VECTOR(' ',#155,1.0);
#157=LINE(' ',#154,#156);
#158=EDGE_CURVE(' ',#41,#160,#157,.T.);
#159=CARTESIAN_POINT(' ',(2.0,1.6,1.5));
#160=VERTEX_POINT(' ',#159);
#161=ORIENTED_EDGE(' ',*,*,#158,.T.);
#162=CARTESIAN_POINT(' ',(2.0,1.6,0.0));
#163=DIRECTION(' ',(0.0,0.0,1.0));
#164=VECTOR(' ',#163,1.0);
#165=LINE(' ',#162,#164);
#166=EDGE_CURVE(' ',#150,#160,#165,.T.);
#167=ORIENTED_EDGE(' ',*,*,#166,.F.);
#168=EDGE_LOOP(' ',(#151,#152,#153,#161,#167));
#169=FACE_BOUND(' ',#168,.T.);
#170=CARTESIAN_POINT(' ',(1.0,1.6,0.0));
#171=DIRECTION(' ',(0.0,1.0,0.0));
#172=DIRECTION(' ',(0.0,0.0,1.0));
#173=AXIS2_PLACEMENT_3D(' ',#170,#171,#172);
#174=PLANE(' ',#173);
#175=ADVANCED_FACE(' ',(#169),#174,.T.);
#176=CARTESIAN_POINT(' ',(1.5,1.225,0.0));
#177=DIRECTION(' ',(1.0,0.0,0.0));
#178=VECTOR(' ',#177,1.0);
#179=LINE(' ',#176,#178);
#180=EDGE_CURVE(' ',#120,#182,#179,.T.);
#181=CARTESIAN_POINT(' ',(2.0,1.225,0.0));
#182=VERTEX_POINT(' ',#181);
#183=ORIENTED_EDGE(' ',*,*,#180,.T.);
#184=CARTESIAN_POINT(' ',(2.0,0.8,0.0));
#185=DIRECTION(' ',(0.0,1.0,0.0));
#186=VECTOR(' ',#185,1.0);
#187=LINE(' ',#184,#186);
#188=EDGE_CURVE(' ',#71,#182,#187,.T.);
#189=ORIENTED_EDGE(' ',*,*,#188,.F.);
#190=ORIENTED_EDGE(' ',*,*,#94,.F.);
#191=ORIENTED_EDGE(' ',*,*,#126,.F.);
#192=EDGE_LOOP(' ',(#183,#189,#190,#191));
#193=FACE_BOUND(' ',#192,.T.);
#194=CARTESIAN_POINT(' ',(1.0,0.8,0.0));
#195=DIRECTION(' ',(0.0,0.0,-1.0));
#196=DIRECTION(' ',(-1.0,0.0,0.0));
#197=AXIS2_PLACEMENT_3D(' ',#194,#195,#196);
#198=PLANE(' ',#197);
```

```
#199=ADVANCED_FACE(' ', (#193), #198, .T.);
#200=CARTESIAN_POINT(' ', (2.0, 0.8, 0.375));
#201=DIRECTION(' ', (0.0, -1.0, 0.0));
#202=VECTOR(' ', #201, 1.0);
#203=LINE(' ', #200, #202);
#204=EDGE_CURVE(' ', #150, #206, #203, .T.);
#205=CARTESIAN_POINT(' ', (2.0, 1.225, 0.375));
#206=VERTEX_POINT(' ', #205);
#207=ORIENTED_EDGE(' ', *, *, #204, .F.);
#208=ORIENTED_EDGE(' ', *, *, #166, .T.);
#209=CARTESIAN_POINT(' ', (2.0, 0.8, 1.5));
#210=DIRECTION(' ', (0.0, -1.0, 0.0));
#211=VECTOR(' ', #210, 1.0);
#212=LINE(' ', #209, #211);
#213=EDGE_CURVE(' ', #160, #73, #212, .T.);
#214=ORIENTED_EDGE(' ', *, *, #213, .T.);
#215=ORIENTED_EDGE(' ', *, *, #69, .F.);
#216=ORIENTED_EDGE(' ', *, *, #188, .T.);
#217=CARTESIAN_POINT(' ', (2.0, 1.0225, 0.0));
#218=DIRECTION(' ', (0.0, 0.0, -1.0));
#219=VECTOR(' ', #218, 1.0);
#220=LINE(' ', #217, #219);
#221=EDGE_CURVE(' ', #206, #182, #220, .T.);
#222=ORIENTED_EDGE(' ', *, *, #221, .F.);
#223=EDGE_LOOP(' ', (#207, #208, #214, #215, #216, #222));
#224=FACE_BOUND(' ', #223, .T.);
#225=CARTESIAN_POINT(' ', (2.0, 0.8, 0.0));
#226=DIRECTION(' ', (1.0, 0.0, 0.0));
#227=DIRECTION(' ', (0.0, 0.0, -1.0));
#228=AXIS2_PLACEMENT_3D(' ', #225, #226, #227);
#229=PLANE(' ', #228);
#230=ADVANCED_FACE(' ', (#224), #229, .T.);
#231=ORIENTED_EDGE(' ', *, *, #158, .F.);
#232=ORIENTED_EDGE(' ', *, *, #39, .F.);
#233=ORIENTED_EDGE(' ', *, *, #79, .F.);
#234=ORIENTED_EDGE(' ', *, *, #213, .F.);
#235=EDGE_LOOP(' ', (#231, #232, #233, #234));
#236=FACE_BOUND(' ', #235, .T.);
#237=CARTESIAN_POINT(' ', (2.0, 0.8, 1.5));
#238=DIRECTION(' ', (-0.707106781186547, 0.0, -0.707106781186547));
#239=DIRECTION(' ', (-0.707106781186548, 0.0, 0.707106781186548));
#240=AXIS2_PLACEMENT_3D(' ', #237, #238, #239);
#241=PLANE(' ', #240);
#242=ADVANCED_FACE(' ', (#236), #241, .F.);
#243=ORIENTED_EDGE(' ', *, *, #204, .T.);
#244=CARTESIAN_POINT(' ', (1.5, 1.225, 0.375));
#245=DIRECTION(' ', (-1.0, 0.0, 0.0));
#246=VECTOR(' ', #245, 1.0);
#247=LINE(' ', #244, #246);
#248=EDGE_CURVE(' ', #206, #110, #247, .T.);
#249=ORIENTED_EDGE(' ', *, *, #248, .T.);
#250=ORIENTED_EDGE(' ', *, *, #108, .T.);
#251=ORIENTED_EDGE(' ', *, *, #148, .T.);
#252=EDGE_LOOP(' ', (#243, #249, #250, #251));
#253=FACE_BOUND(' ', #252, .T.);
#254=CARTESIAN_POINT(' ', (1.5, 1.4125, 0.375));
#255=DIRECTION(' ', (0.0, 0.0, 1.0));
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#256=DIRECTION(' ',(1.0,0.0,0.0));
#257=AXIS2_PLACEMENT_3D(' ',#254,#255,#256);
#258=PLANE(' ',#257);
#259=ADVANCED_FACE(' ',(#253),#258,.F.);
#260=ORIENTED_EDGE(' ',*,*,#221,.T.);
#261=ORIENTED_EDGE(' ',*,*,#180,.F.);
#262=ORIENTED_EDGE(' ',*,*,#118,.T.);
#263=ORIENTED_EDGE(' ',*,*,#248,.F.);
#264=EDGE_LOOP(' ',(#260,#261,#262,#263));
#265=FACE_BOUND(' ',#264,.T.);
#266=CARTESIAN_POINT(' ',(1.5,1.225,0.0));
#267=DIRECTION(' ',(0.0,-1.0,0.0));
#268=DIRECTION(' ',(0.0,0.0,-1.0));
#269=AXIS2_PLACEMENT_3D(' ',#266,#267,#268);
#270=PLANE(' ',#269);
#271=ADVANCED_FACE(' ',(#265),#270,.F.);
#272=CLOSED_SHELL(' ',(#64,#103,#143,#175,#199,#230,#242,#259,#271));
#273=MANIFOLD_SOLID_BREP(' ',#272);
#274=ADVANCED_BREP_SHAPE_REPRESENTATION(' ',(#273),#20);

/*****
 * Instances #275-#288 define the product that the model defined      *
 * above represents, as well as the contexts for the application,     *
 * the product, and its definition. Lastly it provides the link      *
 * to the advanced_brep_shape_representation/#274.                    *
 *****/

#275=APPLICATION_CONTEXT('3d associative dimension');
#276=APPLICATION_PROTOCOL_DEFINITION('Working
Draft','associative_dimension',1999,#275);
#277=MECHANICAL_CONTEXT(' ',#275,'mechanical');
#281=PRODUCT('product_0',' ',',',(#277));
#282=PRODUCT_RELATED_PRODUCT_CATEGORY('detail',' ',(#281));
#284=PRODUCT_DEFINITION_FORMATION_WITH_SPECIFIED_SOURCE(' ',',',#281,.MADE.);
#285=DESIGN_CONTEXT(' ',#275,'design');
#286=PRODUCT_DEFINITION(' ',',',#284,#285);
#287=PRODUCT_DEFINITION_SHAPE(' ',',',#286);
#288=SHAPE_DEFINITION_REPRESENTATION(#287,#274);

/*****
 * Instances #289-#356 define administrative information that are      *
 * included to avoid violating AP203 global rules.                    *
 *****/

#289=PERSON('UNSPECIFIED','UNSPECIFIED',$,$,$,$);
#290=ORGANIZATION('UNSPECIFIED','UNSPECIFIED','UNSPECIFIED');
#291=PERSON_AND_ORGANIZATION(#289,#290);
#292=PERSON_AND_ORGANIZATION_ROLE('creator');
#293=CC_DESIGN_PERSON_AND_ORGANIZATION_ASSIGNMENT(#291,#292,(#286,#284));
#294=ORGANIZATION('UNSPECIFIED','UNSPECIFIED','UNSPECIFIED');
#295=PERSON_AND_ORGANIZATION(#289,#294);
#296=PERSON_AND_ORGANIZATION_ROLE('design_owner');
#297=CC_DESIGN_PERSON_AND_ORGANIZATION_ASSIGNMENT(#295,#296,(#281));
#298=ORGANIZATION('UNSPECIFIED','UNSPECIFIED','UNSPECIFIED');
#299=PERSON_AND_ORGANIZATION(#289,#298);
#300=PERSON_AND_ORGANIZATION_ROLE('design_supplier');

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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#301=CC_DESIGN_PERSON_AND_ORGANIZATION_ASSIGNMENT(#299,#300,(#284));
#302=CALENDAR_DATE(1999,19,2);
#303=COORDINATED_UNIVERSAL_TIME_OFFSET(0,0,.BEHIND.);
#304=LOCAL_TIME(0,0,0.0,#303);
#305=DATE_AND_TIME(#302,#304);
#306=DATE_TIME_ROLE('creation_date');
#307=CC_DESIGN_DATE_AND_TIME_ASSIGNMENT(#305,#306,(#286));
#308=SECURITY_CLASSIFICATION_LEVEL('confidential');
#309=SECURITY_CLASSIFICATION(' ',' ',#308);
#310=CC_DESIGN_SECURITY_CLASSIFICATION(#309,(#284));
#311=ORGANIZATION('UNSPECIFIED','UNSPECIFIED','UNSPECIFIED');
#312=PERSON_AND_ORGANIZATION(#289,#311);
#313=PERSON_AND_ORGANIZATION_ROLE('classification_officer');
#314=CC_DESIGN_PERSON_AND_ORGANIZATION_ASSIGNMENT(#312,#313,(#309));
#315=CALENDAR_DATE(1999,19,2);
#316=COORDINATED_UNIVERSAL_TIME_OFFSET(0,0,.BEHIND.);
#317=LOCAL_TIME(0,0,0.0,#316);
#318=DATE_AND_TIME(#315,#317);
#319=DATE_TIME_ROLE('classification_date');
#320=CC_DESIGN_DATE_AND_TIME_ASSIGNMENT(#318,#319,(#309));
#321=ORGANIZATION('UNSPECIFIED','UNSPECIFIED','UNSPECIFIED');
#322=PERSON_AND_ORGANIZATION(#289,#321);
#323=APPROVAL_STATUS('not_yet_approved');
#324=APPROVAL(#323,' ');
#325=CALENDAR_DATE(1999,19,2);
#326=COORDINATED_UNIVERSAL_TIME_OFFSET(0,0,.BEHIND.);
#327=LOCAL_TIME(0,0,0.0,#326);
#328=DATE_AND_TIME(#325,#327);
#329=APPROVAL_DATE_TIME(#328,#324);
#330=APPROVAL_ROLE('APPROVER');
#331=APPROVAL_PERSON_ORGANIZATION(#322,#324,#330);
#332=CC_DESIGN_APPROVAL(#324,(#286));
#333=ORGANIZATION('UNSPECIFIED','UNSPECIFIED','UNSPECIFIED');
#334=PERSON_AND_ORGANIZATION(#289,#333);
#335=APPROVAL_STATUS('not_yet_approved');
#336=APPROVAL(#335,' ');
#337=CALENDAR_DATE(1999,19,2);
#338=COORDINATED_UNIVERSAL_TIME_OFFSET(0,0,.BEHIND.);
#339=LOCAL_TIME(0,0,0.0,#338);
#340=DATE_AND_TIME(#337,#339);
#341=APPROVAL_DATE_TIME(#340,#336);
#342=APPROVAL_ROLE('APPROVER');
#343=APPROVAL_PERSON_ORGANIZATION(#334,#336,#342);
#344=CC_DESIGN_APPROVAL(#336,(#284));
#345=ORGANIZATION('UNSPECIFIED','UNSPECIFIED','UNSPECIFIED');
#346=PERSON_AND_ORGANIZATION(#289,#345);
#347=APPROVAL_STATUS('not_yet_approved');
#348=APPROVAL(#347,' ');
#349=CALENDAR_DATE(1999,19,2);
#350=COORDINATED_UNIVERSAL_TIME_OFFSET(0,0,.BEHIND.);
#351=LOCAL_TIME(0,0,0.0,#350);
#352=DATE_AND_TIME(#349,#351);
#353=APPROVAL_DATE_TIME(#352,#348);
#354=APPROVAL_ROLE('APPROVER');
#355=APPROVAL_PERSON_ORGANIZATION(#346,#348,#354);
#356=CC_DESIGN_APPROVAL(#348,(#309));
```

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/*****
 * Instances #400-#490 define pre-defined common appearance      *
 * characteristics.                                             *
 *****/

#400=DRAUGHTING_PRE_DEFINED_CURVE_FONT('continuous');
#410=LENGTH_MEASURE_WITH_UNIT(POSITIVE_LENGTH_MEASURE(0.01),#13);
#420=DRAUGHTING_PRE_DEFINED_COLOUR('black');
#425=CURVE_STYLE('black-continuous',#400,#410,#420);
#430=PRESENTATION_STYLE_ASSIGNMENT((#425));
#433=SYMBOL_COLOUR(#420);
#434=SYMBOL_STYLE('black',#433);
#435=PRESENTATION_STYLE_ASSIGNMENT((#434));
#440=PRE_DEFINED_TERMINATOR_SYMBOL('filled arrow');
#450=DRAUGHTING_PRE_DEFINED_TEXT_FONT('ISO 3098-1 font A');
#460=TEXT_STYLE_FOR_DEFINED_FONT(#420);
#470=TEXT_STYLE_WITH_BOX_CHARACTERISTICS('',#460,
    (BOX_WIDTH(0.125),
    BOX_SLANT_ANGLE(0.0),
    BOX_ROTATE_ANGLE(0.0),
    BOX_HEIGHT(0.15625)));
#480=PRESENTATION_STYLE_ASSIGNMENT((#470));
#490=PRE_DEFINED_DIMENSION_SYMBOL('plus minus');

/*****
 * Instances #503-#508 define the dimension curve associated with the *
 * left edge dimension depicted within the view.                 *
 *****/

#503=DIRECTION('',(0.0,1.0));
#504=VECTOR('',#503,2.0);
#505=CARTESIAN_POINT('',(1.155177038627,1.915571351931));
#506=LINE('',#505,#504);
#507=TRIMMED_CURVE('',#506,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.,.
UNSPECIFIED.);
#508=(ANNOTATION_CURVE_OCCURRENCE(
    ANNOTATION_OCCURRENCE(
    DIMENSION_CURVE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
    REPRESENTATION_ITEM(')
    GEOMETRIC_REPRESENTATION_ITEM(
    STYLED_ITEM((#430),#507)));

/*****
 * Instances #509-#515 and #520-#525 define the dimension curve *
 * terminators (first one assigned as the origin of the dimension curve *
 * and the second assigned as its target) associated with the left edge *
 * dimension depicted within the view.                             *
 *****/

#509=CARTESIAN_POINT('',(1.155177038627,3.915571351931));
#510=DIRECTION('',(0.0,1.0));
#511=AXIS2_PLACEMENT_2D('',#509,#510);
#512=SYMBOL_TARGET('',#511,7.5,2.5);
#513=DEFINED_SYMBOL('',#440,#512);
#515=(ANNOTATION_OCCURRENCE(

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    ANNOTATION_SYMBOL_OCCURRENCE( )
    DIMENSION_CURVE_TERMINATOR( .ORIGIN. )
    DRAUGHTING_ANNOTATION_OCCURRENCE( )
    REPRESENTATION_ITEM( ' ' )
    GEOMETRIC_REPRESENTATION_ITEM( )
    STYLED_ITEM( (#435), #513 )
    TERMINATOR_SYMBOL( #508 ) ;
#520=CARTESIAN_POINT( ' ', (1.155177038627,1.915571351931) ) ;
#521=DIRECTION( ' ', (0.0, -1.0) ) ;
#522=AXIS2_PLACEMENT_2D( ' ', #520, #521 ) ;
#523=SYMBOL_TARGET( ' ', #522, 7.5, 2.5 ) ;
#524=DEFINED_SYMBOL( ' ', #440, #523 ) ;
#525=(ANNOTATION_OCCURRENCE( )
    ANNOTATION_SYMBOL_OCCURRENCE( )
    DIMENSION_CURVE_TERMINATOR( .TARGET. )
    DRAUGHTING_ANNOTATION_OCCURRENCE( )
    REPRESENTATION_ITEM( ' ' )
    GEOMETRIC_REPRESENTATION_ITEM( )
    STYLED_ITEM( (#435), #524 )
    TERMINATOR_SYMBOL( #508 ) ) ;

/*****
* Instances #526-#531 and #534-#539 define the projection curves      *
* associated with the left edge dimension depicted within the view.    *
*****/

#526=DIRECTION( ' ', (-1.0, 0.0) ) ;
#527=VECTOR( ' ', #526, 1.0 ) ;
#528=CARTESIAN_POINT( ' ', (1.967609978541, 3.915571351931) ) ;
#529=LINE( ' ', #528, #527 ) ;
#530=TRIMMED_CURVE( ' ', #529, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T., .
UNSPECIFIED. ) ;
#531=(ANNOTATION_CURVE_OCCURRENCE( )
    ANNOTATION_OCCURRENCE( )
    DRAUGHTING_ANNOTATION_OCCURRENCE( )
    PROJECTION_CURVE( )
    REPRESENTATION_ITEM( ' ' )
    GEOMETRIC_REPRESENTATION_ITEM( )
    STYLED_ITEM( (#430), #530 ) ) ;
#534=DIRECTION( ' ', (-1.0, 0.0) ) ;
#535=VECTOR( ' ', #534, 1.0 ) ;
#536=CARTESIAN_POINT( ' ', (1.967609978541, 1.915571351931) ) ;
#537=LINE( ' ', #536, #535 ) ;
#538=TRIMMED_CURVE( ' ', #537, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T., .
UNSPECIFIED. ) ;
#539=(ANNOTATION_CURVE_OCCURRENCE( )
    ANNOTATION_OCCURRENCE( )
    DRAUGHTING_ANNOTATION_OCCURRENCE( )
    PROJECTION_CURVE( )
    REPRESENTATION_ITEM( ' ' )
    GEOMETRIC_REPRESENTATION_ITEM( )
    STYLED_ITEM( (#430), #538 ) ) ;

/*****
* Instance #540 defines the linear dimension for the left edge      *
* dimension depicted within the view. This linear dimension has as its *
* elements the previously defined dimension_curve (#508), both of its *
*****/

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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* associated dimension_curve_terminators (#515 and #525), and both      *
* projection_curves (#531 and #539).                                     *
*****/

#540=(DIMENSION_CURVE_DIRECTED_CALLOUT(
    DRAUGHTING_CALLOUT((#508,#515,#525,#531,#539,#549,#580))
    DRAUGHTING_ELEMENTS(
    GEOMETRIC_REPRESENTATION_ITEM(
    LINEAR_DIMENSION(
    REPRESENTATION_ITEM(''));

/*****
* Instances #541-#549 define the dimension value text string, which      *
* has a blanking box surrounding it, that is part of the                 *
* dimension_callout associated with the left edge dimension depicted     *
* within the view. This text string is explicitly associated with the     *
* value of a geometric location dimension (#700, by way of #705).        *
*****/

#541=CARTESIAN_POINT('',(0.6551770386266,2.937030579399));
#542=DIRECTION('',(1.0,0.0));
#543=AXIS2_PLACEMENT_2D('','#541,#542);
#544=TEXT_LITERAL_WITH_BLANKING_BOX('','2.0',#543,'baseline
left',.RIGHT.,#450,#548);
#545=CARTESIAN_POINT('',(0.6238781252458,2.9057549763387));
#546=DIRECTION('',(1.0,0.0));
#547=AXIS2_PLACEMENT_2D('','#545,#546);
#548=PLANAR_BOX('',0.5,0.21885,#547);
#549=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
    REPRESENTATION_ITEM('dimension value')
    GEOMETRIC_REPRESENTATION_ITEM(
    STYLED_ITEM((#480),#544));

/*****
* Instances #560-#580 define the separate text strings, each of which    *
* are elements of a composite_text (which is surrounded by a blanking    *
* box), that, combined, portray the tolerance value of the              *
* dimension_callout associated with the left edge dimension depicted     *
* within the view.                                                       *
*****/

#560=CARTESIAN_POINT('',(1.155177038627,3.054218079399));
#561=DIRECTION('',(1.0,0.0));
#562=AXIS2_PLACEMENT_2D('','#560,#561);
#563=TEXT_LITERAL('','+.01',#562,'baseline left',.RIGHT.,#450);
#570=CARTESIAN_POINT('',(1.155177038627,2.819843079399));
#571=DIRECTION('',(1.0,0.0));
#572=AXIS2_PLACEMENT_2D('','#570,#571);
#573=TEXT_LITERAL('','-.03',#572,'baseline left',.RIGHT.,#450);
#574=CARTESIAN_POINT('',(1.1238771252458,2.78854549763387));
#575=DIRECTION('',(1.0,0.0));
#576=AXIS2_PLACEMENT_2D('','#574,#575);
#577=PLANAR_BOX('',0.666667,0.484525,#576);
#578=COMPOSITE_TEXT_WITH_BLANKING_BOX('',( #563,#573),#577);
#580=(ANNOTATION_OCCURRENCE(

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```

ANNOTATION_TEXT_OCCURRENCE()
DRAUGHTING_ANNOTATION_OCCURRENCE()
REPRESENTATION_ITEM('tolerance value')
GEOMETRIC_REPRESENTATION_ITEM()
STYLED_ITEM((#480),#578));

/*****
* Instance #585 defines the callout for the left
* edge dimension depicted within the view. This callout has as its
* elements the previously defined dimension value text string (#549)
* and the tolerance value composite text (#580).
*****/

#585=DRAUGHTING_CALLOUT(' ',(#549,#580));

/*****
* Instance #590 defines the primary callout relationship between the
* previously defined linear_dimension (#540) and
* callout (#585) for the left edge dimension
* depicted within the view.
*****/

#590=DIMENSION_CALLOUT_RELATIONSHIP('primary',' ',#540,#585);

/*****
* Instances #803-#808 define the dimension curve associated with the
* bottom edge dimension depicted within the view.
*****/

#803=DIRECTION(' ',(1.0,0.0));
#804=VECTOR(' ',#803,2.0);
#805=CARTESIAN_POINT(' ',(1.967609978541,1.401891094421));
#806=LINE(' ',#805,#804);
#807=TRIMMED_CURVE(' ',#806,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.,.
UNSPECIFIED.);
#808=(ANNOTATION_CURVE_OCCURRENCE()
ANNOTATION_OCCURRENCE()
DIMENSION_CURVE()
DRAUGHTING_ANNOTATION_OCCURRENCE()
REPRESENTATION_ITEM(' ')
GEOMETRIC_REPRESENTATION_ITEM()
STYLED_ITEM((#430),#807));

/*****
* Instances #809-#815 and #820-#825 define the dimension curve
* terminators (first one assigned as the origin of the dimension curve
* and the second assigned as its target) associated with the bottom
* edge dimension depicted within the view.
*****/

#809=CARTESIAN_POINT(' ',(1.967609978541,1.401891094421));
#810=DIRECTION(' ',(1.0,0.0));
#811=AXIS2_PLACEMENT_2D(' ',#809,#810);
#812=SYMBOL_TARGET(' ',#811,7.5,2.5);
#813=DEFINED_SYMBOL(' ',#440,#812);
#815=(ANNOTATION_OCCURRENCE()

```

```

    ANNOTATION_SYMBOL_OCCURRENCE( )
    DIMENSION_CURVE_TERMINATOR( .ORIGIN. )
    DRAUGHTING_ANNOTATION_OCCURRENCE( )
    REPRESENTATION_ITEM( ' ' )
    GEOMETRIC_REPRESENTATION_ITEM( )
    STYLED_ITEM( (#435), #813 )
    TERMINATOR_SYMBOL( #808 );
#820=CARTESIAN_POINT( ' ', (3.967609978541, 1.401891094421) );
#821=DIRECTION( ' ', (-1.0, 0.0) );
#822=AXIS2_PLACEMENT_2D( ' ', #820, #821 );
#823=SYMBOL_TARGET( ' ', #822, 7.5, 2.5 );
#824=DEFINED_SYMBOL( ' ', #440, #823 );
#825=(ANNOTATION_OCCURRENCE( )
    ANNOTATION_SYMBOL_OCCURRENCE( )
    DIMENSION_CURVE_TERMINATOR( .TARGET. )
    DRAUGHTING_ANNOTATION_OCCURRENCE( )
    REPRESENTATION_ITEM( ' ' )
    GEOMETRIC_REPRESENTATION_ITEM( )
    STYLED_ITEM( (#435), #824 )
    TERMINATOR_SYMBOL( #808 );

/*****
* Instances #826-#831 and #834-#839 define the projection curves      *
* associated with the bottom edge dimension depicted within the view.  *
*****/

#826=DIRECTION( ' ', (0.0, -1.0) );
#827=VECTOR( ' ', #826, 1.0 );
#828=CARTESIAN_POINT( ' ', (1.967609978541, 1.915571351931) );
#829=LINE( ' ', #828, #827 );
#830=TRIMMED_CURVE( ' ', #829, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T., .
UNSPECIFIED. );
#831=(ANNOTATION_CURVE_OCCURRENCE( )
    ANNOTATION_OCCURRENCE( )
    DRAUGHTING_ANNOTATION_OCCURRENCE( )
    PROJECTION_CURVE( )
    REPRESENTATION_ITEM( ' ' )
    GEOMETRIC_REPRESENTATION_ITEM( )
    STYLED_ITEM( (#430), #830 );
#834=DIRECTION( ' ', (0.0, -1.0) );
#835=VECTOR( ' ', #834, 1.0 );
#836=CARTESIAN_POINT( ' ', (3.967609978541, 1.915571351931) );
#837=LINE( ' ', #836, #835 );
#838=TRIMMED_CURVE( ' ', #837, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T., .
UNSPECIFIED. );
#839=(ANNOTATION_CURVE_OCCURRENCE( )
    ANNOTATION_OCCURRENCE( )
    DRAUGHTING_ANNOTATION_OCCURRENCE( )
    PROJECTION_CURVE( )
    REPRESENTATION_ITEM( ' ' )
    GEOMETRIC_REPRESENTATION_ITEM( )
    STYLED_ITEM( (#430), #838 );

/*****
* Instance #840 defines the linear dimension for the bottom edge      *
* dimension depicted within the view. This linear dimension has as its *
* elements the previously defined dimension_curve (#808), both of its  *
*****/

```

CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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* associated dimension_curve_terminators (#815 and #825), and both      *
* projection_curves (#831 and #839).                                     *
*****/

#840=(DIMENSION_CURVE_DIRECTED_CALLOUT(
  DRAUGHTING_CALLOUT((#808,#815,#825,#831,#839,#849,#855,#880))
  DRAUGHTING_ELEMENTS(
    GEOMETRIC_REPRESENTATION_ITEM(
      LINEAR_DIMENSION(
        REPRESENTATION_ITEM(''));

/*****
* Instances #841-#849 define the dimension value text string, which    *
* has a blanking box surrounding it, that is part of the                *
* dimension_callout associated with the bottom edge dimension depicted  *
* within the view. This text string is explicitly associated with the    *
* value of a geometric location dimension (#1000, by way of #1005).     *
*****/

#841=CARTESIAN_POINT('',(2.478797836195,1.323766094421));
#842=DIRECTION('',(1.0,0.0));
#843=AXIS2_PLACEMENT_2D('','#841,#842);
#844=TEXT_LITERAL_WITH_BLANKING_BOX('','2.0',#843,'baseline
left',.RIGHT.,#450,#848);
#845=CARTESIAN_POINT('',(2.447497836195,1.292466094421));
#846=DIRECTION('',(1.0,0.0));
#847=AXIS2_PLACEMENT_2D('','#845,#846);
#848=PLANAR_BOX('',0.5,0.21885,#847);
#849=(ANNOTATION_OCCURRENCE(
  ANNOTATION_TEXT_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      REPRESENTATION_ITEM('dimension value')
      GEOMETRIC_REPRESENTATION_ITEM(
        STYLED_ITEM((#480),#844));

/*****
* Instances #850-#855 define the dimension plus minus symbol that is   *
* part of the dimension callout associated with the bottom edge        *
* dimension depicted within the view.                                  *
*****/

#850=CARTESIAN_POINT('',(2.978797836195,1.323766094421));
#851=DIRECTION('',(1.0,0.0));
#852=AXIS2_PLACEMENT_2D('','#850,#851);
#853=SYMBOL_TARGET('','#852,1.0,1.0);
#854=DEFINED_SYMBOL('','#490,#853);
#855=(ANNOTATION_OCCURRENCE(
  ANNOTATION_SYMBOL_OCCURRENCE(
    DRAUGHTING_ANNOTATION_OCCURRENCE(
      REPRESENTATION_ITEM('')
      GEOMETRIC_REPRESENTATION_ITEM(
        STYLED_ITEM((#435),#854));

/*****
* Instances #856-#880 define the tolerance value text string, which    *
* has a blanking box surrounding it, that is part of the                *
* dimension_callout associated with the bottom edge dimension depicted  *

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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* within the view.
***** /

#856=CARTESIAN_POINT(' ', (3.229799502861,1.292466094421));
#857=DIRECTION(' ', (1.0,0.0));
#858=AXIS2_PLACEMENT_2D(' ', #856, #857);
#859=PLANAR_BOX(' ', 0.5, 0.21885, #858);
#860=CARTESIAN_POINT(' ', (3.261089502861,1.323766094421));
#861=DIRECTION(' ', (1.0,0.0));
#862=AXIS2_PLACEMENT_2D(' ', #860, #861);
#863=TEXT_LITERAL_WITH_BLANKING_BOX(' ', '.02', #862, 'baseline
left', .RIGHT., #450, #859);
#880=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('tolerance value')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#480), #863));

/*****
* Instance #885 defines the callout for the
* bottom edge dimension depicted within the view. This callout has as
* its elements the previously defined dimension value text string
* (#849), the dimension plus minus symbol (#855), and the tolerance
* value text string (#880).
*****/

#885=DRAUGHTING_CALLOUT(' ', (#849, #855, #880));

/*****
* Instance #890 defines the primary callout relationship between the
* previously defined linear_dimension (#840) and
* callout (#885) for the bottom edge dimension
* depicted within the view.
*****/

#890=DIMENSION_CALLOUT_RELATIONSHIP('primary', ' ', #840, #885);

/*****
* Instances #1103-#1108 define the dimension curve associated with the
* top right corner dimension depicted within the view.
*****/

#1103=DIRECTION(' ', (0.0,1.0));
#1104=VECTOR(' ', #1103, 0.5);
#1105=CARTESIAN_POINT(' ', (4.263866413585, 3.915571351931));
#1106=LINE(' ', #1105, #1104);
#1107=TRIMMED_CURVE(' ', #1106, (PARAMETER_VALUE(0.0)), (PARAMETER_VALUE(1.0)), .T.
, .UNSPECIFIED.);
#1108=(ANNOTATION_CURVE_OCCURRENCE(
    ANNOTATION_OCCURRENCE(
        DIMENSION_CURVE(
            DRAUGHTING_ANNOTATION_OCCURRENCE(
                REPRESENTATION_ITEM(' ')
                GEOMETRIC_REPRESENTATION_ITEM(
                    STYLED_ITEM((#430), #1107));

```

```

/*****
* Instances #1109-#1115 and #1120-#1125 define the dimension curve
* terminators (first one assigned as the origin of the dimension curve
* and the second assigned as its target) associated with the top right
* corner dimension depicted within the view.
*****/

#1109=CARTESIAN_POINT('',(4.263866413585,3.915571351931));
#1110=DIRECTION('',(1.0,0.0));
#1111=AXIS2_PLACEMENT_2D('',#1109,#1110);
#1112=SYMBOL_TARGET('',#1111,7.5,2.5);
#1113=DEFINED_SYMBOL('',#440,#1112);
#1115=(ANNOTATION_OCCURRENCE(
    ANNOTATION_SYMBOL_OCCURRENCE(
        DIMENSION_CURVE_TERMINATOR(.ORIGIN.)
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#435),#1113)
                TERMINATOR_SYMBOL(#1108));
#1120=CARTESIAN_POINT('',(4.263866413585,3.415571351931));
#1121=DIRECTION('',(1.0,0.0));
#1122=AXIS2_PLACEMENT_2D('',#1120,#1121);
#1123=SYMBOL_TARGET('',#1122,7.5,2.5);
#1124=DEFINED_SYMBOL('',#440,#1123);
#1125=(ANNOTATION_OCCURRENCE(
    ANNOTATION_SYMBOL_OCCURRENCE(
        DIMENSION_CURVE_TERMINATOR(.TARGET.)
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#435),#1124)
                TERMINATOR_SYMBOL(#1108));

/*****
* Instances #1126-#1131 and #1132-#1137 define the projection curves
* associated with the top right corner dimension depicted within the
* view.
*****/

#1126=DIRECTION('',(1.0,0.0));
#1127=VECTOR('',#1126,1.0);
#1128=CARTESIAN_POINT('',(3.467609978541,3.915571351931));
#1129=LINE('',#1128,#1127);
#1130=TRIMMED_CURVE('',#1129,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.
,.UNSPECIFIED.);
#1131=(ANNOTATION_CURVE_OCCURRENCE(
    ANNOTATION_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            PROJECTION_CURVE(
                REPRESENTATION_ITEM('')
                GEOMETRIC_REPRESENTATION_ITEM(
                    STYLED_ITEM((#430),#1130));
#1132=DIRECTION('',(1.0,0.0));
#1133=VECTOR('',#1132,0.5);
#1134=CARTESIAN_POINT('',(3.967609978541,3.415571351931));
#1135=LINE('',#1134,#1133);

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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#1136=TRIMMED_CURVE(' ',#1135,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.
,.UNSPECIFIED.);
#1137=(ANNOTATION_CURVE_OCCURRENCE()
  ANNOTATION_OCCURRENCE()
  DRAUGHTING_ANNOTATION_OCCURRENCE()
  PROJECTION_CURVE()
  REPRESENTATION_ITEM(' ')
  GEOMETRIC_REPRESENTATION_ITEM()
  STYLED_ITEM((#430),#1136));

/*****
 * Instances #1140-#1159 define the leader curve, a composite curve      *
 * made up of two segments, associated with the top right corner        *
 * dimension depicted within the view.                                  *
 *****/

#1140=DIRECTION(' ',(0.0,-1.0));
#1141=VECTOR(' ',#1140,0.3);
#1142=CARTESIAN_POINT(' ',(4.263866413585,3.415571351931));
#1143=LINE(' ',#1142,#1141);
#1144=TRIMMED_CURVE(' ',#1143,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.
,.UNSPECIFIED.);
#1145=COMPOSITE_CURVE_SEGMENT(.CONTINUOUS.,.F.,#1144);
#1146=DIRECTION(' ',(1.0,0.0));
#1147=VECTOR(' ',#1146,0.3);
#1148=CARTESIAN_POINT(' ',(4.263866413585,3.115571351931));
#1149=LINE(' ',#1148,#1147);
#1150=TRIMMED_CURVE(' ',#1149,(PARAMETER_VALUE(0.0)),(PARAMETER_VALUE(1.0)),.T.
,.UNSPECIFIED.);
#1151=COMPOSITE_CURVE_SEGMENT(.CONTINUOUS.,.F.,#1150);
#1155=COMPOSITE_CURVE(' ',(#1145,#1151),.F.);
#1159=(ANNOTATION_CURVE_OCCURRENCE()
  ANNOTATION_OCCURRENCE()
  DRAUGHTING_ANNOTATION_OCCURRENCE()
  LEADER_CURVE()
  REPRESENTATION_ITEM(' ')
  GEOMETRIC_REPRESENTATION_ITEM()
  STYLED_ITEM((#430),#1155));

/*****
 * Instance #1170 defines the combination of a leader directed          *
 * and linear dimension for the top right corner dimension depicted     *
 * within the view. This dimension has as its elements the previously   *
 * defined dimension_curve (#1108), both of its associated               *
 * dimension_curve_terminators (#1115 and #1125), both projection      *
 * curves (#1131 and #1137), and the leader curve (1159).              *
 *****/

#1170=(DRAUGHTING_CALLOUT((#1108,#1115,#1125,#1131,#1137,#1159,#1180))
  DRAUGHTING_ELEMENTS()
  GEOMETRIC_REPRESENTATION_ITEM()
  LEADER_DIRECTED_CALLOUT()
  LEADER_DIRECTED_DIMENSION()
  LINEAR_DIMENSION()
  DIMENSION_CURVE_DIRECTED_CALLOUT()
  REPRESENTATION_ITEM(' '));

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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/*****
 * Instances #1176-#1180 define the dimension value text string that
 * makes up the dimension_callout associated with the top right corner
 * dimension depicted within the view. This text string is explicitly
 * associated with the value of a geometric location dimension (#1300,
 * by way of #1305).
 *****/

#1176=CARTESIAN_POINT('',(4.138866413585,3.587446351931));
#1177=DIRECTION('',(1.0,0.0));
#1178=AXIS2_PLACEMENT_2D('',#1176,#1177);
#1179=TEXT_LITERAL('','2.0',#1178,'baseline left',.RIGHT.,#450);
#1180=(ANNOTATION_OCCURRENCE(
    ANNOTATION_TEXT_OCCURRENCE(
        DRAUGHTING_ANNOTATION_OCCURRENCE(
            REPRESENTATION_ITEM('dimension value')
            GEOMETRIC_REPRESENTATION_ITEM(
                STYLED_ITEM((#480),#1179));

/*****
 * Instance #1185 defines the callout for the
 * top right corner dimension depicted within the view. This callout
 * has as its elements only the previously defined dimension value text
 * string (#1180).
 *****/

#1185=DRAUGHTING_CALLOUT('',(#1180));

/*****
 * Instance #1190 defines the primary callout relationship between the
 * previously defined leader_directed_dimension (#1170) and
 * callout (#1185) for the top right corner
 * dimension depicted within the view.
 *****/

#1190=DIMENSION_CALLOUT_RELATIONSHIP('primary','',#1170,#1185);

/*****
 * Instances #1524-#1532 define draughting_model to be projected onto
 * the view. This model contains as its items an origin, a mapped_item
 * (which has as its representation the advanced brep model defined at
 * the beginning of this file), and a styled_item (whose associated
 * curve_style provides the appearance characteristics for the advanced
 * brep model).
 *****/

#1524=DIRECTION('',(0.0,0.0,1.0));
#1525=CARTESIAN_POINT('',(0.0,0.0,0.0));
#1526=DIRECTION('',(0.0,0.0,1.0));
#1527=DIRECTION('',(1.0,0.0,0.0));
#1528=AXIS2_PLACEMENT_3D('',#1525,#1526,#1527);
#1529=REPRESENTATION_MAP(#1528,#274);
#1530=MAPPED_ITEM('',#1529,#1528);
#1531=STYLED_ITEM('',( #430),#1530);
#1532=DRAUGHTING_MODEL('DRAUGHTING_MODEL_1',(#1543,#1531,#1530,#1528),#20);
#1533=CARTESIAN_POINT('',(0.E0,0.E0,1.E2));

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

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/*****
 * Instances #1534-#1537 define the area of the draughting_model (its
 * view window) to be projected onto the view.
 *****/

#1534=CARTESIAN_POINT(' ',(-1.5,-1.5,0.));
#1535=DIRECTION(' ',(1.0,0.0,0.0));
#1536=AXIS2_PLACEMENT_3D(' ',#1534,#1524,#1535);
#1537=PLANAR_BOX(' ',3.0,3.0,#1536);

/*****
 * Instance #1538 defines the view projection parameters.
 *****/

#1538=VIEW_VOLUME(.PARALLEL.,#1533,0.0,10.0,.T.,10.0,.F.,.T.,#1537);

/*****
 * Instances #1539-#1542 define the view reference coordinate system.
 *****/

#1539=CARTESIAN_POINT(' ',(1.0,0.0,1.0));
#1540=DIRECTION(' ',(0.0,-1.0,0.0));
#1541=DIRECTION(' ',(1.0,0.0,0.0));
#1542=AXIS2_PLACEMENT_3D(' ',#1539,#1540,#1541);

/*****
 * Instances #1543-#1543 link the view reference coordinate system and
 * the view projection parameters. This link also includes the
 * indication that hidden line removal will be performed within the
 * projection.
 *****/

#1543=CAMERA_MODEL_D3_WITH_HLHSR(' ',#1542,#1538,.T.);
#1544=CAMERA_USAGE(#1543,#1532);

/*****
 * Instances #1545-#1548 define the projection area for the view.
 *****/

#1545=CARTESIAN_POINT(' ',(0.0,0.0));
#1546=DIRECTION(' ',(1.0,0.0));
#1547=AXIS2_PLACEMENT_2D(' ',#1545,#1546);
#1548=PLANAR_BOX(' ',5.0,5.0,#1547);

/*****
 * Instances #1550-#1552 define the presentation view, which has as its
 * only elements the results of the view projection and the view origin.
 *****/

#1550=(GEOMETRIC_REPRESENTATION_CONTEXT(2)
      GLOBAL_UNIT_ASSIGNED_CONTEXT((#13,#17))
      REPRESENTATION_CONTEXT('2D coordinate system context','2D'));
#1551=(CAMERA_IMAGE_3D_WITH_SCALE()
      CAMERA_IMAGE()
      MAPPED_ITEM(#1544,#1548)
      REPRESENTATION_ITEM(' ')
      GEOMETRIC_REPRESENTATION_ITEM());

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CAx Implementor Forum

Rec. Pract. for model viewing, basic drawing structure and dimensions Oct. 05th, 99

```
#1552=PRESENTATION_VIEW('Front
view',(#540,#585,#840,#885,#1170,#1185,#1547,#1551),#1550);

/*****
 * Instances #1555-#1557 define the target location (0,0) on the sheet *
 * for the placement of the view. *
 *****/

#1555=CARTESIAN_POINT('',(0.0,0.0));
#1556=DIRECTION('',(1.0,0.0));
#1557=AXIS2_PLACEMENT_2D('#1555,#1556);

/*****
 * Instances #1610-#1620 map the view onto the sheet, with the mapping *
 * origin defined as (0,0) within the view being mapped onto (0,0) *
 * within the sheet coordinate system. *
 *****/

#1610=REPRESENTATION_MAP(#1547,#1552);
#1620=MAPPED_ITEM('#1610,#1557);

/*****
 * Instance #1630 defines the drawing sheet that contains the view. *
 *****/

#1630=DRAWING_SHEET_REVISION('Sheet 1',(#1557,#1620,#1634),#1550,'-');

/*****
 * Instances #1631-#1635 define the sheet size for the drawing sheet. *
 *****/

#1631=CARTESIAN_POINT('',(0.0,0.0));
#1632=DIRECTION('',(1.0,0.0));
#1633=AXIS2_PLACEMENT_2D('#1631,#1632);
#1634=PLANAR_BOX('#1633,10.0,10.0,#1633);
#1635=PRESENTATION_SIZE(#1630,#1634);

/*****
 * Instances #1637-#1660 define the drawing revision, its title, its *
 * association to the product definition it presents (#286), and the *
 * link between the drawing revision and the sheet previously defined. *
 *****/

#1637=DRAWING_DEFINITION('Drawing of product_0',$);
#1640=DRAWING_REVISION('A',#1637,$);
#1645=DRAUGHTING_TITLE((#1640),'English','Associative dimension test part');
#1647=APPLIED_PRESENTED_ITEM((#286));
#1650=PRESENTED_ITEM_REPRESENTATION(#1640,#1647);
#1660=DRAWING_SHEET_REVISION_USAGE(#1630,#1640,'1');

ENDSEC;
END-ISO-10303-21;
```

5 Known issues

5.1 *Restriction of items of a drawing_sheet_revision is too limited*

A global rule that defines all the constraints to be applied to entities supporting basic drawing organisation include one (*restrict_drawing.wr5*) that limits the type of items related to a drawing sheet. This list currently includes only **styled_items** and **mapped_items**. This list should be expanded to include **axis2_placement_2d**, as well as **planar_box**. The **axis2_placement_2d** will be the origin of the drawing sheet, while the **planar_box** is the item used to define the size of the drawing sheet.

5.2 *Current disallowance to combine types of dimensions*

There is a constraint defined within *dimension_callout_relationship* (*wr2*) that attempts to insure that the relating attribute of the relationship references a type of dimension (e.g., *linear_dimension*, *ordinate_dimension*, *leader_directed_dimension*). However, a dimension can be presented as a combination of multiple types of dimensions. An example of this can be seen in the view within *Figure 12*, where the top right-hand dimension is presented as a combination of a *leader_directed_dimension* as well as a *linear_dimension*. This rule should change the cardinality from '=1' to '>=1'.

5.3 *Wrongly coded EXPRESS rules*

It was found that the EXPRESS for the following rules:

draughting_annotation_occurrence.wr7 defined in AIC 504 (Draughting Annotation) - if the **draughting_annotation_occurrence** is an **annotation_text_occurrence**, the item shall be either **composite_text** or a **text_literal**.

structured_dimension_callout.wr6 defined in AIC 506 (Draughting Elements) – if the contents of the **structured_dimension_callout** contain an **annotation_text_occurrence** that is 'prefix text', then the **structured_dimension_callout** shall participate as the dimension callout in a **dimension_callout_component_relationship** with name of 'prefix'.

The EXPRESS of the above rule is coded in a way that it requires an **annotation_text_occurrence** with *name* 'prefix text' in a **structured_dimension_callout**.

5.4 *Assignment of values to geometric dimensions in AP214*

The mapping of AP214 DIS takes an approach that assigns a representation of the dimension values to dimensions via **property_definition** and **property_definition_representation**. This is conflicting with the AP202 approach and the mapping of the requirement to associate the presentation of the value in a callout with its representation. Thus the AP202 mapping has been selected here.

5.5 *Contradiction in the definition of view_volume in Part 46*

The Part 46 definition of **view_volume** indicates that it (and consequently its *.projection_point* and *.view_window* attributes) is defined in a view reference system. This concept is consistent with computer graphics practice and standards, like PHIGS. However, if one looks at the EXPRESS definition of **view_volume**, that is not how STEP has defined it. As currently structured, **view_volume** is defined in the same coordinate system of a *camera_model*. This is not correct. The coordinate system of the representation from which a projection will be taken should be separate from the view reference coordinate system.

One proposed solution is to create a **shape_representation** containing the **view_volume** and use a **mapped_item** to define how to transform from the coordinate system of the representation from which a projection is taken to the view reference system. Further discussions will be required to solve this issue.

5.6 AP 203 Global Rules

The schema combining the associative dimension extension and AP 203 requires the removal of the following rules:

- RULE application_context_requires_ap_definition FOR (application_context, application_protocol_definition);
- RULE subtype_mandatory_representation FOR (representation);
- RULE subtype_mandatory_shape_representation FOR (shape_representation);

6 Availability of implementation schemas

6.1 AP214

The AP214 DIS schema supports the implementation of the capabilities as described. The schema can be retrieved from www.cax-if.org.

6.2 AP203 with modular extensions

The short form for the associative dimensions extension, its corresponding long form, and the long form schema combining AP 203 and the associative dimension can be accessed via the WWW from: www.cax-if.org